DESCRIPTION

PM&R is the official scientific journal of the American Academy of Physical Medicine and Rehabilitation (AAPM&R). It is a monthly, peer reviewed, scholarly publication. It aims to be an internationally leading journal that advances education and impacts the specialty of physical medicine and rehabilitation through the timely delivery of clinically relevant and evidence-based research and review information. Contributions from all parts of the world and from all types of professions in rehabilitation are therefore encouraged.

Topics covered include acute and chronic musculoskeletal disorders and pain, neurologic conditions involving the central and peripheral nervous systems, rehabilitation of impairments associated with disabilities in adults and children, and neurophysiology and electrodiagnosis. PM&R emphasizes principles of injury, function, and rehabilitation, and is designed to be relevant to practitioners and researchers in a variety of medical and surgical specialties and rehabilitation disciplines including allied health.

The content of PM&R includes articles that are contemporary and important to both research and clinical practice. The various sections of the journal include original research such as clinical trials, outcomes studies, and clinically relevant translational science; reviews (narrative and analytical); case presentations; point/counterpoint debates; ethical/legal topics; practice management updates; statistical themes; editorial and opinion pieces; images; clinical pearls; emerging issues; and letters to the editor.

IMPACT FACTOR

2016: 1.785 © Clarivate Analytics Journal Citation Reports 2017

ABSTRACTING AND INDEXING

MEDLINE®

EDITORIAL BOARD

Editor-in-Chief

Stuart M. Weinstein, MD, University of Washington, Seattle, WA
Editorial Staff

Managing Editor
Cathy Mendelsohn

Editorial Coordinator
Nicole Egan

Senior Editors
Barbara Bates, MD, MBA, Central Michigan University, Saginaw, MI
David Chen, MD, Shirley Ryan AbilityLab/ Northwestern University, Feinberg School of Medicine, Chicago, IL
Sun G. Chung, MD, PhD, Seoul National University Hospital, Seoul, South Korea
David J. Kennedy, MD, Stanford University, Stanford, CA
Heidi Prather, DO, Washington University School of Medicine, St. Louis, MO
Kevin R. Vincent, MD, PhD, University of Florida, Gainesville, FL
Thomas K. Watanabe, MD, Moss Rehab, Elkins Park, PA

Practice Management Feature Editor
Christopher J. Standaert, MD, Seattle, WA

Ethical-Legal Feature Editor
Debjani Mukherjee, PhD, Chicago, IL

Statistical Editor
Kristin Sainani, PhD, Stanford, CA

Social Media Editor
William Niehaus, MD, Aurora, CO

Images Editor
Jack Porrino, MD, Seattle, WA

Point/Counterpoint Editor
Jaspal Ricky Singh, MD, New York, NY

Associate Editors
Susan D. Apkon, MD, Seattle, WA
Matthew N. Bartels, MD, MPH, New York, NY
Kathleen R. Bell, MD, Dallas, TX
David Berbrayer, MD, Toronto, Ontario, Canada
Cheri A. Blauwet, MD, Boston, MA
Joanne Borg-Stein, MD, Boston, MA
Christina Brogardh, RPT, PhD, Lund, Sweden
Anthony S. Burns, MD, MS, Toronto, Ontario, Canada
Aaron Chamberlain, MD, St. Louis, MO
Martin K. Childers, DO, PhD, Seattle, WA
Keith Cicerone, PhD, ABPP-Cn, Edison, NJ
Nora Cullen, MD, MSC, Toronto, Ontario, Canada
Craig C. DiTommaso, MD, Houston, Texas, USA
Sarah Eickmeyer, MD, Kansas City, Kansas, USA
Alberto Esquenazi, MD, Elkins Park, PA
Hillel M. Finestone, MD, Ottawa, Ontario, Canada
Michael D. Freeman, PhD, MPH, DC, Salem, OR
Frederick S. Frost, MD, Cleveland, OH
Alfred Gellhorn, MD, New York, NY
Michelle S. Gittler, MD, Chicago, IL
Gary Goldberg, MD, Richmond, VA
Andrew J. Haig, MD, Ann Arbor, MI
Edwin Hanada, MD, MS, MBA, Toronto, Ontario, Canada
Mark Huang, MD, Chicago, IL
Kenneth Hunt, MD, Denver, CO
Susanne Iwarsson, PhD, Lund, Sweden
Gopi Kasturi, MD, Fresno, CA
Shi-Uk Lee, MD, PhD, Seoul, South Korea
Craig Liebenson, DC, Los Angeles, CA
Jae-Young Lim, MD, PhD, Seongnam-si, South Korea
Cindy Y. Lin, MD, Seattle, WA, USA
Jenny McConnell, PT, PhD, Sydney, Australia
Jill Meilahn, DO, Marshfield, Wisconsin, USA
Scott M. Paul, MD, Bethesda, Maryland, USA
Evan R. Peck, MD, West Palm Beach, FL, USA
James Rainville, MD, Boston, MA
Monica E. Rho, MD., Chicago, Illinois, USA
Richard V. Riggs, MD, Los Angeles, CA
Marcelo Rivano, PhD, Lund, Sweden
Pamela S. Roberts, PhD, OTR/L, FAOTA, CPHQ, FNAP, Los Angeles, CA
Sunil Sabharwal, MD, Boston, MA
Jeffrey C. Schneider, MD, Boston, MA
Neil Segal, MD, MS, Kansas City, KS
Julie K. Silver, MD, Boston, MA
Richard Souza, PT, PhD, San Francisco, CA
Gwendolyn A. Sowa, MD, PhD, Pittsburgh, PA
Carol B. Vandenakker Albanese, MD, Sacramento, California, USA
Heather K. Vincent, PhD, Gainesville, FL
Anthony B. Ward, MD, FRCP, Stoke-on-Trent, United Kingdom
GUIDE FOR AUTHORS

INTRODUCTION

PM&R is the official scientific journal of the American Academy of Physical Medicine and Rehabilitation (AAPM&R). It is a monthly, peer reviewed, scholarly publication. It aims to be an internationally leading journal that advances education and impacts the specialty of physical medicine and rehabilitation through the timely delivery of clinically relevant and evidence-based research and review information. Contributions from all parts of the world and from all types of professions in rehabilitation are therefore encouraged.

Topics covered include acute and chronic musculoskeletal disorders and pain, neurologic conditions involving the central and peripheral nervous systems, rehabilitation of impairments associated with disabilities in adults and children, and neurophysiology and electrodiagnosis. PM&R emphasizes principles of injury, function, and rehabilitation, and is designed to be relevant to practitioners and researchers in a variety of medical and surgical specialties and rehabilitation disciplines including allied health.

The content of PM&R includes articles that are contemporary and important to both research and clinical practice. The various sections of the journal include original research such as clinical trials, outcomes studies, and clinically relevant translational science; reviews (narrative and analytical); case presentations; point/counterpoint debates; ethical legal feature topics; practice management updates; statistical themes; editorial and opinion pieces; images; clinical pearls; emerging issues; and letters to the editor.

SUBMISSION CATEGORIES

The corresponding author will be required to identify for which category the manuscript is submitted. Each category has different submission requirements in terms of style, length, and format. Please review the specific submission category sections for detailed submission information. Manuscripts that do not adhere to the following instructions may be returned to the corresponding author for technical revision before undergoing peer review.

Unsolicited Submissions That Will be Considered for Peer Review:

Original Research

Basic science and clinical research including observational prospective or retrospective cohort studies, randomized and nonrandomized clinical trials, cost-effectiveness studies and clinically relevant translational science. The manuscript text should be limited to 5,000 words excluding references, tables and figures, which should be used when necessary to extend the understanding of the text. All original research manuscripts must be accompanied by a structured abstract of no more than 300 words that is described in detail below (see Manuscript Preparation). The text should include the following sections: introduction, methods (subjects, procedures, outcome measures, etc.), results (including reporting of statistical analysis with text as well as supplemental tables and figures), discussion (including interpretation of findings, clinical impact and applicability of results, and strengths and limitations of the study) and conclusion.

Reviews

There are 2 main review article types: Narrative and Analytical. Each can be written in a focused or comprehensive format.

Focused: limited to 3,500 words excluding references (generally up to 50), and tables and figures (generally up to 4)

Comprehensive: limited to 7,500 words, excluding references, tables, and figures

A Narrative Review Includes:

• Non-structured abstract (maximum 250 words)
• Introduction (including a statement of purpose)
• Literature review, including search strategy with inclusion and exclusion criteria
• Discussion, including summary of published evidence
• Conclusion, including clinical applicability
• Tables and figures useful to present data

An Analytical Review Includes:

• Structured abstract
- Objective: state the primary objective of the review article.
- Type: see subtypes below
- Literature Survey: include data sources, constraints, and time parameters
- Methodology: summarize data extraction and analysis
- Synthesis: describe the main results
- Conclusions: state primary conclusion(s) and clinical applicability
  - Introduction (including a statement of purpose)
  - Methodology (including detailed description of literature search strategy and data abstraction)
  - Discussion
  - In depth assessment of published literature ("evidence")
  - Emphasis on appraisal of quality, synthesis of information, and analysis/comparison of results or conclusions (based on subtype)
  - Conclusion stating a summary of the review including clinical applicability
  - Subject matter that is contemporary or cutting edge

Subtypes of Analytical Reviews include Systematic Reviews and Meta-Analyses.

**Systematic Review:** Uses explicit methods to search, appraise, and synthesize research evidence in order to address a specific study question. The guidelines provided by the Cochrane Collaboration or the NHS Centre for Reviews and Dissemination are often followed, particularly grading of strength (quality) of evidence. The process is transparent in the reporting of its methods to facilitate others to replicate the process. Systematic reviews seek to draw together all available knowledge on a topic area, requiring an exhaustive, comprehensive literature search. The analysis leads to a determination of what is known and unknown about the study question, and leads to recommendations for future research.

**Meta-Analysis:** A technique that statistically combines the results of quantitative studies to provide a more precise effect of the results. A good systematic review is essential to a meta-analysis of the literature. For a meta-analysis to be valid requires all included studies to be sufficiently similar; this includes characteristics such as the study population, intervention, and comparison(s) being made. Most importantly, it requires that the same measure or outcome be assessed in the same way and at the same time intervals.

**Mixed studies review/mixed methods:** Any combination of methods where at least one of the components is usually a systematic review. It most frequently refers to the bringing together of a qualitative review (conceptual) and a quantitative analysis (practical). Such reviews attempt to bring the evidence of "what works" together with the theoretical of "how and why does it work" to start to address the more complex issue of "what works under which circumstances." This review type seeks correlations between practical and theoretical and uses gap analysis to identify aspects absent in the literature. Mixed methods reviews provide a potentially more complete picture of the research landscape in a specific topic area.


**Case Presentations**
A case study or case series reporting on a new or unusual syndrome or medical condition, new diagnostic method, or highlight of an important clinical complication of a common condition. The manuscript should be limited to 1,500 words excluding references, tables and figures. The text should include the following sections: introduction, presentation of the case report or series, and discussion. For Case Reports, a brief, unstructured abstract (not to exceed 100 words) should be included. References should be limited to 10 (ten) and at least one figure should be included, but a maximum of two figures allowed.

It is a requirement that formal, written permission be secured from the patient(s)/subject(s) of case reports or case series before publication. The purpose of this "informed permission" is to educate the subjects of such case reports regarding the nature of disseminating their personal health information, ensuring maximal deidentification and anonymity, and allowing the subject(s) the option of declining such release of information.
You are required to engage in a reasonable effort to locate the subject(s) of your case report and discuss this informed permission form with him/her/them directly. Once this form is completed and permission granted (by signature), you are advised to safely retain this form as part of your records. **To maintain privacy, do not submit patient permission forms to the Editorial Office.** It is understood that situations will arise in which it is not possible to obtain informed permission from a subject, ie, the subject is deceased, the subject has moved and is not trackable, the subject has a disability that prevents adequate comprehension of the informed permission request. If a legal surrogate or guardian (family member or otherwise) is identified, then this person is allowed to supply the informed permission. If after due diligence, neither the subject or legal surrogate, guardian, or family member is found or identified, then the case report may be submitted without obtaining informed permission. The cover letter accompanying your manuscript submission should stipulate whether or not informed permission was obtained.

If your institution already requires completion of a similar Patient Consent form, we request that a copy of the blank form be sent to us so that we can ensure it is a suitable substitute.

**Clinical Trials**

Effective January 1, 2016, all manuscripts reporting clinical trials must be registered before submission. For trials that are underway and are already enrolling patients, registration can be retrospective. This is an interim step that will end January 1, 2017. At that time, PM&R will only consider clinical trials that have been registered before the first patient is enrolled.

A clinical trial is defined as any research study that prospectively assigns human participants or groups of humans to one or more health-related interventions to evaluate the effects on health outcomes ([http://www.who.int/ictrp/en](http://www.who.int/ictrp/en)). Studies of human subjects with prospective assignment of an intervention by the investigators, regardless of the size of the trial or method of assignment, must be registered. Cohort and retrospective studies without an intervention do not require registration, and neither do observational studies of clinical care (PM R 2015:1203-1204). Indicate where the trial was registered and the trial number in the Methods section of the text and Abstract.

**In Brief**

**Clinical Pearls**

A brief vignette describing a new or unique diagnostic or treatment method for a specific medical condition or category that would have relevance to the average physiatrist or practitioner in another rehabilitation discipline. This should include a short review of the history of previous methods, a description of the new method, and justification for the basis of the new approach. The Clinical Pearls do not have to be presented with a specific case. These manuscripts should be no more than 1,000 words (excluding references) with no more than two figures or tables.

**Emerging Issues**

A short technical report of a new or emerging technology, treatment, or device, with relevance to the field of physical medicine and rehabilitation. These manuscripts should be no longer than 750 words (excluding references) with a limit of one figure or table.

**Images**

A column presenting images (eg, radiographs, CT, MRI, electrodiagnostic tracings, pathology, physical examination findings) that are unique, interesting, pertinent, and relevant to the understanding of health and disease in the field of physical medicine and rehabilitation. All images should be accompanied by a short description of the image and relevant relationship to clinical care or research science of no more than 500 words (excluding references) with references limited to 5 (five).

**Letters**

Letters to the editor are encouraged and will be considered for publication at the Editor-in-Chief’s discretion. All letters should be brief (no more than 750 words) and must relate to content published in PM&R. Letters should not reference any unpublished literature and references are limited to no more than 5 (five). Letters are also subject to editorial modification.

**Articles Solicited by Editor-in-Chief and Senior Editors Only:**

**Point-Counterpoint**
A debate format of a specific question, usually based on a controversial therapeutic intervention, but could include a theoretical dilemma, diagnostic uncertainty, or other topic in physical medicine and rehabilitation, through which two parties with legitimate opposing perspectives present arguments to support their viewpoints. This column allows more editorial freedom than a critical review, but the basis of these viewpoints should include scientifically sound arguments supported by available medical evidence as well as personal experience and perspective. Each of the two portions of the manuscript should be no greater than 1,500 words (excluding references) with references limited to no more than 15 (fifteen). No abstract is required, but a brief introduction stating the writer's viewpoint should be included as part of the text. Figures and tables are not required.

**Practice Management**
A column that focuses on a contemporary issue in clinical physiatric practice relating to health policy, business and/or medical issues such as coding and billing, practice innovations, and new trends in physiatric education/training after residency/fellowship. Manuscripts should be no more than 2,500 words and include an introduction, presentation of the main issue(s) including a comprehensive discussion of clinical implications, and a brief conclusion. There should be no more than 15 (fifteen) references and figures or tables should be limited to two.

**Ethical-Legal Feature topics**
An in-depth assessment of a specific topic in physical medicine and rehabilitation that raises questions and concerns across the medical, ethical, and legal fields. Depending on the topic, the column may include either, or both, an ethical and legal perspective which provides the reader with a unique or new perspective on the subject. (If both a legal and ethical piece are presented, these may represent convergent or divergent ideas). The total word count for this column is 3,000 (excluding references) with references limited to no more than 15 (fifteen). No abstract is required, but a brief introduction stating the purpose of the discussion should be included as part of the text. Figures and tables are not required.

**Invited Perspective**
Invited commentaries or viewpoints on contemporary topics in the field of physical medicine and rehabilitation featuring medical diagnosis and treatment, educational and medical training, socioeconomic factors, and others topics. These are usually solicited from experts and leaders in the field and are designed educate and stimulate thought and discussion. Perspective discusses current conditions and future expectations and authors may add personal insight and opinion. Manuscripts should be approximately 2,000 words. At the Editor-in-Chief’s discretion, unsolicited Perspective manuscripts will be considered for publication, but it is strongly suggested that potential authors contact the Editorial Office first.

**International Perspective**
Invited descriptions, viewpoints, or reviews on contemporary topics of international relevance to the field of physical medicine and rehabilitation. It focuses on areas of scientific and clinical relevance for the advancement of rehabilitation in an international context. Articles can present and discuss current practice, emerging issues, or trends and developments from a specific part of the world. Other topics of broad international relevance are also considered. These are usually solicited from experts and leaders in the field, and authors may add personal insight and opinion. Manuscripts should be approximately 2,500 words. At the Editor-in-Chief’s discretion, unsolicited manuscripts will be considered for publication, but it is strongly suggested that potential authors contact the Editorial Office first.

**BEFORE YOU BEGIN**

**Corresponding Author:**
A single author of the manuscript is required to serve as the primary correspondent with the PM&R editorial office, to accept responsibility for addressing revision recommendations from PM&R reviewers and editors, to review final page proofs, and to make decisions regarding release of information to media outlets or government agencies. The corresponding author is also responsible for providing statistical data if requested by the editor-in-chief and is responsible for identifying names, addresses and affiliations of all undisclosed writers who have contributed to this submitted manuscript. All authors must agree ahead of manuscript submission the identity of the corresponding author designee.
Author(s)' Warranty:
Any person listed as a manuscript author should have made substantive intellectual contributions to the study as established by the International Committee of Medical Journal Editors (ICMJE, www.icmje.org). All authors should meet all of the following conditions with regard to the manuscript: (1) substantial contributions to conception and design, 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 published; and (4) taking public responsibility for its content. PM&R may require authors to justify the assignment of authorship.

Retained Author Rights
As an author you (or your employer or institution) retain certain rights; for details you are referred to: http://www.elsevier.com/authorsrights.
Note: All copies, paper or electronic, or other use of the information should include an indication of the AAPM&R copyright and a full citation of the journal source.

Page Charges
PM&R has no page charges.

Language (Usage and Editing Services)
Please ensure that your work is written in correct scientific English before submission. English Language Editing services are available from Elsevier's WebShop (http://webshop.elsevier.com/languagediting) or visit our customer support site (http://support.elsevier.com) for more information.

Reporting Guidelines
PM&R supports the initiatives available through the EQUATOR Network (Enhancing the Quality and Transparency of Health Research) which houses a database of reporting guidelines for health research: http://www.equator-network.org/. All original research, case reports, systematic reviews, and meta-analyses must include the appropriate checklist upon submission. All randomized controlled trials should include a complete Consolidated Standards of Reporting Trials (CONSORT) flow chart. Please refer to the CONSORT statement at http://www.consortstatement.org/ for more information. Observational studies should adhere to the STROBE reporting guidelines: http://www.strobe-statement.org/fileadmin/Strobe/uploads/checklists/STROBE_checklist_v4_cohort.pdf. Diagnostic accuracy studies should adhere to STARD guidelines: http://www.stard-statement.org/. Systematic reviews and meta-analyses should conform to the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) Statement criteria. These are available at http://www.prisma-statement.org/. Case Reports should include the CARE checklist (http://www.care-statement.org/downloads/CAREchecklist-Eng-20160131.pdf).

Human Studies:
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. Written consents must be retained by the author. 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. To protect patient anonymity, do not submit patient permission forms with your manuscript.

Authors from U.S. institutions must comply with all regulations of the Health Insurance Portability and Accountability Act (HIPAA) of 1996.

If an IRB exists at the institution(s) in which any study involving human subjects is conducted, the investigators must obtain prior approval. This requirement applies to prospective and retrospective studies (including technical notes and case reports) that involve any direct interaction with patients OR evaluation or review of private information (eg, imaging studies or chart reviews).

If the IRB at the participating institution does not require approval for the type of research being performed, a statement to this effect must be included in the manuscript. If no IRB existed at the time the study was initiated, the authors must include a statement in the manuscript indicating as such and that principles of the Declaration of Helsinki (http://ohsr.od.nih.gov/guidelines/helsinki.html) were followed. If a manuscript reports on the emergent use of a material or device not approved by
the Food and Drug Administration or accepted as standard of practice, the authors must state that they obtained informed consent from the patient (when feasible) and reported the case to the local IRB within 1 week of the event. This procedure is only valid for a single patient.

**Animal Studies:**
Manuscripts reporting research involving animals must include a statement that either the protocol was approved by an institutional animal care board or that the animal care complied with the "Principles of Laboratory Care" (formulated by the National Society for Medical Research) or the "Guide for the Care and Use of Laboratory Animals" (National Institutes of Health).

**Disclosure of Conflict of Interest:**
Each author has reviewed *PM&R*’s policy on Conflict of Interest and has completed the Disclosure Form (http://www.icmje.org/coi_disclosure.pdf) which must be returned to the *PM&R* editorial office along with the Conditions for Submission Form. A notation of a disclosure will be included as a footnote in the article.

**Copyright Transfer Agreement:**
In consideration of the action of *PM&R* reviewing, editing, and accepting this manuscript (including text, tables, figures, audio, video and/or other supplemental files) for publication, the author(s) agree to transfer, assign, or otherwise convey all copyright ownership, including any and all rights incidental thereto, exclusively to the AAPM&R, in the event that this work is published in *PM&R*. If your manuscript is not accepted for publication, then all said rights return to the author(s). For officers or employees of the U.S. government, AAPM&R recognizes that works prepared as part of their official government duties are in the public domain, but they must still sign the Conditions for Submission form.

**Exclusive Publication Statement:**
The author(s) certify that this manuscript and the material within this manuscript have not been previously published in print or electronic formats in part or in whole, nor is this manuscript and materials within this manuscript currently under consideration for publication elsewhere. This includes symposia, transactions, books, journals, invited articles, and preliminary publications. This restriction does not apply to abstracts of less than 500 words or press reports published in conjunction with scientific meetings.

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

**Funding Source:**
All manuscripts must include (on the title page) a statement of the source of funding of the study (if applicable). This information will appear as a footnote on the first page of the article.

**Device Status:**
A statement (appearing on the title page of the manuscript) regarding the presence or absence of the use of any medical devices in the study is required. A notation will appear as a footnote on the first page of the article. If a medical device(s) is discussed, then a statement regarding its legal/regulatory status is required including FDA status (eg, approved for indicated use, investigational, exempt from regulations [and why], not approved, or unknown).

**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.

**ONLINE MANUSCRIPT SUBMISSION**
All manuscripts must be submitted on-line at https://ees.elsevier.com/pmrjournal. First-time users: Please click the Register button from the main menu and enter the requested information. For those previously registered with EES (for other Elsevier journals), please be advised that registration for
PM&R is still required as the EES database is separate and distinct for each journal. This registration process is required one time only. On successful registration, you will be sent an e-mail indicating your user name and password, which can thereafter be modified to your preference.

CONDITIONS FOR SUBMISSION
The "Conditions For Submission" form must be signed by all authors and accompany the manuscript at the time of submission. This form is available online here. It may be uploaded electronically with the manuscript, or emailed to pmrjournal@aapmr.org.

This form stipulates the following: author(s)' warranty of responsibilities, author(s)' rights, copyright transfer agreement, exclusive publication statement, disclosure of conflict of interest, adherence to Institutional Review Board (IRB) or animal care committee policies (if applicable), identification of funding source (including National Institutes of Health status, if applicable), and device status (if applicable).

YOUR MANUSCRIPT WILL NOT PROCEED WITH THE REVIEW PROCESS UNTIL COMPLETED CONDITIONS FOR SUBMISSION AND DISCLOSURE FORMS FOR ALL AUTHORS ARE RECEIVED BY THE EDITORIAL OFFICE.

MANUSCRIPT PREPARATION
These instructions generally follow the Uniform Requirements for Manuscripts Submitted to Biomedical Journals (N Engl J Med 1997; 336:309 or see http://www.icmje.org/index.html). Once accepted, manuscripts are copy edited to conform to the Journal's standards and style.

Peer review
This journal operates a double blind review process. All contributions will be initially assessed by the editor for suitability for the journal. Papers deemed suitable are then typically sent to a minimum of one independent expert reviewer to assess the scientific quality of the paper. The Editor is responsible for the final decision regarding acceptance or rejection of articles. The Editor's decision is final. More information on types of peer review.

Double-blind review
This journal uses double-blind review, which means the identities of the authors are concealed from the reviewers, and vice versa. More information is available on our website. To facilitate this, please include the following separately:
Title page (with author details): This should include the title, authors' names, affiliations, acknowledgements and any Declaration of Interest statement, and a complete address for the corresponding author including an e-mail address.
Blinded manuscript (no author details): The main body of the paper (including the references, figures, tables and any acknowledgements) should not include any identifying information, such as the authors' names or affiliations.

Format
The preferred word processing program is Microsoft Word. Manuscripts should be double-spaced throughout (including tables, references, and figure legends), and have at least 3 cm margins. The text should be ragged right (no right justification). Embedded instructions (eg, italics, underlines, boldface) should not be used or kept to a minimum. Do not use coding for centering. Insert only one space after punctuation marks. Sequential page numbering should begin with the abstract. The order of sections is Abstract, Text, Acknowledgments, References, Tables, and Figure Legends. To ensure blinded peer-review, no direct references to the author(s) or institution of origin should be made anywhere in the text or figures. To facilitate peer review, please add line numbers to the document. Do not import figures or tables into the text document. Please do not upload text or tables as PDF files.

Article structure
Title Page
The first page of your manuscript should be a blind title page. As a separate document, include a title page listing all authors' full names, highest academic degrees, and affiliations; name and address for correspondence, including fax number, telephone number, and e-mail address; and whether the material was presented at an AAPM&R Annual Assembly. Indicate any funding source and provide grant numbers for NIH funding.
Structured Abstracts
The structured abstract is necessary for Original Research and Analytical Review articles. The structured abstract should be no more than 300 words, appear on the page following the title page, and use the following headings and information:

Abstracts for Original Research Articles:
Background:
Provide 2-3 sentences that describe the reason for this study, including the knowledge gap in the literature and how this study is designed to fill that gap. Do not repeat the Objective.

Objective:
State the main question or objective of the study and the major hypothesis tested, if any.

Design:
Describe the design of the study, indicating, as appropriate, use of randomization, blinding, criterion standards for diagnostic tests, temporal direction (retrospective or prospective), and so on.

Setting:
Indicate the study setting, including the level of clinical care (eg, primary or tertiary, private practice or institutional).

Patients (or Participants):
State selection procedures, entry criteria, and numbers of participants entering and finishing the study.

Methods or Interventions (or Assessment of Risk Factors):
Describe essential features of any interventions, including their method and duration of administration. For observational studies, clearly outline the independent variables.

Main Outcome Measurements:
The primary study outcome measures (dependent variables) should be indicated as planned before data collection began. If the hypothesis being reported was formulated during or after data collection, this fact should be clearly stated.

Results:
Report the main findings of the study.

Conclusions:
State only those conclusions of the study that are directly supported by data, along with their clinical application (avoiding overgeneralization) or whether additional study is required before the information should be used in usual clinical settings.

At the end of the abstract, please indicate the level of evidence for the manuscript you are submitting, according to the following:

1 Level I High Level randomized controlled trial (RCT)
Systematic review/meta analyses Level II Low level RCT
Prospective Study Level III Retrospective Study
Case controlled Level IV Narrative Review
Case series Level V Case Report

Acknowledgments
On a separate page, list any significant contributors to the conduct of the study or preparation of the manuscript other than your co-authors. Authors are responsible for obtaining permission from persons acknowledged for reasons other than technical, secretarial, or financial support.

Style
Follow the American Medical Association (AMA) Manual of Style, 10th edition. Stedman's Medical Dictionary (27th edition) and Merriam Webster's Collegiate Dictionary (10th edition) should be used as standard references. Use nonproprietary names of drugs, devices, and other products, unless the specific trade name of a drug is essential to the discussion. Capitalize trade names and place them in parentheses after the generic names. Include the name and location (city and state in USA; city and country outside USA.) of the manufacturer of any drug, supply, or equipment mentioned in the manuscript. Use the metric system to express units of measure and degrees Celsius to express temperatures, and use SI units rather than conventional units.
Laboratory slang and clinical jargon should be avoided. Keep unique abbreviations to a minimum. Spell out the full term for each abbreviation at first use in the text unless it is a standard unit of measure.

When expressing $P$ values:
Do not include leading zero, eg, $P < .05$ not $P < 0.05$. Do not report $P$ value of 1 or zero. If necessary, please change "1" to >.99 and zero to "0.01". Round any $P$ value greater than .01 to two decimal places and less than .01 to three decimal places.

**Figures**
Electronic art should be created/scanned and saved and submitted as either a TIFF (tagged image file format) or as an EPS (encapsulated postscript) file. Figures must be cited in the text and numbered in order of first mention. Make sure that the figure number is marked clearly on the figure or part of the electronic file name (ie, Figure1.tif). Line art must have a resolution of at least 1200 dpi (dots per inch), and electronic photographs, radiographs, CT scans, and scanned images must have a resolution of at least 300 dpi. Images should be supplied at a size that approximates the final figure size in the print journal. If fonts are used in the artwork, they must be converted to paths or outlines or they must be embedded in the files. Color images must be created/scanned and saved and submitted as CMYK files. Please note that artwork generated from office suite programs such Corel Draw and MS Word and artwork downloaded from the Internet (JPEG or GIFF files) cannot be used. Color illustrations are published at the discretion of the editorial office without additional charge to authors.

For step-by-step instructions and screenshots on how to create your art correctly, go to [Artwork Guidelines](#).

**Figure legends**
Legends must be submitted for all figures. They should be brief and specific, and they should appear on a separate manuscript page after the references. Use scale markers in the image for electron micrographs, and indicate the type of stain used.

**Tables**
Create tables using the table creating and editing feature of your word processing software (eg, Word, WordPerfect). Do not use Excel or comparable spreadsheet programs. Group all tables at the end of the manuscript, or supply them together in a separate file. Number and cite tables consecutively in the text. Each table should start on a separate sheet, and include the table title, appropriate column heads, and explanatory legends (including definitions of any abbreviations used). Tables should supplement, rather than duplicate, the material in the text.

**References**

The authors are responsible for the accuracy of the references. Key the references (double spaced) at the end of the manuscript. They should be cited in the text in the order of appearance. Cite unpublished data, such as papers submitted but not yet accepted for publication or personal communications, in parentheses in the text.

For journal articles with six or fewer authors, list surnames and initials of all authors. If there are more than seven authors, name only the first three authors and then use et al. Refer to the List of Journals Indexed in Index Medicus for abbreviations of journal names, or access the list at [http://www.nlm.nih.gov/archive/20130415/tds/serials/lji.html](http://www.nlm.nih.gov/archive/20130415/tds/serials/lji.html). Sample references are given below.

**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. This identifier will not appear in your published article.

**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 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. 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.

Journal article

Book chapter

Entire book

Online journal

World Wide Web

Dataset

If reference is made in the text to personal communication (oral or written) as a source of information, a signed statement is required from the source.

AudioSlides
The journal encourages authors to create an AudioSlides presentation with their published article. AudioSlides are brief, webinar-style presentations that are shown next to the online article on ScienceDirect. This gives authors the opportunity to summarize their research in their own words and to help readers understand what the paper is about. More information and examples are available. Authors of this journal will automatically receive an invitation e-mail to create an AudioSlides presentation after acceptance of their paper.

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.

**MANUSCRIPT REVISIONS**
Manuscripts returned to the authors for revision must be resubmitted within two months after being requested. Revised submission must include both a both a clean copy and an annotated copy of the manuscript. The annotated submission should highlight all changes (either by using the Track Change function in Word or by highlighting or underlining text) with notes in text referring to the specific editor or reviewer query. Additionally, the revised submission must be accompanied by a letter itemizing, point by point, both the original reviewer comment and how each one of the suggestions/criticisms raised by the reviewer has been addressed.

**ACCEPTED MANUSCRIPTS**
**Page proofs and corrections**
Corresponding authors will receive page proofs to check the copyedited and typeset article before publication. Portable document format (PDF) files of the typeset pages and support documents (e.g., reprint order form) will be sent to the corresponding author via e-mail. Complete instructions will be provided with the e-mail for downloading and printing the files and for faxing the corrected pages to the publisher. It is the author's responsibility to ensure that there are no errors in the proofs. Changes that have been made to conform to Journal style will stand if they do not alter the authors' meaning. Only the most critical changes to the accuracy of the content will be made. The publisher reserves the right to deny any changes that do not affect the accuracy of the content. Authors may be charged for alterations to the proofs beyond those required to correct errors or to answer queries. Proofs must be checked carefully and corrections returned within 48 hours of receipt, as requested in the email accompanying the page proofs.
**Offprints**

The corresponding author will, at no cost, receive a customized [Share Link](https://www.elsevier.com/locate/pmrj) 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](https://www.elsevier.com/locate/pmrj). Corresponding authors who have published their article gold 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.

**Additional material only for electronic version**

Under special circumstances, *PM&R* will allow publication of additional tables, figures, or text (e.g., Methodology, explanations of analysis, etc) in the electronic version of the published manuscript only. This material will not be included in the print version but a reference to it being available online will be present in the print version. The Editor would like to emphasize that such additional material will have to meet strict criteria to be included in the electronic version; such material may be used to complement the data in the printed version. If deemed by the authors or Editor as crucial to the interpretation of the manuscript, this material should be included as part of the printed version of the manuscript. Please mark clearly in the submitted manuscript that this is additional information to be published electronically. The electronic version should not be used as a repository for redundant or unnecessary data.

**Video Clips for electronic version:**

We accept and encourage submission of video clips with accepted manuscripts, to be viewed in the online version of the article, but only if such images are pertinent and complementary to the manuscript, and nonoffensive.

Supplementary movies or animation files should be provided in one of the formats listed below to ensure that the majority of potential users have the best chance of being able to access, view, or play the data both now and in the future. Recommended upper limit: for ease of download, the recommended upper limit for the size of a single file is 10 MB.

**Formats for Movies and Animation**

- MPEG (*.mpg): Preferred movie format; MPEG-1 or MPEG-2 format required; highest possible quality required. Apple QuickTime (*.mov): Acceptable movie format; highest possible quality required. Microsoft Audio/Video Interlaced format (*.avi): Acceptable movie format; highest possible quality required. Compuserve GIF (*.gif): Preferred format for animation of rasterized (pixel-based) images; highest possible quality required.

**Rights and Permissions**

Direct quotations, tables, or illustrations that have appeared in copyrighted material must be accompanied by written permission for their use from the copyright owner and original author along with complete information as to the source. Photographs of identifiable persons must be accompanied by the authors' attestation that informed consent was given. Articles appear in both the printed and online versions of *PM&R* and wording of the release should specify permission in all forms and media. Failure to get electronic permission rights may result in the images not appearing in the online version.

© Copyright 2018 Elsevier | [https://www.elsevier.com](https://www.elsevier.com)