DESCRIPTION

The *Journal of Medical Imaging and Radiation Sciences (JMIRS)* is the official bilingual, peer-reviewed journal of the Canadian Association of Medical Radiation Technologists (CAMRT) and international associations across four continents, including the Hong Kong Radiographers Association (HKRA); Portuguese Association of Nuclear Medicine Technologists (APTMN); Alliance In Nuclear Scintigraphy (RAINS) in Australia; and Society of Medical Radiographers - Malta.

Our publications represent rigorous methodology mandated by international standardized guidelines, providing point-of-care clinicians, managers, educators and trainees with research articles, systematic reviews, clinical and education perspectives and commentaries. We aim to influence practice within the rapidly evolving fields of radiological, nuclear medicine, MRI and ultrasound technologists and radiation therapists, grounded in our circular tagline, "research informing practice - informing research".

JMIRS provides an essential platform for Canadian and international medical radiation technologists and therapists to publish and discover their own body of knowledge to define and inform their practice, enabling translation to a global audience.

The publication is developed under the direction of the JMIRS Editorial Board. The JMIRS is indexed in MEDLINE (PubMed).

Please see our Guide for Authors for information on article submission. If you require any further information or help, please contact the Managing Editor: editor@camrt.ca.

ABSTRACTING AND INDEXING

PubMed/Medline

EDITORIAL BOARD

*Editor-in-Chief*
Lisa Di Prospero, Sunnybrook Health Sciences Centre, Toronto, Ontario, Canada

*Deputy Editor*
Geoff Currie, Charles Sturt University Discipline of Medical Radiation Science, Wagga Wagga, Australia
Managing Editor
Carly McCuaig, Canadian Association of Medical Radiation Technologists, Ottawa, Ontario, Canada

Associate Editors
Crispen Chamunyonga, Queensland University of Technology, Brisbane, Australia
Lee Chin, Sunnybrook Health Sciences Centre, Toronto, Ontario, Canada
Holly Chun, University Health Network, Toronto, Ontario, Canada
Karen Coleman, Hutt Valley District Health Board, Lower Hutt, New Zealand
Laura D’Alimonte, Sunnybrook Health Sciences Centre, Toronto, Ontario, Canada
Cynthia Eccles, The Christie NHS Foundation Trust, Manchester, United Kingdom
Rhys Fitzgerald, Icon Group, Brisbane, Queensland, Australia
Johnathan Hewis, Charles Sturt University, Port Macquarie, Australia
Christopher WK Lai, Singapore Institute of Technology, Singapore, Singapore, Southeast Asia
Karen Coleman, Hutt Valley District Health Board, Lower Hutt, New Zealand
Laura D’Alimonte, Sunnybrook Health Sciences Centre, Toronto, Ontario, Canada
Cynthia Eccles, The Christie NHS Foundation Trust, Manchester, United Kingdom
Rhys Fitzgerald, Icon Group, Brisbane, Queensland, Australia
Johnathan Hewis, Charles Sturt University, Port Macquarie, Australia
Christopher WK Lai, Singapore Institute of Technology, Singapore, Singapore, Southeast Asia

Editorial Board
Jessy Abed, Princess Margaret Hospital Cancer Centre, Toronto, Ontario, Canada
Dale Bailey, Royal North Shore Hospital, New South Wales, Australia
Stewart Bushong, Baylor College of Medicine, Houston, Texas, United States
Jessica Church, UNIVERSITY OF TEXAS MD ANDERSON CANCER CENTER, Houston, Texas, United States
Mary Coffey, University of Dublin Trinity College, Dublin, Ireland
Elizabeth Forde, University of Dublin Trinity College, Dublin, Ireland
Rob Gilbert, Dalhousie University, Halifax, Nova Scotia, Canada
David Gilmore, Massachusetts College of Pharmacy and Health Sciences, Boston, Massachusetts, United States
Amy Heath, University of Wisconsin Hospitals and Clinics, Madison, Wisconsin, United States
Sophie Huang, University Health Network, Toronto, Ontario, Canada
Sofia Johansen, Oslo Metropolitan University, Oslo, Norway
Winnie Li, Princess Margaret Hospital Cancer Centre, Toronto, Ontario, Canada
Brian Liszewski, University of Toronto, Toronto, Ontario, Canada
Sara Morassaei, Sunnybrook Health Sciences Centre, Toronto, Ontario, Canada
Andrew Murphy, BC Children’s Hospital, Vancouver, British Columbia, Canada
Suresh Rana, Miami Cancer Institute, Miami, Florida, United States
Pauline Reeves, Sheffield Hallam University, Sheffield, United Kingdom
Eric Rohren, Baylor College of Medicine, Houston, Texas, United States
Kieng Tan, Princess Margaret Hospital Cancer Centre, Toronto, Ontario, Canada
Lionel S. Zuckier, University of Ottawa, Ottawa, Ontario, Canada

Editor Emeritus
John French, British Columbia Cancer Agency, Vancouver, British Columbia, Canada

Ex-Officio Member
Chris Topham, Canadian Association of Medical Radiation Technologists, Ottawa, Ontario, Canada
INTRODUCTION
The editorial board of the *Journal of Medical Imaging and Radiation Sciences* (JMIRS) welcomes the submission of manuscripts devoted to all fields of diagnostic imaging and radiation therapies, including nuclear medicine, positron emission tomography, radiation therapy, magnetic resonance, radiological technology / radiography, mammography, interventional radiography, dosimetry, computed tomography, ultrasound / echocardiography, molecular imaging, hybrid technologies, pharmacology, education (patient and MRS student), research, advocacy, patient care and medical ethics. The JMIRS disseminates recent research, new technology and techniques, professional practices and other relevant knowledge that helps medical radiation technologists advance quality and innovation in patient care, service / product delivery, and outcomes.

While the JMIRS is the official journal of the CAMRT, it is widely read internationally in the USA, Europe, Australia, New Zealand, Asia, Africa and South America. The JMIRS is indexed in MEDLINE (PubMed).

Questions? Contact us at editor@camrt.ca

**Article Types and Guidelines**

- **Original full length research papers** (Qualitative, Quantitative, Randomized trial or Observational research)
- Systematic Review articles
- Continuing Medical Education (CME) articles
- Educational or Clinical Perspectives
- Teaching Cases
- Commentaries
- Letters to the Editor

**Original Full Length Research Papers**: A substantial piece of academic writing that represents the original and independent research of the authors using planned retrospective or prospective methods to acquire and analyze data in a logical and coherent manner to address a pre-determined research question or hypothesis. Please note that you will be asked to identify whether your paper is qualitative or quantitative (or a combination) upon submission so we can ensure the appropriate peer review experts are assigned. On submission, you will be asked to upload:

- **Disclosure** - Available at [http://www.icmje.org/conflicts-of-interest/](http://www.icmje.org/conflicts-of-interest/), this form must be completed by each author and submitted with the manuscript.
- **Title written in a structured format & Cover Letter** - See Manuscript Preparation section below for what should be included in these documents. **Structured abstract** - The abstract must be written in a structured format with the following headings: Introduction/Background, Methods, Results, Discussion, Conclusion. **Manuscript** (blinded) - Please add line numbers to your document. Standard scientific article format (introduction/background, method, results, discussion, and conclusion). Remove all author-identifying information. Institution and author names within the text should be substituted with generic phrases, such as "the institute" or "the author(s)." Where appropriate, authors may also substitute generic characters, such as "XXXX." Body of text should be between 2,500-3,000 words (word limit not enforced, if papers are too long this will be addressed in peer review). **Checklist** - If you are submitting a paper reporting randomized trials, you will be asked to upload the completed 25-item CONSORT checklist along with your manuscript submission ([http://www.consort-statement.org/](http://www.consort-statement.org/)). If you are submitting a paper reporting observational research, you will be asked to upload the completed STROBE checklist for cohort, case-control, and/or cross-sectional studies ([https://strobe-statement.org/index.php?id=available-checklists](https://strobe-statement.org/index.php?id=available-checklists)). If you are submitting a qualitative paper, you will be asked to upload the completed COREQ checklist: [http://cdn.elsevier.com/promis_misc/ISSM_COREQ_Checklist.pdf](http://cdn.elsevier.com/promis_misc/ISSM_COREQ_Checklist.pdf)

- **Taxonomy & Keywords** - Please select at least 2 taxonomy terms; these are not specific to our profession, but are general medical terms. Keywords can be chosen to reflect the specific content.
- **Footnotes section** - See Manuscript Preparation section below. This template covers Acknowledgments, Contributors, Funding, Competing interests and Ethical approval.
- **References** - These must be listed in numerical order as they appear in the text. They only need to be complete and correct - once manuscripts are accepted, references will be formatted according to house style (see Manuscript Preparation below for more detail).

**Systematic Review articles**: A systematic review is more than a summary of the literature. A systematic review uses structured and systematic methods to source, assess, include, exclude and critically analyze the depth and breadth of current literature on a given topic. In doing so, it
provides a rigorous approach to generating new knowledge. A systematic review should provide appraisal and synthesis against primary published literature that has been identified through a rigorous, non-biased strategy that is clearly documented as part of the manuscript. Variations on the traditional systematic review could include cost effectiveness analyses and meta analyses. Per PRISMA guidelines, systematic reviews and meta-analyses must be identified as such in the article title. *The JMIRS requires that all reviews be registered in PROSPERO in advance of data extraction. On submission you will be asked to upload:

Disclosure - Available at http://www.icmje.org/conflicts-of-interest/, this form must be completed by each author and submitted with the manuscript.Title Page & Cover Letter - See Manuscript Preparation section below for what should be included in these documents.Structured abstract - The abstract must be written in a structured format with the following headings: Introduction/Background, Methods, Results, Discussion, Conclusion.Manuscript (blinded) - Please add line numbers to your document. Standard scientific article format (introduction, method, results, discussion, and conclusion). Remove all author-identifying information. Institution and author names within the text should be substituted with generic phrases, such as "the institute" or "the author(s)." Where appropriate, authors may also substitute generic characters, such as "XXXX." Body of text should be between 2,500-3,000 words (word limit not strictly enforced, if papers are too long this will be addressed in peer review).Checklist - PRISMA checklist (http://www.prisma-statement.org/)Taxonomy & Keywords - Please select at least 2 taxonomy terms; these are not specific to our profession, but are general medical terms. Keywords can be chosen to reflect the specific content.Footnotes section - See Manuscript Preparation section below. This template covers Acknowledgments, Contributors, Funding, Competing interests and Ethical approval.References - These must be listed in numerical order as they appear in the text. They only need to be complete and correct - once manuscripts are accepted, references will for formatted according to house style (see Manuscript Preparation below for more detail).Figures and Tables - Not to exceed 6 total (includes both tables and figures). Tables summarizing literature used in the systematic review should be included as appendix material.

Continuing Medical Education (CME) articles: A CME article typically summarizes recent research on a topic without making an original contribution to the body of knowledge. This type of article is generally broad in scope and describes all aspects of a health care topic relevant to medical radiation technologists. The CME article is designed to contribute to the professional development of medical radiation technologists. These articles allow CAMRT members and journal subscribers to earn continuing education credits and keep up with advances in the profession. They are typically written in the form a review article (without the prescriptive systematic approach, although rigor and structure is crucial for an unbiased article) and maintain an informative or education perspective. These could relate to the full gamut of medical radiation science clinical practice and all fields identified in the introduction served by JMIRS. On submission, you will be asked to upload:

Disclosure - Available at http://www.icmje.org/conflicts-of-interest/, this form must be completed by each author and submitted with the manuscript.Title Page & Cover Letter - See Manuscript Preparation section below for what should be included in these documents.Unstructured abstract - with 3-4 learning objectives using Bloom's Taxonomy (https://tips.uark.edu/using-blooms-taxonomy/).Manuscript - Please add line numbers to your document. Body of text can be between 3,000-5,000 words (word limit not strictly enforced, if papers are too long this will be addressed in peer review).Quiz Questions and Answers - 10 multiple choice questions should accompany the article. Each question requires: A stem - a question, statement or incomplete sentence that immediately precedes a list of options or alternatives; It must address a specific issue requiring an answer or the completion of a statement; One correct answer; Three plausible misleads or incorrect answers. Answers should be highlighted or included in a legend.Taxonomy & Keywords - Please select at least 2 taxonomy terms; these are not specific to our profession, but are general medical terms. Keywords can be chosen to reflect the specific content.Footnotes section - See Manuscript Preparation section below. This template covers Acknowledgments, Contributors, Funding, Competing interests and Ethical approval.References - These must be listed in numerical order as they appear in the text. They only need to be complete and correct - once manuscripts are accepted, references will for formatted according to house style (see Manuscript Preparation below for more detail).Figures and Tables - Not to exceed 6 total (includes both tables and figures). Tables summarizing literature used in the systematic review should be included as appendix material.Editorial Manager note - Select "Exam" for this article type.
**Educational or Clinical Perspectives**: Educational undergraduate or graduate level highlight innovative and useful approaches to medical radiation sciences education and evaluation of educational methods, either at the undergraduate or graduate level. Clinical Perspectives highlight key aspects of clinical practice and approaches to improve the same. This could include, without being limited to, process/protocol improvement, quality improvement, innovative initiative, practice change, emerging advancement and/or process change. These are similar in format to a research paper, but the reporting of results and analysis is less vigorous as these are a faster way of disseminating what is happening on the front lines of clinical practice, and thus do not always fall neatly into traditional research reporting. Quality improvement brings evidence into practice, while research introduces new knowledge. Note that no results are required to submit in this format, and these submissions are generally REB exempt. On submission, you will be asked to upload:

**Disclosure** - Available at [http://www.icmje.org/conflicts-of-interest/](http://www.icmje.org/conflicts-of-interest/), this form must be completed by each author and submitted with the manuscript. **Title Page & Cover Letter** - See Manuscript Preparation section below for what should be included in these documents. **Structured abstract** - The abstract must be written in a structured format with the following headings: Introduction/Background, Methods, Results, Discussion, Conclusion. **Manuscript** - Please add line numbers to your document. Body of text should be between 2,500-3,000 words (word limit not strictly enforced, if papers are too long this will be addressed in peer review). **Taxonomy & Keywords** - Please select at least 2 taxonomy terms; these are not specific to our profession, but are general medical terms. Keywords can be chosen to reflect the specific content. **Footnotes section** - See Manuscript Preparation section below. This template covers Acknowledgments, Contributors, Funding, Competing interests and Ethical approval. **Editorial Manager note** - Select "Short Communication" for this article type, and indicate Educational or Clinical Perspective in your cover letter. **References** - These must be listed in numerical order as they appear in the text. They only need to be complete and correct - once manuscripts are accepted, references will for formatted according to house style (see Manuscript Preparation below for more detail). **Figures and Tables** - Not to exceed 4 total (includes both tables and figures).

**Teaching Cases**: These papers are not simply an interesting case. They represent interesting cases that provide key teaching points and, thus, generation of new knowledge. Cases do not need to be rare, but present some insights that may not be typical in clinical practice. This might involve incidental or anomalous findings, enhanced outcomes with hybrid imaging or inter-professional interactions, unexpected outcomes (treatment or diagnosis), enhanced outcomes through personalized medicine strategies, unique approaches to overcome barriers for an outcome (e.g. cultural barriers), population specific manifestation (e.g.. Indigenous population). Cases that demonstrate an integration of modalities and disciplines are encouraged. Strong learning objectives adopting an integrated approach to the MRS disciplines are ideal. Articles need to clearly define the case and its outcomes, and link that through discussion and evidence to provide clear connections to the importance to clinical practice or "clinical pearls / teaching points". On submission, you will be asked to upload:

**Disclosure** - Available at [http://www.icmje.org/conflicts-of-interest/](http://www.icmje.org/conflicts-of-interest/), this form must be completed by each author and submitted with the manuscript. **Title Page & Cover Letter** - See Manuscript Preparation section below for what should be included in these documents. **Structured abstract** - e.g. Introduction; Case and outcomes, Discussion, Conclusion. **Manuscript (blinded)** - Please add line numbers to your document. Standard scientific article format (Intro/Background; Case and outcomes, Discussion and teaching points, recommendations and clinical pearls, Conclusion). Remove all author-identifying information. Institution and author names within the text should be substituted with generic phrases, such as "the institute" or "the author(s)." Where appropriate, authors may also substitute generic characters, such as "XXXX." Body of text should be between 800-1,000 words (word limit not strictly enforced, if papers are too long this will be addressed in peer review). **Taxonomy & Keywords** - Please select at least 2 taxonomy terms; these are not specific to our profession, but are general medical terms. Keywords can be chosen to reflect the specific content. **Footnotes section** - See Manuscript Preparation section below. This template covers Acknowledgments, Contributors, Funding, Competing interests and Ethical approval. **Checklist** - CARE checklist ([http://www.care-statement.org/resources/checklist](http://www.care-statement.org/resources/checklist)). **References** - These must be listed in numerical order as they appear in the text. They only need to be complete and correct - once manuscripts are accepted, references will for formatted according to house style. **Figures and Tables** - Not to exceed 6 total (includes both tables and figures). **Editorial Manager note** - Select “Case Report" for this article type.
All of the above styles undergo rigorous peer review process as editorial style commentary, issues below. The following submission styles have variable peer review process as described for each.

**Commentaries (Uninvited or Invited):** Commentary papers are short, scholarly writings (with no structured abstract) that comment on an issue and/or perspective. Note that these will not be reviewed through the traditional peer review process, but rather reviewed by the Editor-in-Chief and Deputy Editor for accuracy, appropriateness and suitability with our audience. This type of article includes the traditional editorial style commentary, issues / controversies style debate. Commentaries (invited or uninvited) typically focus on a key issue and perspective. Issues / controversies are generally invited but could be unsolicited submissions where a topic is scrutinized and debated from more than one perspective. On submission, you will be asked to upload:

**Disclosure** - Available at [http://www.icmje.org/conflicts-of-interest/](http://www.icmje.org/conflicts-of-interest/), this form must be completed by each author and submitted with the manuscript **Title Page & Cover Letter** - See Manuscript Preparation section below for what should be included in these documents. **Unstructured abstract** or brief summary to provide context. **Manuscript** Please add line numbers to your document. Body of text should be between 1,500-2,000 words for a commentary (word limit not strictly enforced, if papers are too long this will be addressed in peer review) and 2500-3000 for issue/controversy style article. **Taxonomy & Keywords** - Please select at least 2 taxonomy terms; these are not specific to our profession, but are general medical terms. Keywords can be chosen to reflect the specific content. **Footnotes section** - See Manuscript Preparation section below. This template covers Acknowledgments, Contributors, Funding, Competing interests and Ethical approval. **References** - These must be listed in numerical order as they appear in the text. They only need to be complete and correct - once manuscripts are accepted, references will for formatted according to house style (see Manuscript Preparation below for more detail). **Figures and Tables** - Not to exceed 4 total (includes both tables and figures). Tables summarizing literature used in the systematic review should be included as appendix material.

**Letters to the Editor:** This is correspondence typically pertaining to a recent or concurrently published article within JMIRS. Usually comments and critiques will be passed on to the authors of the original article; however, this will not determine the outcome of review is also encouraged publication. General correspondence to the Editor regarding any aspect of medical radiation sciences or the JMIRS is also encouraged 500 words or less are preferred, and letters addressing a specific article must reach us within 2 months of publication of the original item.

**Peer review**
This journal operates a double blind review process. See here for our peer review policy: [http://www.jmirs.org/content/reviewpolicy](http://www.jmirs.org/content/reviewpolicy).

**Editorial Decisions**
Once the peer review process is complete, each manuscript will receive one of the following decisions:

**Reject without review:** The manuscript was not selected for peer manuscript was not selected for peer review.

**Reject:** The manuscript was rejected by reviewers. Many factors contribute to rejection, including but not limited to the importance of the research, the originality of the work, the quality of the study, or the priority of the work to the JMIRS and its readership. **Major Revision:** A number of issues were raised in peer review that need to be addressed for the manuscript to be reconsidered. If the author wishes to address the issues, the manuscript can be revised and resubmitted. **Minor Revision:** The editors and reviewers found the manuscript potentially acceptable for publication provided minor adjustments are made. **Accept:** The manuscript has been selected for publication. Additional information will be provided regarding the production process.

**BEFORE YOU BEGIN**

**Patient Consent**
Studies on patients or volunteers require ethics committee approval and informed consent which should be documented in your paper. Patients have a right to privacy. Therefore identifying information, including patients images, names, initials, or hospital numbers, should not be included in videos, recordings, written descriptions, photographs, and pedigrees unless the information is essential for scientific purposes and you have obtained written informed consent for publication in print and electronic form from the patient (or parent, guardian or next of kin where applicable). If such
consent is made subject to any conditions, Elsevier must be made aware of all such conditions. Written consents must be provided to Elsevier on request. Even where consent has been given, identifying details should be omitted if they are not essential. If identifying characteristics are altered to protect anonymity, such as in genetic pedigrees, authors should provide assurance that alterations do not distort scientific meaning and editors should so note. If such consent has not been obtained, personal details of patients included in any part of the paper and in any supplementary materials (including all illustrations and videos) must be removed before submission.

**Conflict of Interest**

**Conflict of Interest for Authors:** The potential for conflict of interest exists when an author, the author's institution, reviewer or editor has financial relationships (such as employment, consultancy, stock ownership, honoraria and paid expert testimony) that interest should be disclosed in the appropriately influence his or her actions. Other forms of conflict of interest include personal, academic and intellectual issues. Any potential conflict of interest should be disclosed in the cover letter and in the authorship forms (http://www.icmje.org/conflicts-of-interest/). Sources of outside support for research, including funding, equipment, and drugs, must be named in the cover letter. If an author has no conflicts of interest to declare, this must be explicitly stated. Authors should contact the Editorial Office with questions or concerns, but should err on the side of inclusion when in doubt. Manuscripts that fail to include the complete statements of all authors upon submission will be returned to the corresponding author and will delay the processing and evaluation of the manuscript.

**Conflict of Interest for the Journal:** The JMIRS adheres to the policy on conflict of interest from the International Committee of Medical Journal Editors. If, in the editor's judgment, the information disclosed by the author represents a potential conflict of interest, it may be made available to reviewers and may be published at the editor's discretion; authors will be informed of the decision before publication. The editor will discuss with the authors on an individual basis the method by which any conflicts of interest will be communicated to readers. Editors and reviewers for the JMIRS are responsible for disclosing to the editor-in-chief any personal or financial relationship that may bias their work during the peer review process and recuse themselves when such conflicts are of sufficient. See JMIRS board conflict policy here.

**Open Access**

This journal offers you the option of making your article freely available to all via the ScienceDirect platform. To prevent any conflict of interest, you can only make this choice after receiving notification that your article has been accepted for publication. The fee of $1,700 excludes taxes and other potential author fees such as colour charges. In some cases, institutions and funding bodies have entered into agreement with Elsevier to meet these fees on behalf of their authors. Details of these agreements are available at https://www.elsevier.com/fundingbodies. Authors of accepted articles, who wish to take advantage of this option, should complete and submit the order form (available at https://www.elsevier.com/locate/openaccessform.pdf). Whatever access option you choose, you retain many rights as an author, including the right to post a revised personal version of your article on your own website. More information can be found here: https://www.elsevier.com/authorsrights. Authors can specify that they would like to select this option after receiving notification that their article has been accepted for publication, but not before. This eliminates a potential conflict of interest by ensuring that the journal does not have a financial incentive to accept an article for publication.

**Green open access**

Authors can share their research in a variety of different ways and Elsevier has a number of green open access options available. We recommend authors see our green open access page for further information. Authors can also self-archive their manuscripts immediately and enable public access from their institution’s repository after an embargo period. This is the version that has been accepted for publication and which typically includes author-incorporated changes suggested during submission, peer review and in editor-author communications. Embargo period: For subscription articles, an appropriate amount of time is needed for journals to deliver value to subscribing customers before an article becomes freely available to the public. This is the embargo period and it begins from the date the article is formally published online in its final and fully citable form. Find out more.
Copyright
Upon acceptance of an article, authors will be asked to complete a ‘Journal Publishing Agreement’ (see more information on this). 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. 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.

For open access articles: Upon acceptance of an article, authors will be asked to complete an 'Exclusive License Agreement' (more information). 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.

Use of inclusive language
Inclusive language acknowledges diversity, conveys respect to all people, is sensitive to differences, and promotes equal opportunities. Articles should make no assumptions about the beliefs or commitments of any reader, should contain nothing which might imply that one individual is superior to another on the grounds of race, sex, culture or any other characteristic, and should use inclusive language throughout. Authors should ensure that writing is free from bias, for instance by using 'he or she', 'his/her' instead of 'he' or 'his', and by making use of job titles that are free of stereotyping (e.g. 'chairperson' instead of 'chairman' and 'flight attendant' instead of 'stewardess').

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

Funding body agreements and policies
Elsevier has established a number of agreements with funding bodies which allow authors to comply with their funder's open access policies. Some funding bodies will reimburse the author for the gold open access publication fee. Details of existing agreements are available online.

PREPARATION
Manuscript Preparation
Title page: The title page should include a concise but informative title, which will make the electronic retrieval of the article sensitive and specific; keywords; each author's full name and highest earned academic degree(s); each author's complete affiliation(s), including department(s), institution(s), city, state, and country; and the name and complete mailing address, phone number, fax number and e-mail address of the corresponding author (to whom all correspondence and reprint requests will be directed)

Cover Letter: This should include the following information:
Confirmation of the fact that the manuscript is not under consideration for publication elsewhere. We encourage disclosure of correspondence from other journals and reviewers, if previously submitted.Confirmation that each author fulfills the requirements of Authorship.Any potential conflict of interest – if there is no conflict, please state this.Confirmation of review committee approval for any experimental studies on human participants and/or confirmation of clinical trial registration.Indication if the submission is for a special issue
**Keywords:** Provide a maximum of 6 keywords (that are not included in the title) on your title page. The usage of MeSH terms is recommended: [https://meshb.nlm.nih.gov/search](https://meshb.nlm.nih.gov/search). Please avoid, where possible, general and plural terms and multiple concepts (avoid, for example, ‘and’, ‘of’). Be sparing of abbreviations: only abbreviations firmly established in the field may be eligible. These keywords will be used for indexing purposes.

**Body of Text:**

**Abstract:** The abstract should reflect the approved the study of the article and include the purpose of the study, the experimental design, the most important results and an interpretation of the data, including the conclusion and any implications derived from the results.

**Introduction:** State the purpose of the article and summarize the rationale for the study or observation. Give only strictly pertinent references and do not include data or conclusions from the work being reported.

**Materials/Methods:** Case studies should contain a concise description of methodology, data and correlative studies. Manuscripts containing the results of experimental studies on human participants must disclose in the first paragraph of the Materials and Methods section whether informed consent was obtained from patients in the study after the nature of the procedure had been fully explained. A statement must be added indicating that an institutional review committee approved the study (with the date of approval). If approval was not required due to Results section or figure nature of the study, please include a statement indicating this; eg., Ethical Requirement of Research Ethics Board approval for this project was formally waived by the institution.

Describe clearly your selection of the observational or experimental subjects (including controls). The guiding principle should be clarity about how and why a study was done in a particular way, eg., authors should explain why only subjects of certain ages were included or why women were excluded. Identify the methods, apparatus and procedures in sufficient detail to allow other workers to reproduce the results. Give references to established methods, including statistical methods; provide references and brief descriptions for methods that have been published but are not well known; describe new or substantially modified methods, give reasons for using them and evaluate their limitations. Identify precisely all drugs and chemicals used, including generic name(s), dosage(s), and route(s) of administration. Methods should not be included in the Results section or figure legends.

**Results:** Present your results in logical sequence in the text, tables and illustrations. Do not repeat in the texts all the data in the tables or illustrations; emphasize or summarize only important observations.

**Discussion/Conclusion:** Emphasize the new and important aspects of the study and the conclusions that follow from them. Include the implications of the findings and their limitations, including implications for future research. Relate the observations to other relevant studies. Link the conclusions with the goals of the study, but avoid unqualified statements and conclusions not completely supported by the data. In particular, avoid making statements unless the manuscript contains data to support the claim. Recommendations, when appropriate, may be included.

**Figures, Legends & Tables:** should be self-explanatory and should supplement, not duplicate the text. A maximum of 6 illustrations is recommended. Each illustration must be numbered and cited in consecutive order in the text. Place explanatory matter in footnotes, not in the heading. Expand in the footnote all non-standard abbreviations used in each table. For footnotes, identify statistical measures of variations, such as standard deviation and standard error of the mean. A separate list of figure captions must be included in the main body of your paper, following the references. All patient information and institutional identifying data must be removed from illustrations (see Patient Consent section). It is the author's responsibility to obtain written permission for any borrowed, modified or adapted tables or figures from the copyright owner.

**Footnotes section**

Please duplicate the section below, and populate it with the correct information for your submission as applicable. This should be inserted after the Conclusion, and before the References. Remember to blind any identifying information in this section for your blinded manuscript upload.

**Acknowledgments:** Please keep this section to within 3-5 sentences.

**Contributors:** All authors contributed to the conception or design of the work, the acquisition, analysis, or interpretation of the data. All authors were involved in drafting and commenting on the paper and have approved the final version.

**Funding:** Disclose any funding here. OR This study did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.
Competing interests: All authors have completed the ICMJE uniform disclosure form at www.icmje.org/coiDisclosure.pdf and declare: no financial relationships with any organizations that might have an interest in the submitted work in the previous three years; no other relationships or activities that could appear to have influenced the submitted work.

Ethical approval: Informed consent was obtained from all participants. The REB (institution) approved the study. OR Ethical Requirement of Research Ethics Board approval for this project was formally waived by the institution.

Reference style

There are no strict requirements on reference formatting at submission. References can be in any style or format as long as the style is consistent. Where applicable, author(s) name(s), journal title/book title, chapter title/article title, year of publication, volume number/book chapter and the pagination must be present. Use of DOI is highly encouraged. The reference style used by the journal will be applied to the accepted article by Elsevier at the proof stage. Note that missing data will be highlighted at proof stage for the author to correct.

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 and Zotero, as well as EndNote. Using the word processor 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.

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/journal-of-medical-imaging-and-radiation-sciences. When preparing your manuscript, you will then be able to select this style using the Mendeley plug-ins for Microsoft Word or LibreOffice.

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.

Biographical notes/Acknowledgements: Biographical notes about the author(s) should be written in the third person. All contributors who do not meet the criteria for authorship as defined in the Authorship section below should be listed in an acknowledgements section. Examples of those who might be acknowledged include a person who provided purely technical help, writing assistance or a department chair who provided only general support. Authors should disclose whether they had any writing assistance and identify the entity that paid for this assistance (see Conflict of Interest section). Because readers may infer endorsement of the data and conclusions, all persons acknowledged must give written permission for their contribution to be noted in print. It is the corresponding author's responsibility to obtain written permission.

Language and Style

The JMIRS is an international journal and it is the aim of the editors to produce papers in clear and concise language. Brief sentences make for easy reading. The text in your manuscript should be easy to read and flow smoothly. A manuscript that is poorly structured, hard to reading and filled with errors is harder to review than one that is well written and where the ideas are presented clearly. Before submitting it for review, please be sure to check your manuscript carefully for structural, spelling and grammatical errors. You may wish to have it reviewed by a third party who has strong English writing and editing skills. Only standard abbreviations and acronyms should be used, and each one should be defined at its first use in the text. Excessive use of abbreviations should be avoided. Be sure that your manuscripts are free of spelling errors. Authors who require information about language editing and copyediting services pre- and post-submission should visit https://www.elsevier.com/languagepolishing for more information.
Statistics
The description of statistical procedures should be included in the section of Methods and Materials. Statistical methods should be clearly identified and described in sufficient detail for a knowledgeable reader to reproduce the analysis if they had access to the raw data. The choice of method should be motivated. When relevant, the statistical software used and its version number should be stated. The term 'significant' should be reserved for findings that are statistically significant at the 5% level. It should be stated whether P-values are from one- or two sided tests. The JMIRS encourages the reporting of 95% confidence intervals rather than simple P-values whenever relevant. A special concern is the statistical power of analyses showing that a parameter is not significantly associated with the outcome, despite previous reports of a significant association. Here, a confidence interval should be estimated for the effect of this parameter as an indication of the statistical strength of the reported non-significance. Multivariate analyses should be reported with a clear indication of the criteria for selection of parameters to be tested in the model, and how these parameters were represented (‘scored’) in the model. This applies both for parameters significantly associated with the outcome parameter and parameters for which this is not so.

Artwork
Color: If, together with your accepted article, you submit usable colour figures then Elsevier will ensure, at no additional charge, that these figures will appear in colour on the web (e.g., ScienceDirect and other sites) regardless of whether or not these illustrations are reproduced in colour in the printed version. Please make sure that artwork files are in an acceptable format (TIFF, EPS or MS Office files) and with the correct resolution. For colour reproduction in print, you will receive information regarding the total costs from Elsevier after receipt of your accepted article. For further information on the preparation of electronic artwork, please see https://www.elsevier.com/artworkinstructions. Please note: Because of technical complications that can arise from the conversion of colour figures to ‘grey scale’ (for the printed version should you not opt for colour in print) please submit in addition usable black and white prints corresponding to all the colour illustrations.

Permissions
Acknowledgement of previously published material should be given in the legend, and the source should be included in the References section. It is the author's responsibility to obtain written permission for any borrowed, modified or adapted text, tables or figures from the copyright owner (usually the original publisher). If text material totaling 250 to 300 words, or any tables, are borrowed verbatim from published sources, written permission is required from both publisher and author. With shorter quotations, it is sufficient to add a bibliographic credit. Permission letters for reproduced text or illustration must accompany the manuscript. If you have been unable to obtain permission, please point this out. Elsevier has preprinted forms for use by authors: https://www.elsevier.com/permissions. You can also contact Elsevier's Rights Department: healthpermissions@elsevier.com.

3D radiological data
You can enrich your online article by providing 3D radiological data in DICOM format. Radiological data will be visualized for readers using the interactive viewer embedded within your article, and will enable them to: browse through available radiological datasets; explore radiological data as 2D series, 2D orthogonal MPR, 3D volume rendering and 3D MIP; zoom, rotate and pan 3D reconstructions; cut through the volume; change opacity and threshold level; and download the data. Multiple datasets can be submitted. Each dataset will have to be zipped and uploaded to the online submission system via the '3D radiological data' submission category. The recommended size of a single uncompressed dataset is 200 MB or less. Please provide a short informative description for each dataset by filling in the 'Description' field when uploading each ZIP file. Note: all datasets will be available for download from the online article on ScienceDirect. So please ensure that all DICOM files are anonymized prior to submission. More information.

Interactive Case Insights
This journal encourages authors to complement their case reports with test questions that reinforce the key learning points. These author-created questions are submitted along with the article (new or revised) and will be made available in ScienceDirect along with your paper. More information and examples are available at https://www.elsevier.com/about/content-innovation/interactive-case-insights. Test questions are created online at http://elsevier-apps.sciverse.com/GadgetICRWeb/verification. Create the test questions, save them as a file to your desktop, and submit along with your (new or revised) manuscript through EES. For questions, please contact icihelp@elsevier.com.
Data visualization
Include interactive data visualizations in your publication and let your readers interact and engage more closely with your research. Follow the instructions here to find out about available data visualization options and how to include them with your article.

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.

AFTER ACCEPTANCE

Online proof correction
Corresponding authors will receive an e-mail with a link to our online proofing system, allowing annotation and correction of proofs online. The environment is similar to MS Word: in addition to editing text, you can also comment on figures/tables and answer questions from the Copy Editor. Web-based proofing provides a faster and less error-prone process by allowing you to directly type your corrections, eliminating the potential introduction of errors. If preferred, you can still choose to annotate and upload your edits on the PDF version. All instructions for proofing will be given in the e-mail we send to authors, including alternative methods to the online version and PDF. We will do everything possible to get your article published quickly and accurately. 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. 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.

**Offprints**
The corresponding author will, at no cost, receive a customized Share Link providing 50 days free access to the final published version of the article on ScienceDirect. The Share Link can be used for sharing the article via any communication channel, including email and social media. For an extra charge, paper offprints can be ordered via the offprint order form which is sent once the article is accepted for publication. Both corresponding and co-authors may order offprints at any time via Elsevier's Webshop. Corresponding authors who have published their article open access do not receive a Share Link as their final published version of the article is available open access on ScienceDirect and can be shared through the article DOI link.

**Retraction Policy**
All allegations of misconduct will be referred to the Editor-In-Chief, who will review the circumstances in consultation with the Deputy Editor. All such allegations will be kept confidential; the number of inquiries and those involved will be kept to the minimum necessary to achieve this end. Initial fact-finding will usually include a request to all the involved parties to state their case, and explain the circumstances, in writing. In questions of research misconduct centering on methods or technical issues, the Editor-In-Chief may confidentially consult experts who are blinded to the identity of the individuals, or if the allegation is against an editor, an outside editor expert. The Editor-In-Chief and Deputy Editor will arrive at a conclusion as to whether there is enough evidence to lead a reasonable person to believe there is a possibility of misconduct. Their goal is not to determine if actual misconduct occurred, or the precise details of that misconduct.

When allegations concern authors, the peer review and publication process for the manuscript in question will be halted while the process above is carried out. The investigation described above will be completed even if the authors withdraw their paper, and the responses below will still be considered. In the case of allegations against reviewers or editors, they will be replaced in the review process while the matter is investigated. The JMIRS will deal with any further action (such as notifying the author's institution) on a case-by-case basis. The most common forms of scientific misconduct can be found on the ORI publication Analysis of Institutional Policies for Responding to Allegations of Scientific Misconduct, full report in PDF format.

**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.

The Managing Editor can be reached at: editor@camrt.ca

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