



## Complete Summary

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### GUIDELINE TITLE

The diagnosis and management of soft tissue knee injuries: internal derangements.

### BIBLIOGRAPHIC SOURCE(S)

New Zealand Guidelines Group (NZGG). The diagnosis and management of soft tissue knee injuries: internal derangements. Wellington (NZ): New Zealand Guidelines Group (NZGG); 2003 Jul. 100 p. [229 references]

### GUIDELINE STATUS

This is the current release of the guideline.

## \*\* REGULATORY ALERT \*\*

### FDA WARNING/REGULATORY ALERT

**Note from the National Guideline Clearinghouse:** This guideline references a drug(s) for which important revised regulatory information has been released.

On April 7, 2005, after concluding that the overall risk versus benefit profile is unfavorable, the FDA requested that Pfizer, Inc voluntarily withdraw Bextra (valdecoxib) from the market. The FDA also asked manufacturers of all marketed prescription nonsteroidal anti-inflammatory drugs (NSAIDs), including Celebrex (celecoxib), a COX-2 selective NSAID, to revise the labeling (package insert) for their products to include a boxed warning and a Medication Guide. Finally, FDA asked manufacturers of non-prescription (over the counter [OTC]) NSAIDs to revise their labeling to include more specific information about the potential gastrointestinal (GI) and cardiovascular (CV) risks, and information to assist consumers in the safe use of the drug. See the [FDA Web site](#) for more information.

Subsequently, on June 15, 2005, the FDA requested that sponsors of all non-steroidal anti-inflammatory drugs (NSAID) make labeling changes to their products. FDA recommended proposed labeling for both the prescription and over-the-counter (OTC) NSAIDs and a medication guide for the entire class of prescription products. All sponsors of marketed prescription NSAIDs, including Celebrex (celecoxib), a COX-2 selective NSAID, have been asked to revise the labeling (package insert) for their products to include a boxed warning, highlighting the potential for increased risk of cardiovascular (CV) events and the well described, serious, potential life-threatening gastrointestinal (GI) bleeding associated with their use. FDA regulation 21CFR 208 requires a Medication Guide to be provided with each prescription that is dispensed for products that FDA

determines pose a serious and significant public health concern. See the [FDA Web site](#) for more information.

## COMPLETE SUMMARY CONTENT

\*\* REGULATORY ALERT \*\*

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## SCOPE

### DISEASE/CONDITION(S)

Internal derangements of the knee including injuries to the major knee ligaments (the anterior and posterior cruciate ligaments, the medial and lateral collateral ligaments) and the medial and lateral menisci

### GUIDELINE CATEGORY

Diagnosis  
Evaluation  
Management  
Rehabilitation  
Treatment

### CLINICAL SPECIALTY

Family Practice  
Internal Medicine  
Orthopedic Surgery  
Physical Medicine and Rehabilitation

### INTENDED USERS

Advanced Practice Nurses  
Allied Health Personnel  
Health Care Providers  
Physical Therapists  
Physician Assistants  
Physicians

### GUIDELINE OBJECTIVE(S)

To provide an evidence-based summary of the diagnostic management and treatment options available for internal derangements of the knee to assist health practitioners and consumers make informed decisions to improve health outcomes

## **TARGET POPULATION**

Patients in New Zealand (over age 15) with internal derangements of the knee

## **INTERVENTIONS AND PRACTICES CONSIDERED**

### **Diagnosis**

1. Patient history and physical examination
2. Diagnostic tools:
  - Ottawa knee rules
  - Abduction stress test
  - McMurray test
  - Loss of end range of extension
  - Lachman test
  - Pivot shift test
  - Posterior drawer test
3. Imaging
  - Plain x-ray films
  - Magnetic resonance imaging (MRI)

### **Management**

#### **Non-Operative**

1. Rest, ice, compression, elevation (R.I.C.E.) protocol
2. Medications
  - Paracetamol
  - Non-steroidal anti-inflammatory drugs (NSAIDs)
3. Aspiration
4. Open kinetic chain exercises
5. Use of support person or advocate for Maori or Pacific Island patients
6. Specialist referral as indicated

#### **Surgical**

1. Anterior cruciate ligament reconstruction
2. Meniscectomy

#### **Rehabilitation**

1. Physiotherapy
  - Proprioceptive Training
2. Electrotherapy modalities (considered but not recommended)
  - Ultrasound
  - Laser therapy
  - Various forms of electrical stimulation

- Transcutaneous electrical nerve stimulation (TENS)
  - Neuromuscular electrical stimulation (NMES)
  - Biofeedback (or electromyography)
3. Bracing
  4. Osteopathy, chiropractic, acupuncture and other complementary therapies are not recommended.

## **MAJOR OUTCOMES CONSIDERED**

- Functional outcomes, such as return to previous activity levels and return to work
- Validated functional outcome scoring systems, including Lysholm, Tegner, International Knee Documentation Committee (IKDC)
- Objective tests, such as stability testing (clinical tests and arthrometry), one leg hop
- Subjective assessments including visual analogue scale (VAS) functional and satisfaction assessments
- Harm or adverse reactions
- Cost-effectiveness

## **METHODOLOGY**

### **METHODS USED TO COLLECT/SELECT EVIDENCE**

Hand-searches of Published Literature (Primary Sources)  
 Hand-searches of Published Literature (Secondary Sources)  
 Searches of Electronic Databases

### **DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE**

At the first meeting of the guideline development team the clinical questions the guideline was to address were decided. A systematic search of the literature was undertaken to identify relevant studies. The studies located by the Cochrane Musculoskeletal Injuries Group in Dunedin formed the basis of the literature search. This was a broad scoping search, which identified over 7,000 titles of which 630 studies were considered eligible. Not all of these were relevant to the questions addressed by the guideline and it was necessary to carry out additional searching for each question.

General databases searched included MEDLINE (1966-current); EMBASE (1988-current); CINAHL (1982-current); AMED (1985-current); SPORT Discus (1949-current); Current Contents (1993-current); and PubMed (current).

Cochrane database searches included Cochrane Database of Systematic Reviews; Controlled Trials Register; Database of Abstracts of Reviews of Effectiveness (DARE); and Cochrane Complementary Medicine fields trials register.

Selected Internet sites searched included PEDRo (Physiotherapy Evidence Database); National Health Service (NHS) Clinical Trials; Health Technology Assessment for NHS; NHS Centre or Reviews and Dissemination; New Zealand Health Technology Assessment; Bandolier; National Guideline Clearinghouse.

In addition the reference lists of included studies and relevant reviews were checked for further trials.

### **Search Terms**

Basic search terms were used to identify studies relating to soft tissue knee injuries. Additional terms were used to address each aspect of the guideline and these were combined with the basic search for soft tissue knee injuries. Appropriate filters were used to identify diagnostic studies and randomised controlled trials.

Only published studies in the English language were included. No attempt was made to locate unpublished studies.

### **Inclusion Criteria**

- The diagnosis and management of adults (over age 15) with an acute injury to the menisci, the collateral and cruciate ligaments of the knee. (An acute injury was defined as one where presentation is within three months of the date of injury).

### **Exclusion Criteria**

- Surgical management of meniscal and ligament injuries
- Chronic and recurrent knee instabilities
- Overuse injuries
- Arthritic conditions
- People with other significant comorbidities (for example, haemophilia, psychiatric disorders which may require modified management)
- Injuries to the patellofemoral joint
- Patella ligament injuries
- Bone bruises
- Fat pad impingement/entrapment
- Ilio-tibial band syndrome

## **NUMBER OF SOURCE DOCUMENTS**

### **Diagnosis**

- Clinical evaluation and imaging = 12 studies
- Ottawa knee rules = 6 studies

### **Management**

- R.I.C.E. = 2 studies
- Pharmacology = 5 studies

### **Rehabilitation**

- Electrotherapy modalities = 6 studies
- Conservative management = 3 studies

- Bracing = 2 studies

## **METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE**

Weighting According to a Rating Scheme (Scheme Given)

## **RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE**

### **Levels of Evidence for Therapy**

The guideline development team ranked the evidence according to the revised system of the Scottish Intercollegiate Guidelines Network (SIGN). Evidence statements relating to interventions have been assigned a grading according to the "strength" of the supporting evidence where 1 is the best quality evidence and 4 is expert opinion. Qualitative material was systematically appraised for quality, but was not ascribed a level of evidence.

#### **1++**

High quality meta-analyses, systematic reviews of randomised controlled trials (RCTs), or RCTs with a very low risk of bias

#### **1+**

Well conducted meta-analysis, systematic reviews of RCTs, or RCTs with a low risk of bias

#### **1-**

Well conducted meta-analysis, systematic reviews of RCTs, or RCTs with a high risk of bias

#### **2++**

High quality systematic review or case-control or cohort studies with a very low risk of confounding or bias and a high probability that the relationship is causal

#### **2+**

Well conducted case-control or cohort studies with a low risk of confounding or bias and a moderate probability that the relationship is causal

#### **2-**

Case-control or cohort studies with a high risk of confounding or bias and a significant risk that the relationship is not causal

#### **3**

Non-analytic studies (e.g., case reports, case series)

**4**

Expert opinion (e.g., narrative reviews)

### **Levels of Evidence for Diagnostic Tests**

#### **Single diagnostic studies**

**D++** Good: All diagnostic tests criteria met

**D+** Fair: One or two of the criteria not met

**D-** Poor: None of the criteria met

#### **Diagnostic systematic reviews**

**DSR++** High quality meta-analysis or systematic review of diagnostic studies

**DSR+** Fair quality meta-analysis or systematic review of diagnostic studies

**DSR-** Poor quality meta-analysis or systematic review of diagnostic studies

### **METHODS USED TO ANALYZE THE EVIDENCE**

Review of Published Meta-Analyses  
Systematic Review with Evidence Tables

### **DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE**

A separate guideline support group reviewed and appraised the literature sourced from the systematic review and developed evidence tables which were then supplied to the guideline development groups.

Individual studies were critically appraised using the Generic Appraisal Tools for Epidemiology (GATE).

### **METHODS USED TO FORMULATE THE RECOMMENDATIONS**

Expert Consensus

### **DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS**

In February of 2002, the New Zealand Guidelines Group (NZGG) convened a multidisciplinary team of professionals and consumers to develop the guideline. Team members were nominated by professional organisations and invited to take part. The team met twice during the year and held a final teleconference to agree on the final draft of the guideline.

At the first meeting of the guideline development team the clinical questions the guideline was to address were decided. In subsequent meetings, the guideline developers considered the whole body of evidence (i.e., all the studies relevant to the issue) and decided on recommendations and grades based on all of the individual studies. The guideline development team agreed on the recommendations using the "Considered Judgment" Form.

## **RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS**

### **Grades of recommendations**

#### **A**

The recommendation is supported by good evidence.

#### **B**

The recommendation is supported by fair evidence.

#### **C**

The recommendation is supported by expert opinion only, based on level 4 evidence in the text and the expertise within the multidisciplinary team.

#### **I**

No recommendation can be made because the evidence is insufficient (i.e., evidence is lacking, of poor quality, or conflicting, and the balance of benefits and harms cannot be determined).

**Note:** The grades A to I are a measure of the strength of evidence underlying the recommendations and should not be construed as an indication of the relative importance of the recommendations. In this guideline, Grade C refers to recommendations which were developed by the considerable expertise of the multidisciplinary team. Expert opinion has only been cited where there was no higher level of evidence.

## **COST ANALYSIS**

Costs associated with provider services and various surgical procedures for knee injuries are presented in Table 1 in the original guideline document.

## **METHOD OF GUIDELINE VALIDATION**

External Peer Review

Internal Peer Review

## **DESCRIPTION OF METHOD OF GUIDELINE VALIDATION**

A draft guideline was widely circulated to consumer, primary health care organisations, professional colleges and organisations, expert reviewers, and other clinicians for peer review and modified as a result of their feedback.

## RECOMMENDATIONS

### MAJOR RECOMMENDATIONS

Definitions for the Grades of Recommendation (A-C, & I) and Level of Evidence (1-4) are given at the end of the "Major Recommendations" field.

#### Diagnosis

##### Excluding Fractures

**A** The Ottawa Knee Rules should be applied in the evaluation of acute knee injuries to assist clinicians in making decisions about the need for radiography to exclude fractures.

**C** People with a haemarthrosis should be x-rayed to exclude fractures.

**C** People with significant fractures should be referred immediately to an orthopaedic surgeon. For people with a minor undisplaced fracture, orthopaedic surgeons need to review the films only.

**C** The routine use of x-rays is generally not recommended.

##### Initial Management and Referral

**C** People with no evidence of ligament laxity or meniscal damage should be treated with R.I.C.E. (rest, ice, compression, elevation) and paracetamol, if required, and advised to resume usual activities when pain and swelling have settled, and return for follow-up if symptoms persist after 7 days.

**C** Urgent referral to an orthopaedic surgeon is required for people with:

- red flag signs and symptoms (see original guideline document for "Red Flags")
- severe knee injuries
- significant fracture on x-ray

**C** Early referral to a specialist is recommended for people with:

- injury to the anterior cruciate ligament (ACL), posterior cruciate ligament (PCL), or posterolateral complex
- a locked knee due to suspected meniscal entrapment
- equivocal diagnosis

**C** Subsequent referral to a specialist for people:

- with a suspected meniscal tear if symptoms persist after a trial of rehabilitation for 6 to 8 weeks
- at any stage of the rehabilitation process where symptoms persist and clinical milestones are not being achieved

**C** Referral for rehabilitation is recommended for people with:

- suspected meniscal tears
- injuries to the medial collateral ligament (MCL)
- other ligament injuries to manage symptoms until seen by a specialist

### **Imaging**

**C** Magnetic resonance imaging (MRI) may be considered by specialists where further information is required to make a diagnosis and decide appropriate subsequent management.

### ***Clinical Evaluation***

#### **Medial Collateral Ligament**

**C** A positive valgus stress test performed in extension and 30 degrees of flexion is reasonably accurate in the diagnosis of an MCL tear.

**C** Tenderness along the course of the MCL is suggestive of MCL injury.

#### **Medial and Lateral Meniscus**

**C** In the context of an appropriate history the McMurray test, well localised joint line tenderness, and a block to end range extension may have some additional diagnostic significance.

#### **Anterior Cruciate Ligament**

**A** The Lachman test when correctly performed is reasonably accurate in the diagnosis of complete ruptures of the ACL.

**B** The Lachman test is more accurate when acute pain, swelling, and muscle spasm have subsided at about 10 days.

**C** The pivot shift test is best performed by experienced practitioners.

**C** Loss of end range extension should alert the clinician to the possible involvement of the ACL.

#### **Posterior Cruciate Ligament**

**C** The posterior drawer test is the most sensitive test for evaluating the integrity of the PCL.

#### **Posterolateral Complex**

**C** Primary care providers should refer any people with suspected injury of the posterolateral complex to an orthopaedic surgeon for further evaluation.

## **General Management**

### **R.I.C.E (Rest, Ice, Compression, Elevation)**

**C** There is insufficient evidence in the literature to support the use of R.I.C.E.; however, it is commonly accepted practice for the self-management of a mild soft tissue knee injury in the first 48 to 72 hours. Refer to the original guideline document for R.I.C.E. protocol.

### **Pharmacology**

**C** Paracetamol is probably the most cost-effective and potentially least harmful choice of analgesic for soft tissue knee injuries.

**C** Nonsteroidal anti-inflammatory drugs (NSAIDs) may be beneficial for treating a persistent effusion that has not responded to the R.I.C.E. protocol.

**A** Topical NSAIDs are effective and safe for acute sprains, strains, and sports injuries.

### **Haemarthrosis**

**C** Aspiration is not generally indicated for diagnosis.

**C** Aspiration is indicated for a severe and painful suspected haemarthrosis of the knee joint following an acute knee injury.

**C** For practitioners who are not experienced in the procedure, people should be treated with usual R.I.C.E. and referred to a specialist, local Base Hospital, or another practitioner who has more experience.

### **Rehabilitation**

#### **Physiotherapy**

**A** There is insufficient evidence in the literature to establish the relative effectiveness of the various approaches and methods currently used by physiotherapists in the conservative management of soft tissue knee injuries.

**B** Proprioceptive training may be beneficial in improving outcomes for people with ACL-deficient knees, and its inclusion in rehabilitation programmes for both the conservative and post-operative management of ACL tears is recommended.

#### **Electrotherapy Modalities**

**B** Ultrasound is of little benefit in the treatment of soft tissue knee injuries.

**I** At present there is insufficient evidence to support the use of neuromuscular electrical stimulation (NMES), transcutaneous electric nerve stimulation (TENS),

or biofeedback in the post-operative rehabilitation following meniscectomy or ACL reconstruction.

### **Bracing in the Non-operative Management of Knee Injuries**

**I** Bracing is generally not required for the conservative management of soft tissue knee injuries.

**C** Bracing is appropriate for isolated Grade III and severe Grade II injuries to the MCL for 4 to 6 weeks to stabilise the knee so that rehabilitation can be initiated.

**C** Bracing may be indicated in selected cases where recurrent instability exists, but concurrent medical conditions or other factors preclude surgery.

**C** Bracing may be indicated in selected cases where there is a psychological benefit associated with wearing a brace which enhances a person's ability to undertake tasks in work and sport.

### **Osteopathy, Chiropractic and Acupuncture**

**I** No recommendations can be made about the use of acupuncture, chiropractic, osteopathy, or other complementary therapies for the treatment of soft tissue knee injuries due to a lack of good quality evidence.

### **Specific Management**

#### **Operative Versus Non-operative**

**C** Non-operative management is recommended for all grades of isolated medial collateral ligament injuries.

#### **Anterior Cruciate Ligament**

**C** In general, ACL reconstruction has the most to offer those people with recurrent instability who must perform multidirectional activity as part of their occupation or sport.

**C** Age should not be considered a barrier to reconstructive surgery in the older athlete, providing there are appropriate indications.

**C** An active functional treatment programme supervised by a physiotherapist is recommended following ACL reconstruction.

**B** Open kinetic chain exercises can be introduced from 4 to 6 weeks between 90 and 45 degrees of knee flexion.

**B** Bracing in the immediate post-operative period following ACL reconstruction is not recommended.

### **Medial and Lateral Meniscus**

**A** Physiotherapy is not routinely advocated following meniscectomy.

### **Posterior Cruciate Ligament**

**C** There is general agreement that Grade I and II isolated PCL tears are best managed nonoperatively.

**I** There is insufficient evidence to establish the relative benefits of operative versus nonoperative management of isolated Grade III PCL tears.

**C** Practitioners should follow the post-operative rehabilitation protocol recommended by the orthopaedic surgeon.

### **Posterolateral Complex**

**C** Practitioners should follow the protocol recommended by the orthopaedic surgeon.

### **Special Groups**

**C** Health practitioners providing care for Maori and Pacific Island peoples should be sensitive to their particular needs and encourage the use of a support person or advocate.

### **Definitions**

#### **Grades of Recommendations**

##### **A**

The recommendation is supported by good evidence.

##### **B**

The recommendation is supported by fair evidence.

##### **C**

The recommendation is supported by expert opinion only, based on level 4 evidence in the text and the expertise within the multidisciplinary team.

##### **I**

No recommendation can be made because the evidence is insufficient (i.e., evidence is lacking, of poor quality or conflicting and the balance of benefits and harms cannot be determined).

### **Level of Evidence**

#### **1++**

High quality meta-analyses, systematic reviews of randomised controlled trials (RCTs), or RCTs with a very low risk of bias

**1+**

Well conducted meta-analysis, systematic reviews of RCTs, or RCTs with a low risk of bias

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**2+**

Well conducted case-control or cohort studies with a low risk of confounding or bias and a moderate probability that the relationship is causal.

**2-**

Case-control or cohort studies with a high risk of confounding or bias and a significant risk that the relationship is not causal

**3**

Non-analytic studies (e.g., case reports, case series)

**4**

Expert Opinion (e.g., narrative reviews)

**CLINICAL ALGORITHM(S)**

The original guideline document provides clinical algorithms for the diagnosis and management of soft tissue knee injuries.

**EVIDENCE SUPPORTING THE RECOMMENDATIONS**

**TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS**

The advice on the management of internal derangements of the knee given in this guideline is based on epidemiological and other research evidence, supplemented where necessary by the consensus opinion of the expert development team based on their own experience.

Only systematic reviews, meta-analyses, randomised controlled trials, or quasi-randomised controlled trials were considered for inclusion for the guideline. Observational studies, case studies, and laboratory base studies were excluded.

## **BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS**

### **POTENTIAL BENEFITS**

#### **Diagnostic procedures**

##### **Plain Films**

Consistent application of the Ottawa Knee Rules has the potential to reduce costs by decreasing the number of unnecessary x-rays requested to exclude fractures in acute knee injuries, although the rate of x-ray in New Zealand (30%) is already below that achieved in other centres following implementation of the Ottawa Knee Rules.

##### **Management**

##### **Medication**

The use of simple analgesics (paracetamol) for people with soft tissue knee versus nonsteroidal anti-inflammatory drugs (NSAIDs) may provide a benefit by avoiding the potential harms associated with the use of NSAIDs.

##### **Subgroups Most Likely to Benefit:**

In people with an acute traumatic injury for whom oral analgesics are contraindicated, transcutaneous electrical nerve stimulation (TENS) may offer an effective alternative.

### **POTENTIAL HARMS**

#### **Diagnostic Arthroscopy and Magnetic Resonance Imaging (MRI)**

Based on figures supplied by Accident Compensation Corporation (ACC) the current rate of arthroscopy in New Zealand is 0.8% of all claims for soft tissue injuries of the knee, and 7.7% of all specialist procedures. The current rate of MRI is 3% of all claims for soft tissue injuries of the knee, but over 16% of specialist claims. Savings from diagnostic arthroscopies avoided may be balanced by increases in expenditure for MRIs.

#### **Nonsteroidal Anti-Inflammatory Drugs (NSAIDS)**

The rationale for using non-steroidal anti-inflammatory drug (NSAIDs) for acute sports injuries is based on the belief that controlling the inflammatory response following injury will speed the recovery process. However, there has been debate about how long treatment should continue and concerns about possible detrimental effects to the healing process in the later stages. In addition, NSAIDs

are associated with significant morbidity mostly in the form of gastrointestinal symptoms.

## QUALIFYING STATEMENTS

### QUALIFYING STATEMENTS

While guidelines represent a statement of best practice based on the latest available evidence (at the time of publishing), they are not intended to replace the health professional's judgment in each individual case.

## IMPLEMENTATION OF THE GUIDELINE

### DESCRIPTION OF IMPLEMENTATION STRATEGY

The guideline development team recommended the following strategy for the dissemination and implementation of the guideline.

1. The completed guideline and supporting material will be posted on the New Zealand Guidelines Group (NZGG) and Accident Compensation Corporation (ACC) Web sites. A laminated version of the diagnostic and treatment algorithms with brief explanatory notes should be circulated to all groups involved in the diagnosis and management of soft tissue knee injuries. The guideline summaries and consumer pamphlet should be disseminated as widely as possible to the following groups:
  - general practitioners, accident and medical clinics, orthopaedic surgeons
  - hospital accident and emergency (A&E) departments
  - physiotherapists, osteopaths, chiropractors, acupuncturists
  - relevant colleges and organisations of the disciplines involved in the management of soft tissue injuries
  - students undergoing training in relevant disciplines
2. Several strategies are recommended to educate treatment providers about the diagnosis and management of soft tissue knee injuries.
  - The guideline should be presented at topical conferences in 2003 including the Royal New Zealand College of General Practitioners (RNZCGP) Conference in July, orthopaedic and physiotherapy conferences.
  - Conference sessions led by guideline team members would present the recommendations and facilitate discussion. Opportunities for teaching the accurate performance of relevant clinical tests should be included.
  - A full set of resources including ACC videos demonstrating the diagnosis of knee injuries could be made available to Independent Practitioners' Association (IPA) facilitators.
  - Prepare case studies and vignettes based on the guideline.
  - The full guideline could be made available on compact disc.
  - General practitioner peer review groups offer an ideal forum for the introduction and discussion of the guideline. Local guideline team members could be involved in these meetings to demonstrate clinical diagnostic tests.

3. Consumer Education: A consumer pamphlet will be produced in conjunction with ACC to provide information for consumers about the management soft tissue knee injuries. This will be distributed to GPs, physiotherapists, and sports clubs so that it can be made available to consumers.
4. An evaluation of the uptake of the guideline should be conducted after 18 months from the time of publication.

## **IMPLEMENTATION TOOLS**

Clinical Algorithm

For information about [availability](#), see the "Availability of Companion Documents" and "Patient Resources" fields below.

## **INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES**

### **IOM CARE NEED**

Getting Better

### **IOM DOMAIN**

Effectiveness  
Patient-centeredness

## **IDENTIFYING INFORMATION AND AVAILABILITY**

### **BIBLIOGRAPHIC SOURCE(S)**

New Zealand Guidelines Group (NZGG). The diagnosis and management of soft tissue knee injuries: internal derangements. Wellington (NZ): New Zealand Guidelines Group (NZGG); 2003 Jul. 100 p. [229 references]

### **ADAPTATION**

Not applicable: The guideline was not adapted from another source.

### **DATE RELEASED**

2003 Jul

### **GUIDELINE DEVELOPER(S)**

New Zealand Guidelines Group - Private Nonprofit Organization

### **SOURCE(S) OF FUNDING**

The Accident Compensation Corporation (ACC)

## **GUIDELINE COMMITTEE**

Effective Practice, Informatics and Quality Improvement (EPIQ) Group

### **COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE**

*Guideline Team Members:* Bruce Arroll, MBChB PhD, FRNZCGP, FAFPHM, Associate Professor (*Chair*); Gillian Robb, MPH (Hons) Dip Physiotherapy Dip Ergonomics, Dip MT (*Project Manager*); Emma Sutich, MA(Appl) Clin & Comm Psych (*NZGG Project Manager*)

*Diagnostic Team Members:* Sunia Foliaki, MBBS (PNG); M Tropical Health (Aust), MPH (USA), Public Health Consultant, Representing a Pacific perspective; Peter Gendall, MB ChB FRANZCR, Musculoskeletal Radiologist; Chris Milne, MBChB; Dip Sports Medicine, FRNZCGP; FACSP, Sports Physician, Hamilton, National Chairman Sports Medicine NZ, Medical Director, Northern Region, NZ Academy of Sport; Graeme Moginie, Adv Dip Physiotherapy; Dip MT, NZ Registered Physiotherapist, Acupuncture, Physiotherapist, Dunedin; Jolene Phillips, Administration Assistant Arthritis NZ, Representing a consumer perspective, Wellington; Rocco Pitto, MD, PhD, Associate Professor, Consultant Orthopaedic Surgeon, University of Auckland, Middlemore Hospital; Rachel Thomson, MBChB, GP Hamilton, Representing a Maori perspective; Russell Tregonning, MBChB; FRACS FNZOA, Orthopaedic and Knee Surgeon, Wellington; James Watt, MBChB; MRCP (UK) FRNZCGP; FAFMM; Dip MSM; Dip Obst Musculoskeletal Specialist, Auckland

*Treatment Team Members:* Russell Blakelock, BHB; MBChB, FRACS (General & Paediatric Surgery), Representing a Pacific perspective, Consultant Paediatric Surgeon, Christchurch Hospital; John Matheson, MBChB; MSc (Oxon) FRACS, Orthopaedic Surgeon, Dunedin President NZ Knee Society; Neil Matson, BSc; MBChB; Dip Obst; Dip Sports Medicine; FRNZCGP General Practitioner, Tauranga; Peter McNair, PhD MNZCP, Director of the Physical Rehabilitation Research Centre, Auckland University of Technology, Professor of Physiotherapy; Ian Murphy MBChB; PG Diploma Sports Med, Sports Medicine Registrar, Auckland; Peter Pfitzinger BSc; MSc; MBA, Representing a consumer perspective; Paul Quin, MBChB; Dip MSM (Otago) FAFMM, Musculoskeletal Specialist, Auckland; Keri Ratima, MBChB; MMed Sci; FRNZCGP, Representing a Maori perspective, GP Wellington; Duncan Reid, BSc; MHSc; PGD (Manip Physio); Dip MT Dip, Physiotherapy, Senior Lecturer, Physiotherapy, AUT Auckland; Barry Tietjens, MBChB (Otago) MSc (Oxon) FRCS (Ed) FRACS, Orthopaedic Surgeon, Auckland

### **FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST**

Members of the guideline team who are in clinical practice receive payments from the Accident Compensation Corporation (ACC) for the diagnosis and management of ACC claimants with knee injuries. This is not considered a competing interest.

**John Matheson** is involved with the Highlanders' Franchise.

**Peter McNair** undertakes educational talks and seminars for Workscience Ltd and sells equipment used for the rehabilitation of muscles following injury.

**Peter Gendall** is a minority shareholder in Manukau Radiology Institute Ltd and in Mercy MRI Ltd. He is also an employee of Mercy Radiology Group and a contractor to Manukau Radiology Institute Ltd.

**Russell Tregonning** has received funding from Zimmer (NZ) and Bionet (NZ) for attendance at symposiums.

No other competing interests were declared.

## **ENDORSER(S)**

Arthritis New Zealand - Medical Specialty Society  
Effective Practice, Informatics & Quality Improvement (New Zealand) - Professional Association  
New Zealand Orthopaedic Association - Professional Association  
New Zealand Society of Physiotherapists - Professional Association  
NZ Association of Musculoskeletal Medicine - Medical Specialty Society  
Royal Australian and New Zealand College of Radiologists - Professional Association  
Royal New Zealand College of General Practitioners - Medical Specialty Society  
Sports Medicine New Zealand - Professional Association

## **GUIDELINE STATUS**

This is the current release of the guideline.

## **GUIDELINE AVAILABILITY**

Electronic copies: Available in Portable Document Format (PDF) from the [New Zealand Guidelines Group Web site](#).

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## **AVAILABILITY OF COMPANION DOCUMENTS**

The following are available:

- New Zealand Guidelines Group (NZGG). Guideline summary. Wellington (NZ): New Zealand Guidelines Group (NZGG); 2003 Jul. 2 p. Available from in Portable Document Format (PDF) from the [New Zealand Guidelines Group Web site](#).
- New Zealand Guidelines Group (NZGG). Evidence-based guidelines for the diagnosis and management of soft tissue knee injuries. Terms of reference. Wellington (NZ): New Zealand Guidelines Group (NZGG); 2003. 4 p.

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## **PATIENT RESOURCES**

None available

## **NGC STATUS**

This NGC summary was completed by ECRI on June 16, 2004. The information was verified by the guideline developer on July 19, 2004. This summary was updated on May 3, 2005 following the withdrawal of Bextra (valdecoxib) from the market and the release of heightened warnings for Celebrex (celecoxib) and other nonselective nonsteroidal anti-inflammatory drugs (NSAIDs). This summary was updated by ECRI on June 16, 2005, following the U.S. Food and Drug Administration advisory on COX-2 selective and non-selective non-steroidal anti-inflammatory drugs (NSAIDs).

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