

## Methods by which ACOEM Adheres to the AGREE Criteria

AGREE Domains/Questions	ACOEM Process
<b>Scope and Purpose</b>	
Overall objectives of the guidelines are specifically documented.	The purpose of the ACOEM <i>Practice Guidelines</i> is to define evidence-based best practices for key areas of occupational medical care and disability management in order to: (1) improve the efficiency and accuracy with which the diagnostic process is conducted; (2) improve the effectiveness of individual treatments and treatment plans in relieving symptoms and achieving functional improvement and return to work; (3) improve or restore the health of workers with occupationally related illnesses or injuries; and (4) improve the quality of occupational medical care and disability management. This is documented elsewhere. <sup>1,2,3</sup>
Clinical questions covered by the guidelines are specifically described.	The Evidence-based Practice Panels and research team compile dozens of clinical questions for each of the chapters that results in hundreds of recommendations. An example of some of these clinical questions include, (1) Among patients of workers with hip osteoarthritis, what is the evidence that NSAIDs result in reduced pain and improved function compared with placebo or no-treatment?, (2) Among patients of workers with hip osteoarthritis, what is the evidence that tricyclic antidepressants result in reduced pain and improved function compared with placebo or no-treatment?, (3) Among patients of workers with hip osteoarthritis, what is the evidence that hip arthroplasty results in reduced pain and improved function compared with sham or no-treatment? If there is no evidence for treatment of employed populations of workers with that disorder, then the Evidence-based Practice Panels and research team examines and analyzes the evidence for the general population with that disorder. Also, as we are currently updating Section I (“Foundation chapters”), we plan to include the identification of questions that should be addressed regarding best practices for general management of clinical conditions, disability, and medico-legal matters. Section II (“Presenting Disorders” chapters) is also being updated to identify clinical questions to address for each clinical entity or diagnostic group. These questions will be framed in PICO format (population of interest, intervention, comparison group, and outcome).
Patients to whom the guideline is meant to apply are specifically described.	Working age adults (~18-65 years) with medical conditions related to work or that affect the ability to work. This is documented elsewhere. <sup>1,2,3</sup>
<b>Stakeholder Involvement</b>	
Guideline development group includes individuals from all relevant professional groups.	The ACOEM Guidelines Methodology Committee is comprised of ACOEM members with not only expertise in occupational and environmental medicine but also internal medicine and physical medicine and rehabilitation, and a representative from the American Physical Therapy Association and the American Academy of Orthopaedic Surgeons. Evidence-based Practice Panels and external reviewers also include professionals from all involved specialties (e.g., occupational medicine, physical therapy, occupational therapy, neurosurgery, orthopedic surgery, pain specialists, psychology, psychiatry, chiropractic, podiatry, preventive medicine, osteopathy, disability, acupuncture, neuromuscular electrodiagnostic medicine, physical medicine and rehabilitation, etc.).
Patients’ views and preferences have been sought.	Literature searches include evaluations of patients’ preferences, stakeholder input process considers patients’ preferences (e.g., representative from patient advocacy association on Chronic Pain Panel), and guidelines state that patient preferences should guide the physician’s choice of recommendations. This is documented elsewhere. <sup>4,5,6</sup>
Target users of the guidelines are clearly defined.	Target users include physicians and other health care providers, healthcare organizations, patients and consumers, clinical case managers, insurance and third party administrators, claims adjusters, utilization reviewers, attorneys, judges, regulators, and workers’ compensation legal system. This is documented elsewhere. <sup>1,2,3</sup>
Guidelines have been piloted among target users.	ACOEM has trained and surveyed physicians, nurse case managers, and adjusters. ACOEM also conducted in-depth focus groups or interviews with medical directors from a number of leading occupational medicine group practices, training organizations, major corporations, insurers, and regulatory agencies to discuss the reasonableness and practicality of the guidelines, barriers, and suggestions for improvement. In the electronic version of the guidelines, users are able to provide us with content related or general feedback on the guidelines so that we could make any necessary improvements.
<b>Rigor of Development</b>	
Systematic methods were used to search for evidence.	Seven databases are searched (National Library of Medicine’s MEDLARS database (Medline), EBM Online, The Cochrane Central Register of Controlled Trials, TRIP Database, CINAHL, EMBASE, and PEDro). Search terms, sources, dates, and output are archived.

	Exhaustive searches including reference lists of articles are also performed.
Criteria for selecting the evidence are clearly described.	Criteria for inclusion in study rating and critical analysis of studies of diagnosis/clinical assessment methods are: (1) evaluate the efficacy of the assessment method (i.e., the “test”) in a group that contains subjects both with and without the condition the test is intended to assess, (2) be a prospective cohort study or an arm of a Randomized Controlled Trial (RCT), and (3) compare the findings of the assessment method to an adequate reference standard for all subjects. Criteria for inclusion in study rating and critical analysis of studies of treatment efficacy are: (1) evaluate a group of subjects with a representative spectrum of the clinical condition of interest, (2) be an RCT or randomized crossover trial evaluating clinical outcomes in a group receiving the intervention compared to a comparison group receiving either no intervention or a different intervention, and (3) evaluate functional outcomes that are important to a patient’s overall health or well being or are important to society. These criteria are documented elsewhere. <sup>1,2,3</sup>
Methods used for formulating the recommendations are clearly described.	Each article that meets inclusion criteria is reviewed and critically appraised and scored on 11 criteria. Each criterion is scored 0.0, 0.5 or 1.0. These individual ratings are summed up, resulting in an overall rating that ranges from 0 to 11. The rating for each article is then converted into a quality grade – low quality (scores 0-3.5), moderate quality (4.0-7.5), or high quality (8.0-11.0). High and moderate quality studies are abstracted into evidence tables that include details of study methods, outcomes, and statistical analyses. Research staff then uses the tables to grade the strength of evidence in order to draft specific clinical practice recommendations. The Evidence-based Practice Panels then review the draft strength of moderate and high quality studies, study critiques, evidence ratings and recommendations, modify them within the rules of our methodology, and develop final recommendations. In reviewing or revising recommendations, the expert Panels review the articles, evidence tables, and strength-of-evidence ratings (A, B, C, or I). Panels discuss recommendations for diagnosis or treatment based on the critically appraised body of evidence using a “best evidence” approach. In addition to critically appraised evidence, “First Principles” of medical logic and ethics are observed in formulating recommendations. <sup>1,2,3</sup> The ACOEM evidence-based recommendations are classified as follows: Strongly Recommended (A); Moderately Recommended (B); Recommended (C); Recommended, Insufficient Evidence (I); No Recommendation, Insufficient Evidence (I); Not Recommended, Insufficient Evidence (I); Not Recommended (C); Moderately Not Recommended (B); and Strongly Not Recommended (A). These methods are documented elsewhere. <sup>1,2,3</sup>
Health benefits, side effects and risks have been considered in formulating the recommendations.	Each diagnostic test or treatment option states whether it is invasive or non-invasive, has low-moderate-or high adverse effects, and whether it is low-moderate-or high cost. Counter treatments are discussed to address adverse effects when appropriate (e.g., treatments to prevent NSAID-induced gastropathy).
There is an explicit link between the recommendations and the supporting evidence.	Each recommendation has an evidence table indicating the high and moderate quality studies used to develop that recommendation. Specific reference citations are also included in the rationale for recommendations to provide an explicit link between recommendations and evidence, and where appropriate, the specific citation(s) to develop the indications section are also noted. If there are no quality studies available (insufficient evidence), it is stated in the text, and the evidence rating is automatically “I, Insufficient Evidence.” This is labeled insufficient evidence in part to clearly mark those recommendations as consensus recommendations of the Evidence-based Practice Panel.
Guideline has been externally reviewed by experts prior to its publication. [Persons not involved in development; methodology for review presented; affiliations and support listed]	Each chapter is sent out for external review to other professional societies (e.g., American Physical Therapy Association, American College of Preventive Medicine, The American Occupational Therapy Association, American Academy of Physical Medicine & Rehabilitation, Academy of Organizational & Occupational Psychiatry, American Association of Occupational Health Nurses, American Academy of Disability Evaluating Physicians, American Academy of Neurology, American Association of Neuromuscular & Electrodiagnostic Medicine, American Board of Independent Medical Examiners, American Psychological Association, California Orthopaedic Association’s Workers’ Compensation Committee, Society for Industrial and Organizational Psychology, American College of Physicians, American Osteopathic College of Occupational and Preventive Medicine, Association for Applied Psychophysiology and Biofeedback, and Society for Behavioral Medicine). Some external peer-reviewers choose to remain anonymous, and ACOEM respects those wishes. Those who choose not to remain anonymous are acknowledged in the specific chapter they reviewed. ACOEM wishes to thank all external peer reviewers for their services that are viewed as important to the development of high-quality evidence-based treatment guidelines for the care of injured workers.
Procedure for updating the guidelines is provided.	A three-year rolling update process is in place. However, ACOEM does a yearly review of the literature and will make immediate changes to the guidelines if new high and moderate quality RCTs become available that require a significant change in the recommendations.
<b>Clarity and Presentation</b>	
Recommendations are specific and unambiguous.	All recommendations are clearly stated and in bold type. Those that are recommended, also include indications, dose/frequency, and discontinuation as appropriate. <sup>1,2,3</sup> These standards are used by the Evidence-based Practice Panels, the Editor-in-Chief, associate/assistant

	editors, and the ACOEM editorial staff.
Different options for management of the condition are clearly presented.	Each chapter lists a variety of diagnostic tests and treatment options (medications, exercise, skilled medical therapies, injections, or surgery) that might be beneficial to the patient based on their disorder. Where there are quality comparative trials, the comparisons between different treatment or testing options are noted. When a recommendation between two different testing or treatment options is able to be concluded, that information is also incorporated into the chapter.
Key recommendations are easily identifiable.	<i>Print Version:</i> Recommendations are bolded; each recommendation lists the strength of evidence (strong, moderate, limited, or insufficient); and summary tables which list the recommendations by disorders. <i>Online Tool (APG-I):</i> Recommendation is preceded by a symbol to indicate whether or not it is recommended; each recommendation lists the strength of evidence (strong, moderate, limited, or insufficient).
Guideline is supported by tools for application.	ACOEM's <i>Practice Guidelines</i> now includes a new online tool, APG-I, that was released January 2009. This new electronic tool allows users to access all the content and recommendations from the <i>Guidelines</i> and includes a search functionality, which allows users to search the database by recommendations (region, duration of injury, disorder, and/or type of recommendation) or by using the free text search. ACOEM's Utilization Management Knowledgebase (UMK) application assists users in evaluating, tracking and reporting the medical necessity and/or appropriateness of health care services. Occupational health and utilization management professionals can use this tool to locate concise, comprehensive information using the UMK's search features and physicians can gain access to in-depth coverage of treatment pathways for conditions they treat.
<b>Applicability</b>	
Potential organizational barriers in applying the recommendations have been discussed.	Issues including lack of geographic access to certain technologies have been incorporated into the documents (e.g., access to MRI may be limited, which may necessitate CT scanning for certain disorders). Lack of access to certain specialties has also been noted, with alternate procedures provided (e.g., individual components of a multidisciplinary rehabilitation program). <sup>10</sup>
Potential cost implications of applying the recommendation have been considered.	Cost criteria are considered by the Evidence-based Practice Panels when developing the recommendations. The costs are included in the "Rationale for Recommendations" section. Low cost is defined as <\$100, moderate cost is \$100-500, and high cost is >\$500.
Guideline presents key review criteria for monitoring and/or audit purposes.	ACOEM has not been involved in monitoring adherence. The monitoring of adherence to workers' compensation guidelines is a complex interaction between the state, insurance companies, attorneys, employers, physicians, boards, and appellate judges involved in each state's workers' compensation system. However, by moving to a .net platform, ACOEM will be able to assist in enabling the review of guidelines.
<b>Editorial Independence</b>	
Guideline is editorially independent from the funding body.	The ACOEM <i>Practice Guidelines</i> are editorially independent. Funding of these extensive literature searches and the research infrastructure is through ACOEM. However, the ACOEM Board of Directors does not approve the <i>Guidelines</i> .
Conflicts of interest of guideline development members have been recorded.	The ACOEM <i>Practice Guidelines</i> includes an application process for all panel members. The application form includes specific questions to record information on potential conflicts of interest. Each chapter contains a list of the panel members. Each panel member's place(s) of employment; national, regional, and local committee affiliations; guidelines related professional activities; research grants/other support they are receiving; and any financial/non-financial conflict of interests are listed. <sup>7,8,9</sup>

<sup>1</sup>Harris JS, Sinnott PL, Holland JP, et al. Methodology to update the practice recommendations in the American College of Occupational and Environmental Medicine's Occupational Medicine Practice Guidelines, Second Edition. *J Occup Environ Med.* 2008;50:282-95.

<sup>2</sup>American College of Occupational and Environmental Medicine. Methodology for the Update of the *Occupational Medicine Practice Guidelines, 2<sup>nd</sup> Edition*. Elk Grove Village, Ill: American College of Occupational and Environmental Medicine; 2006. Available at: [http://www.acoem.org/uploadedFiles/Strategic\\_Initiatives/Practice\\_Guidelines/ACOEM%20Practice%20Guidelines%20Methodology.pdf](http://www.acoem.org/uploadedFiles/Strategic_Initiatives/Practice_Guidelines/ACOEM%20Practice%20Guidelines%20Methodology.pdf).

<sup>3</sup>Hegmann KT (Ed). *Occupational Medicine Practice Guidelines, 2<sup>nd</sup> Edition, 2008 Revision*. Elk Grove Village, Ill: ACOEM; 2008, pp. 1143-62.

<sup>4</sup>Evidence-based Practice Spine Panel. Low back disorders. In Hegmann KT (Ed). *Occupational Medicine Practice Guidelines, 2<sup>nd</sup> Edition, 2008 Revision*. Elk Grove Village, Ill: ACOEM; 2008, p. 718.

<sup>5</sup>Evidence-based Practice Chronic Pain Panel. Chronic pain. In Hegmann KT (Ed). *Occupational Medicine Practice Guidelines, 2<sup>nd</sup> Edition, 2008 Revision*. Elk Grove Village, Ill: ACOEM; 2008, p. 75.

<sup>6</sup>Evidence-based Practice Elbow Panel. Elbow disorders. In Hegmann KT (Ed). *Occupational Medicine Practice Guidelines, 2<sup>nd</sup> Edition, 2008 Revision*. Elk Grove Village, Ill: ACOEM; 2008, p. 586.

<sup>7</sup>Evidence-based Practice Spine Panel. Low back disorders. In Hegmann KT (Ed). *Occupational Medicine Practice Guidelines, 2<sup>nd</sup> Edition, 2008 Revision*. Elk Grove Village, Ill: ACOEM; 2008, pp. 1006-8.

<sup>8</sup>Evidence-based Practice Chronic Pain Panel. Chronic pain. In Hegmann KT (Ed). *Occupational Medicine Practice Guidelines, 2<sup>nd</sup> Edition, 2008 Revision*. Elk Grove Village, Ill: ACOEM; 2008, pp. 488-502.

<sup>9</sup>Evidence-based Practice Elbow Panel. Elbow disorders. In Hegmann KT (Ed). *Occupational Medicine Practice Guidelines, 2<sup>nd</sup> Edition, 2008 Revision*. Elk Grove Village, Ill: ACOEM; 2008, pp. 624-5.

<sup>10</sup>Evidence-based Practice Chronic Pain Panel. Chronic pain. In Hegmann KT (Ed). *Occupational Medicine Practice Guidelines, 2<sup>nd</sup> Edition, 2008 Revision*. Elk Grove Village, Ill: ACOEM; 2008, pp. 259-64.