Complete Summary

GUIDELINE TITLE

Ankle sprain.

BIBLIOGRAPHIC SOURCE(S)

Institute for Clinical Systems Improvement (ICSI). Ankle sprain. Bloomington (MN): Institute for Clinical Systems Improvement (ICSI); 2006 Mar. 26 p. [24 references]

GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates a previous version: Ankle sprain. Bloomington (MN): Institute for Clinical Systems Improvement (ICSI); 2003 Jul. 26 p.

** 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.

- June 15, 2005, Non-Steroidal Anti-Inflammatory Drugs (NSAIDs): U.S. Food and Drug Administration (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.
- April 7, 2005, Non-steroidal anti-inflammatory drugs (NSAIDS) (prescription and OTC, including ibuprofen and naproxen): FDA asked manufacturers of prescription and non-prescription (OTC) non-steroidal anti-inflammatory drugs (NSAIDs) to revise their labeling to include more specific information about potential gastrointestinal (GI) and cardiovascular (CV) risks.

COMPLETE SUMMARY CONTENT

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SCOPE

DISEASE/CONDITION(S)

Ankle sprain

GUIDELINE CATEGORY

Diagnosis
Evaluation
Management
Rehabilitation
Treatment

CLINICAL SPECIALTY

Emergency Medicine
Family Practice
Internal Medicine
Orthopedic Surgery
Pediatrics
Physical Medicine and Rehabilitation
Radiology
Sports Medicine

INTENDED USERS

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

GUIDELINE OBJECTIVE(S)

- To improve the appropriate use of diagnostic imaging for patients presenting with acute ankle sprain injuries
- To improve patient education for patients with acute ankle sprain injuries

TARGET POPULATION

Patients ages 5 years and older presenting with acute lateral ankle pain caused by inversion of the ankle

INTERVENTIONS AND PRACTICES CONSIDERED

Diagnostic Assessment

1. Telephone screening for same-day provider visit
2. Comprehensive history and physical examination upon presentation in clinical care setting, including squeeze and rotary tests
3. X-ray (ankle radiography or foot x-ray series)

Treatment/Management

1. Home treatment program, including patient education about protection, rest, ice, compression, and elevation
2. Early acute treatment, including protection, relative rest, ice, compression/support, elevation, range of motion exercises, shoes, and pain relief (simple analgesics or analgesic doses of nonsteroidal anti-inflammatory drugs)
3. Late acute treatment and rehabilitation, including ice and elevation, exercises (flexibility, strengthening, and balance), advanced rehabilitation, and rehabilitation for athletic activity
4. Referral
5. Prevention of recurrence of injury

MAJOR OUTCOMES CONSIDERED

- Accuracy of diagnostic tests for ankle sprain injuries
- Swelling and pain
- Speed of return to normal activity level
- Reinjury rates

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Additional descriptions of literature search strategies are not available.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Not stated

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Not applicable

METHODS USED TO ANALYZE THE EVIDENCE

Review of Published Meta-Analyses
Systematic Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Clinical Validation-Pilot Testing
Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Institute Partners: System-Wide Review

The guideline draft, discussion, and measurement specification documents undergo thorough review. Written comments are solicited from clinical, measurement, and management experts from within the member medical groups during an eight-week period of "Critical Review."

Each of the Institute's participating medical groups determines its own process for distributing the guideline and obtaining feedback. Clinicians are asked to suggest modifications based on their understanding of the clinical literature coupled with their clinical expertise. Representatives from all departments involved in implementation and measurement review the guideline to determine its operational impact. Measurement specifications for selected measures are developed by the Institute for Clinical Systems Improvement (ICSI) in collaboration with participating medical groups following general implementation of the guideline. The specifications suggest approaches to operationalizing the measure.

Guideline Work Group: Second Draft

Following the completion of the "Critical Review" period, the guideline work group meets 1 to 2 times to review the input received. The original guideline is revised as necessary, and a written response is prepared to address each of the suggestions received from medical groups. Two members of the Committee on Evidence-Based Practice carefully review the Critical Review input, the work group responses, and the revised draft of the guideline. They report to the entire committee their assessment of two questions: (1) Have the concerns of the medical groups been adequately addressed? (2) Are the medical groups willing and able to implement the guideline? The committee then either approves the guideline for pilot testing as submitted or negotiates changes with the work group representative present at the meeting.

Pilot Test

Medical groups introduce the guideline at pilot sites, providing training to the clinical staff and incorporating it into the organization's scheduling, computer, and other practice systems. Evaluation and assessment occur throughout the pilot test phase, which usually lasts for three months. Comments and suggestions are solicited in the same manner as used during the "Critical Review" phase.

The guideline work group meets to review the pilot sites' experiences and makes the necessary revisions to the guideline, and the Committee on Evidence-Based Practice reviews the revised guideline and approves it for implementation.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Note from the National Guideline Clearinghouse (NGC) and the Institute for Clinical Systems Improvement (ICSI): In addition to updating their clinical guidance, ICSI has developed a new format for all guidelines. Key additions and changes include: combination of the annotation and discussion section; the addition of "Key Points" at the beginning of most annotations; the inclusion of references supporting the recommendations; and a complete list of references in the Supporting Evidence section of the guideline. For a description of what has changed since the previous version of this guidance, refer to Summary of Changes -- March - 2006.

The recommendations for ankle sprain are presented in the form of an algorithm with 13 components, accompanied by detailed annotations. An algorithm is provided for Ankle Sprain; clinical highlights and selected annotations (numbered to correspond with the algorithm) follow.

Class of evidence (A-D, M, R, X) definitions are provided at the end of the "Major Recommendations" field.

Clinical Highlights and Recommendations

- Same-day visits should be scheduled for patients experiencing sudden, intense pain with rapid onset of swelling, cold or numbness in the foot, presence of gross deformity, complicating conditions (e.g., diabetes,

neuropathy), the fact it is a work related injury, and/or the inability to bear any weight. (*Annotation #2*)

- Treatment of the non-emergent and home treatment group should follow the PRICE Principle (Protection, Relative Rest, Ice, Compression/Support, Elevation). (*Annotation #3*)
- An ankle radiograph series (anteroposterior [AP], lateral, and mortis views) should be obtained if there is pain in the malleolar zone and bone. Be aware that Salter Harris Type I fractures of the distal fibula may be present with normal x-rays. (*Annotation #4, #7*)
- A foot radiographic series is only required if there is any pain over the bones of the mid-foot, including bone tenderness at the base of the fifth metatarsal or base of the navicular bone, or inability to bear weight at the time of the evaluation. (*Annotation #7*)
- Rehabilitation of confirmed ankle sprains should include flexibility exercises, strengthening and balance exercises and follow a reasonable return-to-work progression. (*Annotation #10*)
- Effective rehabilitation of the ankle injury combined with a prophylactic ankle bracing has been shown to significantly reduce the reoccurrence of ankle sprain. (*Annotation #10*)

Ankle Sprain Algorithm Annotations

1. **Acute Ankle Injury**

   The patient presents with acute ankle pain caused by twisting motion of the ankle.

2. **Positive Response to Phone Screening Questions?**

   If initial assessment of the ankle injury is done through telephone screening, in addition to the criteria listed on the algorithm page it is also important to determine:

   - Whether pain is present elsewhere in the foot or leg (this would take the injury out of this guideline)
   - If the patient is currently taking medication, such as anticoagulants, which may affect the injury
   - If any of the measures described in the home treatment plan have been tried, and to what effect
   - If pain interferes with even minor weight-bearing after 24 hours of home care. If so, a same day provider visit is recommended.

   Phone Triage Criteria for Same-Day Provider Visit

   - Sudden, intense pain with rapid onset of swelling
   - Foot cold or numb
   - Presence of gross deformity (other than swelling)
   - Presence of complicating conditions (e.g., diabetes, neuropathy)
   - Work-related injury
   - Inability to bear any weight

3. **Home Treatment Program**

The goals of home treatment of ankle sprain are to decrease swelling and pain to encourage early mobilization and return to normal activity level. To promote appropriate expectations and to reduce the likelihood of reinjury, it is important that the patient have a clear understanding of the normal progression of recovery, when to call back, and the basic recovery steps listed below. Patient education plays an important part in the recovery process following an ankle sprain. While these steps can be described either verbally or in writing, it is important to have the patient repeat key messages to assess his or her level of understanding.

Basic Recovery Steps - Messages to Deliver to the Patient

P - Protection. Protect the ankle from further injury by using an ankle support or wrap as directed. Depending upon the degree of swelling, high-top, lace-up shoes such as hiking boots, and/or other supportive garments such as Swede-Os can be worn to provide support.

R - Rest. For proper healing, rest the injured ankle to avoid further tissue injury. Avoid activities which cause pain or swelling.

I - Ice. Ice is used to control swelling, relieve pain, and relieve muscle spasm. It may be needed for 1 week or until the pain and acute swelling have resolved. **Do not** use heat if swelling is present. Place a wet towel over the ankle. Then put a plastic bag of ice cubes on the towel. Leave ice on for 15 to 20 minutes. You can repeat this procedure for using ice every 2 to 3 hours while awake. **Do not** leave ice on while asleep. Another option is to immerse the foot and ankle in a bucket of ice water for 15 to 20 minutes.

C - Compression. Use an elastic wrap or ankle splint to control swelling. This will help speed healing and prevent joint stiffness. The wrap should be snug but not tight. Rewrap the ankle several times per day. Remove the wrap before going to sleep.

E - Elevation. Elevation of the ankle will also help to control swelling. Raise the ankle above the level of your heart. Place the ankle on a pillow while sleeping.

Patients should be advised to call back if:

- Pain prevents them from putting any weight on the affected foot after 24 hours.
- The sprain does not improve as expected after trying basic home management steps.
- He or she is having difficulty ambulating on the affected leg within three days after the injury.
- He or she experiences increased pain and swelling after the first three days.
- He or she has any questions regarding the care of the ankle.

Refer to the Knowledge Products List in the Support for Implementation section of the original guideline document for suggested patient education.

4. **Provider Visit**

Upon presentation in the clinical care setting, the provider's evaluation of an ankle injury should be initiated with a comprehensive history and physical examination.

History Should Include:

1. Mechanism of injury

   Inversion sprains account for over 85% of ankle injuries. The patient will give history of turning ankle in and under. If peroneal muscles are overcome by the force of inversion, the anterior talofibular ligament (ATFL) followed by the calcaneofibular (CFL) ligament will be injured depending on the force of inversion.

2. Location of pain and swelling

   Pain and swelling will be located over anterolateral ligaments with inversion injury.

3. Ability to walk or bear weight

   Inability to bear weight should raise the index of suspicion for injury other than inversion sprain. The patient who walks with no pain is unlikely to have a fracture.

4. History of prior inversion sprains and prior treatment
5. When the injury occurred
6. Age of the patient

   Skeletal immaturity increases the risk of an epiphyseal injury.

7. Complicating illness

   Neuropathic process or insensitive foot increases the risk of complications. History of deep vein thrombosis (DVT) would increase the risk of DVT if immobilization is required.

   Bleeding disorders may have excessive swelling or hemarthrosis.

8. Medications

   Ask about the chronic use of anti-inflammatories or anticoagulants. Also ask what medications have been taken for the injury.

9. Presence of pain elsewhere in the leg (fracture of proximal fibula)

Pain at the syndesmosis suggests a syndesmosis sprain. Pain at the head of the fibula suggests fracture of the proximal fibula (Maisonneuve's fracture).

Physical Examination Should Include:

1. Observe for obvious deformity.
2. Determine location of swelling and ecchymosis.
3. Palpation for local tenderness in ATFL, CFL, malleoli of tibia and fibula, peroneal tendons, fifth metatarsal and mid-foot (navicular, talus, cuboid, anterior process calcaneus), and proximal fibula.

   While the location of maximal tenderness and swelling is the best clue in defining the specific ligament or other structures involved, the time between injury and examination determines the specificity. Tenderness over bony structures indicates a possible fracture. Tenderness over the epiphysis may be indicative of a Salter I type injury. Pain at the head of the fibula suggests fracture of the proximal fibula (Maisonneuve's fracture). Marked ecchymosis and swelling indicates possible complete ligament tear or fracture.

4. Squeeze and rotatory tests.

   A squeeze test is performed by squeezing the tibia and fibula together at mid-calf. Pain distally at syndesmosis or ankle joint indicates syndesmotic sprain.

   The external rotation test is performed by having the patient sit with the knee flexed 90 degrees. The foot is externally rotated while the examiner holds the tibia in a fixed position. Pain at the syndesmosis indicates injury to the syndesmotic ligaments.

5. Evaluation of peroneal tendons.

   The peroneal tendons are evaluated for subluxation and dislocation by placing the foot in a dorsiflexed and everted position and then having the patient resist inversion. With damage to the peroneal retinaculum, subluxation or dislocation of the tendons is observed.

6. Observation of patient walking.

   The patient who can walk without pain is unlikely to have a fracture or instability.

7. Neurovascular status.
8. Optional passive range of motion tests include anterior drawer tests and the talar tilt maneuver.

   The anterior drawer test and talar tilt mechanism are of questionable utility in the acute situation because of edema and muscle spasm.

The anterior drawer test is performed with the ankle at 90 degrees to the long axis of the leg. While the examiner grasps the heel and pulls forward a posterior force is placed on the tibia with the other hand. Visible dimpling over the anterolateral aspect of the ankle, the so-called suction sign, signifies incompetence of the anterior talofibular ligament.

The talar tilt maneuver is also performed with the ankle at 90 degrees from the long axis of the leg. The heel is firmly adducted or inverted. Normally, excursion of the talus is limited and a firm endpoint is felt. An increase in laxity or instability compared with the opposite side suggests damage to the CFL. This maneuver is controversial because the degree of tilt can range from 0 degrees to 23 degrees in the normal uninjured ankle.

Evidence supporting this recommendation is of class: R

6. **Out of Guideline: Consider Other Diagnoses**

Syndesmotic Ankle Sprains

Syndesmotic ankle sprains usually involve a forced external rotation injury, present with pain in the distal tibiofibular articulation, may demonstrate a positive squeeze or external rotation test, and in patients with normal radiographs can be treated conservatively and successfully, albeit with a more prolonged and aggressive course of treatment.

Syndesmotic ankle sprains, so called "high ankle sprains," occur less frequently than lateral inversion sprains but are more disabling and require prolonged recovery periods. It is important that the provider be able to differentiate this injury from other lateral ankle injuries. These sprains are often associated with a proximal fibular fracture. The proximal fibula should be palpated for tenderness. Consider an x-ray of the fibula.

Recurrent Ankle Sprains

Recurrent ankle sprains or chronic lateral ankle instability is a frequent consequence of multiligamentous tears of the lateral ankle ligaments. Recurrent ankle sprain is estimated to occur in 10 to 30% of these. Clinically the unstable ankle presents with periodic lateral sprains and a sense on the part of the patient that the ankle will "give way" with minor inversions such as may occur while walking on uneven surfaces. The diagnosis of chronic instability is frequently obvious by history alone.

There are several other factors in addition to the obvious anatomic insufficiencies (loss of the ATFL and the CFL) that lead to instability. Reinjury is more likely in those patients with loss of motion, loss of strength, and loss of proprioception of the ankle. Rehabilitation should be aimed at improving these 3 factors.

7. **Indications for X-ray?**

Refer to the original guideline document for an illustrative anatomic guide for the radiologic decision rules that follow:

An ankle radiographic series (AP, lateral, and mortis views) should be obtained if there is pain in the malleolar zone (Zone 1) **and** any one of the following applies:

- Bone tenderness along the crest or midpoint of the lateral malleolus
- Bone tenderness along the posterior or midpoint edge or tip of the medial malleolus
- Inability to bear reasonable weight at the time of evaluation

A foot x-ray series is only required if there is any pain in Zone II **and** any of the following apply:

- Bone tenderness at the base of the 5th metatarsal
- Bone tenderness at the navicular
- Inability to bear weight at the time of evaluation

Patients in the following categories are deferred to provider judgment for determining radiographic indications:

- Pregnant
- Ankle injury more than 10 days old
- Intoxication and/or diminished sensation
- Isolated injuries of the skin without underlying soft tissue or bone involvement
- Return visit for reassessment of injury

Evidence supporting this recommendation is of classes: C, R

8. **X-ray Abnormal?**

An x-ray is considered abnormal if there is evidence of fracture, widening of the mortis (see Annotation #6), or pathology unrelated to the injury. If displacement or widening at the growth plate is observed, a comparison view of the normal ankle may be indicated. Findings which are **not** considered abnormal for the purposes of this guideline include:

- Swelling
- Avulsion fracture of less than 2 or 3 mm

Evidence supporting this recommendation is of class: R

10. **Treatment and Protection**

Early Acute Treatment of the Ankle Injury

Early treatment should last approximately 1 to 3 days following the injury. Treatment goals during this phase are to minimize swelling and to allow the patient to begin walking.

1. **Protection**: Protect from inversion to prevent further injury. Equipment such as an Ace wrap, air cast, functional brace, cane, or crutches can be utilized as needed.
2. **Relative Rest**: Encourage walking with a normal gate as soon as possible, allowing for some discomfort. Alert patient to avoid inversion in attempt to eliminate pain.
3. **Ice**: Ice is used to control swelling and to relieve pain and muscle spasms. It may be needed for 1 to 3 weeks. Do not use heat if swelling is present. Place a wet towel over the ankle. Place ice or cold pack on the towel. Leave for 15 to 20 minutes. Ice 3 times daily.
4. **Compression/Support**: Wrap the ankle with an Ace wrap. The wrap should be snug but not tight. Ace wraps should not be worn during sleeping hours.
5. **Elevation**: Keep the ankle elevated to reduce swelling and allow fluids to flow back toward the heart. Elevate the foot higher than the level of the heart as often as possible. This is often easiest while lying down with the foot propped up on pillows.
6. **Range-of-Motion Exercises**: Begin flexibility (range-of-motion) exercises as soon as tolerated without pain. Have the patient:
    - Move the foot up and down as tolerated as though pressing on a gas pedal.
    - Make circles with the foot, both clockwise and counterclockwise.
    - As tolerated, begin bearing weight on the foot. In either a sitting or a standing position, shift weight from front to back and from the inside to the outside of the foot.
    - Begin non weight-bearing Achilles stretch.

    Patients that start functional rehabilitation earlier experience a more rapid recovery.

Evidence supporting this recommendation is of classes: A, M

7. **Shoes**: High-top, lace-up shoes, such as hiking boots, provide the best support.
8. **Pain Relief**: Simple analgesics (acetaminophen) or analgesic doses of nonsteroidal anti-inflammatory drugs (NSAIDs).

Evidence supporting this recommendation is of classes: A, C

Late Acute Treatment and Rehabilitation

Late acute treatment starts around the third day following the injury and generally lasts up to two weeks. The goal during this period is to have the patient walking without a limp.

1. **Continued use of ice and elevation**: If swelling persists, continue to elevate the ankle twice a day.
2. **Exercises**: Therapeutic exercise should be initiated; a slight and tolerated amount of pain is acceptable; however, if the patient experiences extreme pain or discomfort then exercises should be stopped and be re-evaluated.

- ***Flexibility Exercises***: Continue flexibility exercises throughout the day to improve circulation and to regain normal range of motion. Add standing Achilles and gastroc/soleus stretches.
- ***Strengthening Exercises***: Once the patient can walk without pain, have him/her rise up on the toes, then try walking on his/her heels and on his/her toes 10 to 20 feet two or three times a day. Add isometrics and therabrand strengthening. For additional strengthening, continue range of motion exercises with a cuff weight around the forefoot.
- ***Balance Exercises***: The patient may also begin balancing on the injured leg. When he/she can do this comfortably for 30 seconds, he/she should challenge on the affected leg. Try 5 to 10 repetitions for 30 seconds each, two or three times a day. Alternatively, a balance board can be used.

Rehabilitation for Return to Prior Activity Level

Refer to the table in Annotation 10 of the original guideline document, which compares different types of support in preventing ankle injury/reinjury.

After acute treatment, the patient should be able to do his or her usual amount of walking without a limp. This period usually lasts from two to six weeks, and is designed to return the patient to his or her usual level of activity, at which point the rehabilitation will be complete.

The first set of exercises focuses on restoring the patient's capacity for day-to-day activities; the second, optional set is intended for those who regularly engage in sports or other athletics. The patient should complete as many of these exercises as necessary to resume his or her previous level of activity. The patient should progress each exercise as tolerated without an increase in pain or swelling.

Series 1. Advanced Rehabilitation

Step ups and step downs: Have the patient do two sets of 10 repetitions twice a day. Once the patient is comfortable with the exercises, he or she should try doing them without hand support.

- Step ups: The patient should stand facing stairs, holding onto a railing or wall for balance. With the affected leg, he or she should step up a step, bearing his or her weight on the step. Lower the opposite (unaffected) leg down slowly until the foot touches the floor. Weight should not be shifted onto the opposite leg. Keeping hips level and all weight on the affected side, step back up onto the step, bearing weight on the affected foot.
- Step downs: Stand on step, holding onto a railing or wall for balance, bearing weight on the affected leg. Lower weight until the heel of the unaffected leg touches the floor. Return to a standing position.

Series 2. Rehabilitation for athletic activity

- The patient should hop up and down and side to side with feet together. He or she should do 10 repetitions twice a day.
- The patient should progress to hopping on the affected side only, up and down, side to side, and turning in clockwise and counterclockwise circles. Do 10 repetitions twice a day.
- The patient should then progress to jogging in a straight line on level ground as tolerated. Endurance can be built by gradually increasing the distance as the patient tolerates.
- When the patient can tolerate jogging one mile, he or she should progress to sprinting in a straight line, running in large circles decreasing into small (both clockwise and counterclockwise circles), running figure eights, and cutting back and forth at 45 and 90 degree angles.
- Sport-specific activity: The patient may return to structured team practice or individual sport, starting with a limited practice and increasing participation as tolerated. For example, a soccer player would start in a game at 5 to 10 minutes per half and slowly increase participation time depending on pain level and endurance. A tennis player might begin by hitting balls against a wall and progressing first to doubles play, then to singles.
- The patient should consider using functional bracing as soon as jogging is begun and continue to use the brace throughout the progression to sport-specific activity. Competitive athletes should be encouraged to wear the brace for the rest of the sports season.
- Use of supportive devices such as semi-rigid casts or lace-up braces should be continued up to 4 to 8 weeks, particularly when engaging in strenuous or competitive activity.

Evidence supporting this recommendation is of class: R

11. **Improvement?**

Pain, swelling and discoloration should largely resolve within 30 days.

12. **Consider Other Diagnosis or Referral**

Persistent pain after a sprain has been rehabilitated requires a workup for other diagnoses and/or referral. The following list of other diagnoses is not to be considered exhaustive:

- Chronic lateral ankle ligament instability: Recurrent ankle ligament sprains, often requiring several weeks to return to sport. The athlete feels his or her ankle is unstable on hills or uneven ground. Swelling occurs with activity.
- Intra-articular meniscoid lesion: A localized fibrotic synovitis in the lateral ankle that may occur after inversion sprains.
- Peroneal tendon subluxation: The peroneal retinaculum is detached from its normal insertion on the posterior border of the fibula to the lateral surface of the fibula. This occurs during an acute dorsiflexion and inversion stress injury while the peroneal muscles are contracting forcefully.

- Talar dome fracture: This fracture is commonly described as a fracture of the superior dome of the talus which may be produced by inversion or eversion of the ankle. The x-rays for this fracture may be normal.
- Anterior process fractures of the calcaneus: These fractures typically occur with inversion of the ankle, and the patient will commonly point to bony tenderness midway between fibula and fifth metatarsal rather than having point-tenderness over the lateral ligaments.

The diagnosis and treatment of these conditions is outside the scope of this guideline.

13. **Resumption of Normal Activity**

Prevention of recurrence of injury may include several interventions:

Secondary Prevention:

- Continue proprioceptive and rehabilitation exercises.
- Consider using a supportive device for strenuous activities indefinitely.
- Educate patient regarding injury awareness.

Evidence supporting this recommendation is of class: M

Definitions:

Classes of Research Reports:

A. Primary Reports of New Data Collection:

Class A:

- Randomized, controlled trial

Class B:

- Cohort study

Class C:

- Non-randomized trial with concurrent or historical controls
- Case-control study
- Study of sensitivity and specificity of a diagnostic test
- Population-based descriptive study

Class D:

- Cross-sectional study
- Case series
- Case report

B. Reports that Synthesize or Reflect upon Collections of Primary Reports

Class M:

- Meta-analysis
- Systemic review
- Decision analysis
- Cost-effectiveness analysis

Class R:

- Consensus statement
- Consensus report
- Narrative review

Class X:

- Medical opinion

CLINICAL ALGORITHM(S)

A detailed and annotated clinical algorithm is provided for Ankle Sprain.

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is classified for selected recommendations (see "Major Recommendations").

In addition, key conclusions contained in the Work Group's algorithm are supported by a grading worksheet that summarizes the important studies pertaining to the conclusion. The type and quality of the evidence supporting these key recommendations (i.e., choice among alternative therapeutic approaches) is graded for each study.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

- Appropriate use of diagnostic imaging for patients presenting with acute ankle sprain injuries
- Decreased swelling and pain
- Early mobilization and return to normal activity level
- Reduction in the likelihood of reinjury
- Promotion of appropriate self-management

POTENTIAL HARMS

Not stated

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

- This clinical guideline is designed to assist clinicians by providing an analytical framework for the evaluation and treatment of patients, and is not intended either to replace a clinician's judgment or to establish a protocol for all patients with a particular condition. A guideline will rarely establish the only approach to a problem.
- This clinical guideline should not be construed as medical advice or medical opinion related to any specific facts or circumstances. Patients are urged to consult a health care professional regarding their own situation and any specific medical questions they may have.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

Once a guideline is approved for general implementation, a medical group can choose to concentrate on the implementation of that guideline. When four or more groups choose the same guideline to implement and they wish to collaborate with others, they may form an action group.

In the action group, each medical group sets specific goals they plan to achieve in improving patient care based on the particular guideline(s). Each medical group shares its experiences and supporting measurement results within the action group. This sharing facilitates a collaborative learning environment. Action group learnings are also documented and shared with interested medical groups within the collaborative.

Currently, action groups may focus on one guideline or a set of guidelines such as hypertension, lipid treatment, and tobacco cessation.

Detailed measurement strategies are presented in the original guideline document to help close the gap between clinical practice and the guideline recommendations. Summaries of the measures are provided in the National Quality Measures Clearinghouse (NQMC).

IMPLEMENTATION TOOLS

Clinical Algorithm
Pocket Guide/Reference Cards
Quality Measures

For information about availability, see the "Availability of Companion Documents" and "Patient Resources" fields below.

RELATED NQMC MEASURES

- Ankle sprain: percentage of patients with acute ankle sprain receiving ankle x-rays at clinic within 3 days of the initial injury.
- Ankle sprain: percentage of patients with acute ankle sprain for whom documentation of receiving patient education materials is recorded in the medical record.

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)

Institute for Clinical Systems Improvement (ICSI). Ankle sprain. Bloomington (MN): Institute for Clinical Systems Improvement (ICSI); 2006 Mar. 26 p. [24 references]

ADAPTATION

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

DATE RELEASED

1997 Aug (revised 2006 Mar)

GUIDELINE DEVELOPER(S)

Institute for Clinical Systems Improvement - Private Nonprofit Organization

GUIDELINE DEVELOPER COMMENT

Organizations participating in the Institute for Clinical Systems Improvement (ICSI): Affiliated Community Medical Centers, Allina Medical Clinic, Altru Health System, Aspen Medical Group, Avera Health, CentraCare, Columbia Park Medical Group, Community-University Health Care Center, Dakota Clinic, ENT Specialty Care, Fairview Health Services, Family HealthServices Minnesota, Family Practice Medical Center, Gateway Family Health Clinic, Gillette Children's Specialty Healthcare, Grand Itasca Clinic and Hospital, HealthEast Care System, HealthPartners Central Minnesota Clinics, HealthPartners Medical Group and Clinics, Hutchinson Area Health Care, Hutchinson Medical Center, Lakeview Clinic, Mayo Clinic, Mercy Hospital and Health Care Center, MeritCare, Mille Lacs Health

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ICSI, 8009 34th Avenue South, Suite 1200, Bloomington, MN 55425; telephone, (952) 814-7060; fax, (952) 858-9675; e-mail: icsi.info@icsi.org; Web site: www.icsi.org.

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GUIDELINE COMMITTEE

Committee on Evidence-Based Practice

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Work Group Members: Allen Fongemie, MD (Work Group Leader) (HealthPartners Medical Group) (Family Practice); Ann Dudero (Jostens) (Employee Group Representative); Gary Strandemo, MD (HealthPartners Central Minnesota Clinics) (Family Practice); Steve Stountz, MD (University of MN Physicians) (Family Medicine/Sports Medicine); Diane Dahm, MD (Mayo Clinic) (Orthopedics); Andrew Thomas, MD (HealthPartners Medical Group) (Pediatrics); Edith Kang, MD (HealthPartners Medical Group) (Radiology); Kevin Ronneberg, MD (Fairview Lakes Regional Health Care) (Sports Medicine); David Thorson, MD (Family HealthServices Minnesota) (Sports Medicine); Thomas Haas, MD (Park Nicollet Health Services) (Urgent Care Physician); Heidi Groven, RN, MS (Institute for Clinical Systems Improvement) (Facilitator)

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GUIDELINE STATUS

This is the current release of the guideline.

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GUIDELINE AVAILABILITY

Electronic copies: Available from the Institute for Clinical Systems Improvement (ICSI) Web site.

Print copies: Available from ICSI, 8009 34th Avenue South, Suite 1200, Bloomington, MN 55425; telephone, (952) 814-7060; fax, (952) 858-9675; Web site: www.icsi.org; e-mail: icsi.info@icsi.org.

AVAILABILITY OF COMPANION DOCUMENTS

The following is available:

- Ankle sprain. Executive summary. Bloomington (MN): Institute for Clinical Systems Improvement, 2006 Mar. 1 p. Electronic copies: Available from the Institute for Clinical Systems Improvement (ICSI) Web site.
- ICSI pocket guidelines. May 2005 edition. Bloomington (MN): Institute for Clinical Systems Improvement, 2005. 362 p.

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PATIENT RESOURCES

None available

NGC STATUS

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