



Adult and Adolescent Knee Pain Guidelines

The Clinical Practice Guidelines for Adult and Adolescent Knee Pain was reviewed and approved by Unity's Clinical Quality Improvement Committee on May 18, 2007. The UW Medical Foundation, UW Hospitals and Clinics, Meriter Hospital, University of Wisconsin Department of Family Medicine, Unity Health Insurance, Physicians Plus Insurance Corporation, and Group Health Cooperative participated in the development and revision of this guideline. The task force was a multidisciplinary work group comprised of health care practitioners from orthopedics, sports medicine, and rheumatology.



Adult and Adolescent Knee Pain Guidelines

Guidelines are designed to assist clinicians by providing a framework for the evaluation and treatment of patients. This guideline outlines the preferred approach for most patients. It is not intended to replace a clinician’s judgement or to establish a protocol for all patients. It is understood that some patients will not fit the clinical condition contemplated by a guideline and that a guideline will rarely establish the only appropriate approach to a problem.

TABLE OF CONTENTS

Adult and Adolescent Knee Pain Flow Chart.....	2
1. Patient Presents with Knee Pain.....	3
2. History and Physical Exam.....	3
3. Clinical Parameters for Ordering Radiographs.....	4
4. Orthopedic/Sports Medicine Consult.....	4
5. Rheumatology Consult.....	4
6. Conservative Medical Treatment Plans.....	4
Non-traumatic Pain.....	4
Traumatic Injury.....	5
7. Indications for Magnetic Resonance Imaging.....	5
8. References.....	5
9. Acknowledgement.....	5
Appendix.....	6

ADULT AND ADOLESCENT KNEE PAIN GUIDELINES

Patient presents to PCP with knee pain

PCP performs History & Physical
(Complete list of components to H&P addressed in #2)

Determine need for Radiograph

Determine need for MRI

Radiographs for Traumatic Injury
Clinical parameters for ordering knee radiographs following trauma are:
 1. Joint effusion within 24 hours of direct blow or fall.
 2. Palpable tenderness over fibula head, patella, femoral condyles or tibial plateau.
 3. Inability to walk (four steps) or bear weight immediately or in the emergency room, or within one week of trauma.
 4. Inability to flex knee to 90 degrees.
In patients of any age except for infants, radiographs are not indicated after trauma if:
 1. Patient is able to walk without a limp.
 2. Patient had a twisting injury and there is no effusion.
 3. No bony tenderness.
Ordering parameters:
 1. All patients: AP, Lateral and Laurin/Merchant view of involved knee only, non-weight bearing.
 2. Tunnel view for patients <16 years of age.

Radiograph for Non-Traumatic Pain
 1. Age 40 or less (the following 3 views should be ordered - for the involved knee only):
 • AP
 • Lateral
 • Laurin/Merchant
 2. Age >40 or suspected arthritic etiology:
 • Standing AP both knees;
 • Supine Lateral involved knee only;
 • Laurin/Merchant view involved knee only;
 • Rosenberg 45 degrees PA standing flex both knees.
 3. Age <16:
 • Tunnel view.
Radiograph view ability may be limited at certain sites.

MRIs for Trauma or Acute Injury
Radiographs should always precede MRI
 Consider MRIs for trauma or acute injury, with
 1. Large knee effusion
 2. Locked knee
 3. Strong clinical suspicion of ACL or PCL tear.
 4. Strong clinical suspicion of meniscal tear with limited range of motion. **Orthopedic consult is strongly recommended prior to ordering MRI if a fracture is identified by radiograph.**

MRIs for Non-Traumatic Pain
Radiographs should always precede MRI
 MRIs are not indicated for degenerative joint disease. Strongly recommend orthopedic or rheumatology consult prior to ordering MRI.

Limited Range of Motion (Acutely locked knee)
 • Immediate (within 30 min) large effusion;
 • Suspicion of ACL tears;
 • Loose bodies with loss of motion.

Tumors

• Degenerative joint disease;
 • Patellofemoral pain with normal radiographs;
 • Other patients with normal radiographs.

• Inflammatory arthritis;
 • Polyarthritis;
 • Lyme disease;
 • Gout

• Fractures
 • Sepsis;
 • Other conditions

Call for orthopedic/sports medicine consult within one week

Call for orthopedic consult

Synovial fluid analysis

Call for same-day orthopedic consult

Consider referral to rheumatology

Consult with orthopedic specialist

Conservative medical treatment within primary care. (Medication, physical therapy 1-2 visits, home exercise program)

Follow-up in 6-12 weeks with primary physician; within 3 weeks if non-weight bearing.

Improvement in 6 weeks (3 weeks if non-weight bearing)?

Yes
No

Consult with orthopedic or rheumatology specialist

1. Patient Presents with Knee Pain

Knee pain is a common presenting complaint in primary care – approximately 9.8 million office visits annually. In addition, 1.3 million patients annually present to emergency departments with the problem of acute knee trauma. Patellofemoral syndrome and osteoarthritis cause the majority of knee pain, which respond well to knee strengthening exercises and symptomatic care. Radiographs and MRIs are usually not useful for the evaluation of non-traumatic knee pain unless indicated by history and physical examination.

2. History and Physical Exam

The history and physical exam are the most important components of the evaluation and should focus on differentiating the causes of knee pain. If history is suggestive of an inflammatory disorder, a complete physical exam should be obtained, as should appropriate lab testing. Components of a knee exam include:

History

- Onset, history and location of pain
- Previous history of similar problems in knee or other joints
- Response to activity
- Factors that aggravate pain
- Factors that relieve pain
- Presence and location of swelling
- Stiffness
- Grinding, catching, locking or snapping
- Fever or chills
- Change in sensation or muscle strength

Physical Examination

- Visual inspection for dislocations and fractures
- Presence and location of swelling (intra-articular, prepatellar bursa, posterior (Baker's cyst))
- Presence and location of warmth
- Presence and location of crepitus
- Foot pulses
- Palpate for tenderness (peripatellar, patella, patella tendon, tibial tuberosity, medial and lateral joint lines, medial and lateral collateral ligaments, and pes anserine bursa)
- Apprehension and pain with lateral displacement of patella for indications of patella subluxation or dislocation
- Active range of motion (normal = 0 - 135)
- Passive range of motion
- Joint line pain or tenderness with extension or flexion is compatible with meniscus tear
- Meniscal compression tests (McMurray's) to evaluate for torn meniscus
- Varus/valgus instability at 30° of flexion for damage to collateral ligaments
- Evaluate hip range of motion for underlying hip pathology
- Survey other joints for signs of underlying rheumatologic disorder
- Consider indications for fluid analysis (a traumatic effusion and joint redness/warmth)

3. Clinical Parameters for Ordering Radiographs

Radiographs are not indicated in the following circumstances:

1. Patient is able to walk without a limp
2. Patient had a twisting injury and there is no effusion
3. No bony tenderness

Parameters used for ordering knee radiographs following trauma are as follows:

1. Joint effusion within 24 hours of direct blow or fall
2. Palpable tenderness over fibular head or patella or other bony structures
3. Inability to walk (four steps) or bear weight immediately or in the emergency room, or within a week of the trauma
4. Inability to flex knee to 90 degrees
5. History of patellar dislocation/relocation
6. Inability to actively and fully extend the knee (Quad/patellar tendon ruptures)

4. Orthopedic/Sports Medicine Consult

A referral to an orthopedic/sports medicine specialist within one week should be considered when radiographs and/or clinical exam show evidence of:

1. Limited range of motion (acutely locked knee)
2. Immediate large effusion (suspicious for ACL injury, loose bodies, locked knee, patellar dislocation, osteochondral fractures)

During the week prior to the orthopedic appointment, patients without fractures or a locked knee should be allowed weight bearing as tolerated. For these patients, knee motion should be encouraged and knee immobilizers discouraged. Crutches should be used for patients with partial weight bearing status or patients ambulating with a limp.

An immediate (same day) appointment to an orthopedic specialist should be considered when radiographs show evidence of fractures or osteomyelitis.

5. Rheumatology Consult

A referral to a rheumatologist should be considered for diagnoses such as inflammatory arthritis, polyarthritis, Lyme disease or gout as determined by history, physical exam, laboratory testing and/or radiograph.

6. Conservative Medical Treatment Plans

Non-traumatic Pain

1. Medications: NSAIDs, acetaminophen, capsaicin
2. Weight loss program, if applicable
3. Therapeutic exercises
 - a. For most conditions, avoid high impact and full weight bearing activities such as jumping, twisting, and running on hard surfaces
 - b. Quadriceps strengthening (specifically the vastus medialis obliquus by straight leg raises, quad sets, and leg presses as tolerated)
 - c. Hamstring and calf stretching
 - d. Low impact aerobic activities such as cycling, swimming, walking, cross country skiing
 - e. For most patients, home exercise programs prescribed by their provider are usually as effective as formal physical therapy
 - f. Consider formal physical therapy for patients who need supervision, or who would benefit from a biomechanical assessment that could be done by a physical therapist
4. Follow-up in 6-12 weeks if weight bearing and 3 weeks if not weight bearing
5. If partial or no response to conservative treatment noted at follow-up visit, reevaluate initial diagnosis and/or refer to orthopedic specialist for evaluation and treatment

Traumatic Injury

1. Rest and ice, 15-20 minutes every 3-4 hours for the first 24-48 hours.
2. Analgesics and NSAIDs may be useful to decrease swelling.
3. Immobilization for the first 3-5 days, pending further evaluation.
4. Crutches should be used if unable to bear full weight without pain or for specific conditions for which non-weight bearing is indicated (e.g., fractures, osteochondritis dissecans, locked knees). If partial weight bearing is acceptable, encourage range of motion and weight bearing as tolerated.
5. Bracing is indicated only if injury is unstable and needs immobilization, or for specific support of an injured structure when the diagnosis has been established (e.g., collateral ligament sprains). Routine use of immobilizers is discouraged because the resulting stiffness and pain delays recovery.
6. Active range of motion exercises within 3-5 days, as pain allows.
7. Follow-up in 4-6 weeks if weight bearing or in 2 weeks if not weight bearing.
8. If partial or no response to conservative treatment is noted at follow-up visit, reevaluate initial diagnosis and/or refer to orthopedic specialist for evaluation and treatment.

7. Indications for Magnetic Resonance Imaging

1. MRIs should be considered for the following indications:
 - a. History of trauma or acute injury, with knee effusion or locked knee
 - b. History of trauma or acute injury, with strong clinical suspicion of ACL or PCL tear
 - c. History of trauma or acute injury, and strongly suspicious for meniscal tear with limited range of motion
2. Degenerative joint disease
 - a. MRIs are not indicated for degenerative joint disease.

8. References

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2. Pavlov H; Expert Panel on Musculoskeletal Imaging. Non-traumatic knee pain. American College of Radiology Appropriateness Criteria®. American College of Radiology Web site. http://www.acr.org/s_acr/sec.asp?CID=1206&DID=15047. Updated 2005. Accessed May 21, 2007.
3. American Academy of Orthopedic Surgeons. AAOS clinical guideline on osteoarthritis of the knee. American Academy of Orthopedic Surgeons Web site. <http://www.aaos.org/Research/guidelines/guide.asp>. Updated 2003. Accessed May 21, 2007.
4. University of Michigan Health System. Knee pain or swelling: acute or chronic. UMHS Clinical Guideline Web site. <http://cme.med.umich.edu/iCME/KneePain/>. Originally published 2002. Updated 2005. Accessed May 21, 2007.
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9. Acknowledgement

This guideline was initially developed by UW Health and adopted in 2007 by the Medical Management Collaborative, which includes medical directors and staff of: University of Wisconsin Medical Foundation, University of Wisconsin Hospital and Clinics, Meriter Hospital, University of Wisconsin Department of Family Medicine, Unity Health Insurance, Group Health Cooperative and Physicians Plus Insurance Corporation. Clinical questions may be directed to David Bernhard, MD and David J. Rolnick, MD. Questions, comments or requests for additional information should be directed to the Quality Improvement and Communications Coordinator, University of Wisconsin Medical Foundation at 608.821.4210.

Appendix

UW Health Orthopedic and Rheumatology Providers and Contacts

ORTHOPEDICS

UW Health 1 S. Park Orthopedic Surgery

Physician referral: 608.287.2701

Patient appointment: 608.287.2700

Barash, Harvey L., MD

Lemon, Richard A., MD

Mott, William J., MD

Rolnick, David J., MD

Wollaeger, John K., MD

UW Hospital and Clinics Orthopedic Surgery

Physician referral: 608.263.6796

Patient appointment: 608.263.7540

Heiner, John P., MD

Illgen II, Richard, MD

Squire, Matthew, MD, MS

UW Hospital and Clinics Pediatric Orthopedic Surgery

Physician referral: 608.263.6796

Patient appointment: 608.263.7540

Mann, David C., MD

Noonan, Kenneth, MD

Nemeth, Blaise, MD

SPORTS MEDICINE

UW Research Park Clinic – Sports Medicine

Physician referral: 608.263.6796

Patient appointment: 608.263.8850

Surgeons

Baer, Geoff S., MD

Graf, Ben K., MD

Keene, James S., MD

Kaplan, Lee, MD

Orwin, John F., MD

Primary Care-Sports Medicine

Bernhard, David T., MS

Carr, Kathleen E., MD

Landry, Gregory, L., MD

RHEUMATOLOGY

UW Health 1 S. Park Rheumatology Clinic

Physician referral: 608.287.2801

Patient appointment: 608.287.2800

Harrington, J. Timothy, MD

Juozevicius, John L., MD

Walsh, Michael B., DO

UW Hospital and Clinics West Rheumatology Clinic

Physician referral: 608.263.6796

Patient appointment: 608.263.7577

Hansen, Karen E., MD

Bell, Carolyn, MD

Lawrence, Susan J., MD

Malone, Daniel G., MD

McKown, Kevin, MD

Muller, Daniel, MD, PhD

- All providers listed at primary practice site.