Q-COMP®
The Workers' Compensation Regulatory Authority

Clinical guidelines for the Queensland workers' compensation scheme

Ankle

Contents

Before you start

Click to the relevant guideline

Foreword

Clinical guidelines for the Queensland workers' compensation scheme is a selection of clinical guidelines or 'treatment protocols' used by other jurisdictions and medical bodies.

Q-COMP compiled this selection to create a resource for clinicians treating injured workers in Queensland.

Over the course of our research it became clear what type of guidelines are successfully applied to practice and what we should include.

They include guidelines where:

- medical providers were consulted
- nurse and allied health providers identified relevant areas to include
- medical specialty groups endorsed the guidelines
- an effective promotion program was used
- patient education brochures or fact sheets for General Practitioners to provide to their patients were developed
- an education strategy included the Continuing Professional Development (CPD) program
- frameworks for evaluating the guidelines effectiveness were developed ahead or simultaneously with the guidelines themselves.

I am looking forward to receiving your feedback on *Clinical guidelines for the Queensland workers' compensation scheme* and your support in achieving the best outcomes for injured workers in Queensland.

Elizabeth Woods
Chief Executive Officer

Relevance to the workers' compensation sector

Each item is rated on a 5-point scale ranging from 5 "Strongly Agree" to 1 "Strongly Disagree". The scale measures the extent to which a criterion (item) has been fulfilled.

	1	2	3
	Ankle complaints	**Ankle (acute & chronic)**	**The diagnosis and management of soft tissue injuries and related disorders**
Functional Restoration Does the guideline consider graded increases in activity and function?	4	4	4
Psychosocial Factors To what degree does the guideline consider psychosocial factors that may influence recovery?	1	1	1
Return to Work Process (vocational rehabilitation) To what degree does the guideline consider the Return to Work Process (vocational rehabilitation)?	5	1	5
Risk Factors for Recovery To what degree does the guideline consider Risk Factors for Recovery?	5	1	5
Total Score	**15**	**7**	**15**

Rating criteria CPG 1 and CPG 3 have the highest ratings on Functional Restoration, Return to Work Process and Risk factors for recovery.

Agree appraisal

Each item is rated on a 5-point scale ranging from 5 "Strongly Agree" to 1 "Strongly Disagree". The scale measures the extent to which a criterion (item) has been fulfilled.
The aggregate scores are then converted into a percentage scale ranging from 100% "Strongly Agree" to 1% "Strongly Disagree".

	1	2	3
	Ankle complaints	**Ankle (acute & chronic)**	**The diagnosis and management of soft tissue injuries and related disorders**
Scope and Purpose	61%	67%	67%
Stakeholder Involvement	46%	75%	37%
Rigour of Development	24%	29%	45%
Clarity and Presentation	75%	92%	54%
Applicability	6 %	6%	0%
Editorial Independence	17%	100%	33%

Register of clinical practice guidelines for ankle

CPG	Name	Source	Developed by
1	Ankle and foot complaints	National Guideline Clearinghouse www.guideline.gov	Ankle and foot complaints. Elk Grove Village (IL): American College of Occupational and Environmental medicine (ACOEM); 2004.27p. [47 references]
2	Ankle Sprain	National Guideline Clearinghouse www.guideline.gov	Institute for Clinical Systems Improvement (ICSI). Ankle sprain. Bloomington (MN): Institute for clinical Systems Improvement (ICSI): 2006 Mar.26p.[24 references]
3	Ankle and foot (acute and chronic)	National Guideline Clearinghouse www.guideline.gov	Work Loss Data Institute. Ankle & foot (acute & chronic). Corpus Christi (TX): Work Loss Data Institute; 2006.118p.[163 references}

Ankle and foot complaints

Contents

1. Developed by

Ankle and foot complaints. Elk Grove Village (IL): American College of Occupational and Environmental medicine (ACOEM);2004.27p. [47 references]

2. Guideline status

This is the current release of the guideline

This guideline updates a previous version; Harris, J, ed. Occupational Medicine Practice Guidelines; American College of Occupational and Environmental Medicine. Beverly Farms, MA: OEM Press: 1997.

3. Where located/how accessed

National Guideline Clearinghouse www.guideline.gov

Print copies are available form ACOEM, 25 Northwest Point Boulevard, Suite 700, Elk Grove Village, IL 6007: Phone :847-818-1800 x 399. To order a subscription to the online version, call 800-441-9674 or visit www.acoempracguides.org

No companion documents available

4. Description/scope

Disease/condition(s)

- Ankle and foot complaints

Guideline category

- Diagnosis
- Evaluation
- Management
- Treatment

Clinical speciality

- Family Practice
- Internal Medicine
- Orthopaedic Surgery
- Physical Medicine and Rehabilitation
- Preventative Medicine
- Surgery

Intended users

- Advanced Practice Nurses
- Physician Assistants
- Physicians
- Utilization Management

Guideline objectives

- To provide information and guidance on generally accepted elements of quality of care in occupational and environmental medicine
- To improve the efficiency with which the diagnostic processes is conducted, the specificity of each diagnostic test performed, and the effectiveness of each treatment on relieving symptoms and achieving cure
- To present recommendations on assessing and treating adults with potentially work-related ankle and foot complaints

Target population

- Adults with potentially work-related ankle and foot complaints seen in primary care settings

Interventions and practices considered

Note from the National Guideline Clearinghouse (NGC): The following general clinical measures were considered. Refer to the original guideline document for information regarding which specific interventions and practices under these general headings are recommended, optional, or not recommended by the American College of Occupational and Environmental Medicine

1. History and physical exam
2. Patient education
3. Medication
4. Injections
5. Physical treatment methods
6. Rest and immobilization (e.g., braces, supports)
7. Activity and exercise
8. Detection of physiologic abnormalities
9. Radiography
10. Surgical considerations

5.Outcomes considered

Missed work days

6. Agree appraisal

- Scope and Purpose 61%
- Stakeholder Involvement 46%
- Rigour of Development 24%
- Clarity and Presentation 75%
- Applicability 6 %
- Editorial Independence 17%

7. Relevance/appropriateness of use in workers' compensation sector

a) Functional progression

Functional progression is not specifically stated

- The following clinical algorithms are provided in the original guideline document:
- American College of Occupational and Environmental Medicine Guidelines for care of acute and subacute occupational ankle and foot complaints
- Initial evaluation of occupational ankle and foot complaints
- Initial and follow-up management of occupational ankle and foot complaints
- Evaluation of slow-to-recover patients with occupational ankle and foot complaints (symptoms >4 weeks)
- Surgical considerations for patients with anatomic and physiologic evidence of bunion, or Morton's neuroma, and persistent symptoms
- Further management of occupational ankle and foot complaints

b) Physical/psychiatric rehabilitation

The actual physical psychiatric rehabilitation progression is not stated.

Summary of recommendations for evaluating and managing ankle and foot complaints

(refer to the original guideline document for more detailed information)

Clinical Measure	Recommended	Optional	Not Recommended
History and physical exam	Basic history and physical exam, including evaluation of ability to bear weight, tenderness, and ligament stability		
Patient education	Patient education regarding diagnosis, prognosis, and expectations of treatment		
Medication (See Chapter 3 in the original guideline document)	Acetaminophen Non-steroidal anti-inflammatory drugs (NSAIDs)	Opioids, short course NSAID creams	Use of opioids for more than 2 weeks
Injections	For patients with point tenderness in the area of a heel spur, plantar fasciitis, or Morton's neuroma, local injection of lidocaine and cortisone solution		Repeated or frequent injections
Physical treatment methods	For acute injuries, at-home ice applications, range-of-motion and strengthening exercises, as taught by primary provider	Pneumatic or pulse devices to reduce swelling Extracorporeal shock wave therapy (ESWT) for plantar fasciitis Coupled electrical stimulation or impulse compression for fracture	Passive physical therapy modalities, except as initial aid prior to home exercises Laser treatment
Rest and immobilization (e.g., braces, supports)	For acute injuries, immobilization and weight bearing as tolerated; taping or bracing later to avoid exacerbation or for prevention. For acute swelling, rest and elevation For appropriate diagnoses, rigid orthotics, metatarsal bars, heel donut, toe separator	Tension night splints for plantar fasciitis	Prolonged supports or bracing without exercise (due to risk of debilitation)
Activity and exercise	Stretching. Aerobic exercise Maintenance of general activity to avoid debilitation Early mobilization of patients with ankle sprain		Full activity in presence of swelling and other signs of acute trauma
Detection of physiologic abnormalities			Electrical studies for routine foot and ankle problems without clinical evidence of tarsal tunnel syndrome or other entrapment neuropathies
Radiography	Plain-film radiographs only for patients with acute ankle injuries who have signs identified in Ottawa Criteria ankle rules Further evaluation if radiographic films show ankle effusion >13 mm anteriorly		Routine plain-film radiographs for ankle injuries Routine radiographic films for soft tissue diagnoses
Surgical considerations	Bunionectomy if conservative treatment fails and radiographs are positive for >14-degree intermetatarsal angle Excision of neuroma if conservative treatment (injections, toe separator) fails Reconstruction of lateral ankle ligament for symptomatic patients with ankle laxity demonstrated on physical exam and positive stress films		Diagnostic arthroscopy of ankle if diagnosis obtainable by other non-invasive method Arthroscopy of ankle for synovial impingement before conservative care, including injections, is tried

c) Risk factor/recovery

Risk factor/recovery is not stated. There is a not recommended section, as listed.

d) Return to work

Return to work is not stated. The Occupational Medicine Practice Guidelines -2nd Edition provides optimal durations for absence from work

8. Priority for Q-COMP

Rating criteria

Functional restoration Does the guideline consider graded increases in activity and function?	**4**
Psychosocial factors To what degree does the guideline consider psychosocial factors that may influence recovery?	**1**
Return to work process (vocational rehabilitation) To what degree does the guideline consider the return to work process (vocational rehabilitation)?	**5**
Risk factors for recovery To what degree does the guideline consider risk factors for recovery?	**5**
Total rating	**15**

Ankle sprain

Contents

1. Developed by

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

2. 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.26p.

3. Where located/how accessed

National Guideline Clearinghouse www.guideline.gov

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) 858 – 9675; Web site:www.icsi.org; e-mail;icsi.info@icsi.org

Companion documents

- 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.

4. Description/scope

Disease/condition

- Ankle sprain

Guideline category

- Diagnosis
- Evaluation
- Management
- Rehabilitation
- Treatment

Clinical Speciality

- Emergency Medicine
- Family Practice
- Internal Medicine
- Orthopaedic Surgery
- Paediatrics
- Physical Medicine and Rehabilitation
- Radiology
- Sports Medicine

Intended users

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

Guideline objectives

- 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 fro athletic activity
4. Referral
5. Prevention of recurrence of injury

5. Outcomes considered

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

6. Agree appraisal

- Scope and Purpose 67%
- Stakeholder Involvement 75%
- Rigour of Development 29%
- Clarity and Presentation 92%
- Applicability 6%
- Editorial Independence 100%

7. Relevance/appropriateness of use in workers' compensation sector

a) Functional progression

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

b) Physical/psychiatric rehabilitation

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.
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).

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.

Improvement?

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

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.

c) Risk factor/recovery

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.

d) Return to work

- Rehabilitation of confirmed ankle sprains should include flexibility exercises, strengthening and balance exercises and follow a reasonable return-to-work progression. (As mentioned #10)
- Effective rehabilitation of the ankle injury combined with a prophylactic ankle bracing has been shown to significantly reduce the reoccurrence of ankle sprain. (As mentioned *Annotation #10*)

8. Priority for Q-COMP

Rating criteria

Functional restoration Does the guideline consider graded increases in activity and function?	**4**
Psychosocial factors To what degree does the guideline consider psychosocial factors that may influence recovery?	**1**
Return to work process (vocational rehabilitation) To what degree does the guideline consider the Return to Work Process (vocational rehabilitation)?	**1**
Risk factors for recovery To what degree does the guideline consider Risk Factors for Recovery?	**1**
Total rating	**7**

Ankle & foot (acute & chronic)

Contents

1. Developed by

Work Loss Data Institute. Ankle & foot (acute & chronic). Corpus Christi (TX):

Work Loss Data Institute; 2006.118p. [163 references}

2. Guideline status

This is the current release of the guideline.

This guideline updates a previous version: Work Loss Data Institute. Ankle & foot (acute & chronic). Corpus Christi (TX): Work Loss Data Institute; 200.133p

3. Where located/how accessed

National Guideline Clearinghouse www.guideline.gov

Electronic copies of the updated guideline: Available to subscribers from the Work Loss Data Institute Web site.

Print copies: Available from the Work Loss Data Institute, 169 Saxony Road, Suite 210, Encinitas,CA 92024: phone:800–488–5548, 760–753-9992, Fax: 760-753-9995; www.worklossdata.com

4. Description/scope

Details of disease/condition

- Work – related ankle and foot disorders

Guideline category

- Diagnosis
- Evaluation
- Management
- Treatment

Clinical speciality

- Emergency Medicine
- Family Practice
- Internal Medicine
- Orthopaedic Surgery
- Podiatry

Intended users

- Advanced Practice Nurses
- Health Care Providers
- Health Plans
- Nurses
- Physician Assistants
- Physicians

Guideline objectives

- To offer evidence-based step-by-step decision protocols for the assessment and treatment of workers' compensation conditions.

Target population

- Workers with occupational disorders of the ankle and foot.

Interventions and practices considered

The following interventions/procedures were considered and recommended as indicated in the original guideline document:

1. Ankle support (lace-up and semi-rigid)
2. Anterior drawer test
3. Anti-inflammatory medicines (NSAIDS)
4. Bed rest (Not recommended beyond 24 hours)
5. Bracing (immobilization) for clearly unstable joint
6. Cast (immobilization) fro clearly unstable joint
7. Causality (determination)
8. Cold packs/ice packs
9. Early mobilization, functional treatment, and partial weight bearing as tolerated
10. Fusion
11. Imaging/radiography including:
    - Plain films
    - Bone scans
    - Computer tomography (CT)
    - Magnetic resonance imaging (MRI)
    - Diagnostic ultrasound
12. Immobilization (Not recommended as primary treatment)
13. Inversion stress test
14. Lateral ligament ankle reconstruction (surgery)
15. Mechanical treatment (taping, orthosis)
16. Night splints (dorsiflexion and tension night splints)
17. Ostoetomy for hallux valgus
18. Ottawa Ankle Rules (OAR)
19. Patient education
20. Physical therapy
21. Rest, ice compression, & elevation (RICE)
22. Return to work
23. Stretching (flexibility)
24. Surgery for
    - Achilles tendon ruptures
    - Ankle sprains
    - Calcaneal fractures
    - Hallux valgus
    - Tarsal tunnel syndrome (after conservative treatment for at least one month)

- Tai Chi
- Therapeutic exercises
- Thompson test (on patients with suspected injury of the Achilles tendon)
- Work restrictions/modifications

The following interventions/procedures are under study and are not specifically recommended:

1. Autologous conditioned serum (ACS)
2. Corticosteroids (topical)
3. Elastic bandage (immobilization)
4. Heat therapy (ice/heat)
5. Heel pads
6. Lineal tomography
7. Orthotic devices
8. Steroids (injection)

The following interventions/procedures were considered but are not currently recommended:

1. Accommodative modalities
2. Actovegin
3. Arthroplasty
4. Biofeedback
5. Continuous–flow cryotherapy
6. Diathermy
7. Electron generating device
8. Extracorporeal shock wave therapy (ASWT)
9. Heparin
10. Ingrown toenail surgery
11. Insoles with magnetic foil
12. Iontophoresis
13. Laser therapy
14. Magnets
15. Manipulation/chiropractic
16. Massage
17. Narcotis
18. Phonophoresis
19. Prolotherapy/sclerotherapy
20. Surgery for plantar fasciitis (except in severe cases)
21. Transcutaneous electrical neurostimulation (TENS)
22. Therapeutic ultrasound

5. Outcomes considered

Sensitivity and specificity of diagnostic tests

Effectiveness of treatment (e.g., in relieving pain, swelling, and tenderness and improving joint stability)

6. Agree appraisal

- Scope and Purpose 67%
- Stakeholder Involvement 37%
- Rigour of Development 45%
- Clarity and Presentation 54%
- Applicability 0%
- Editorial Independence 33%

7. Relevance/appropriateness of use in workers' compensation sector

a) Functional progression

The injury should be classified into a presumptive diagnosis, which will dictate the path of care. After a complete, definitive evaluation is finished, the injury may, in some cases, nee dot be reclassified. Subsequent to a thorough evaluation, the diagnosis may change (e.g., if the physician classifies a patient with a sprain and the x-rays subsequently show a fracture).

Initial evaluation

1. Ascertain the type of trauma (inversion/eversion or dorsiflexion/plantar flexion)
2. Determine whether the problem is acute, subacute, chronic or of insidious onset.
3. Determine the severity and specific anatomic location of the pain.
4. Assess the ability of the patient to bear weight, from no to full weight-bearing ability.
5. Search for any evidence of open or penetrating wound.
6. Search for any evidence of deformity (anterior/posterior or lateral/medial)
7. Test the range of motion of the joint.
8. Document any present medication.\
9. Document any history of systemic disease or previous ankle injury or disability.

Presumptive diagnosis (See the original guideline document for International Classification of Diseases, Ninth Revision [ICD-9] codes)

- Fracture or dislocation
- Sprain, sprain-fracture, or contusion
- Laceration
- Achilles tendonitis
- Other diagnoses
  - Plantar fasciitis
  - Calcaneal spur
  - Hallux valgus
  - Tarsal tunnel syndrome
  - Traumatic arthritis, acute episode
  - Systemic disease (e.g., gout, rheumatoid arthritis (RA),psoriasis)

Fracture or dislocation

Definitive evaluation

- Record a history of the cause of the injury
- Search for any evidence of an open wound in the vicinity of the fracture
- Perform a clinical examination for deformity, tenderness, or ecchymosis or associated nerve, neurovascular, or tendon injury.
- Evaluate for evidence of joint instability
- Search for any evidence of dislocation or arterial vascular compromise (cold, dusky foot with loss of sensation), pulse, and possibly sensation. If found, an immediate reduction should take place (prior to x-rays if necessary)
- Perform an evaluation for an associated injury of the foot
- X-ray the ankle (two views). Special views such as mortise should be obtained when necessary
- [Refer to the Ottawa Ankle Rules in the original guideline document (Stiell et al.,1994)]
- For detailed imaging criteria, see (in the original guideline document)
  - Indications for imaging—Plain films (Radiography, anterior-posterior [AP], lateral etc.)
  - Indications for imaging—MRI (Magnetic resonance imaging)
  - Indications for imaging –Bone Scan (Radioisotope Bone Scanning)
  - Indications for imaging --Ultrasound

b) Physical/psychiatric rehabilitation

Initial therapy

- A trilateral splint should be applied initially for two to three weeks. The patient will need crutches and should avoid weight bearing. Swelling is controlled with constant elevation above the heart.
- Ice and elevation for 24-48 hours is appropriate.
- Post-fracture, two to three weeks (after the swelling has subsided), it is appropriate to apply a fibreglass cast with the foot at 090 degrees. This allows the addition of a shoe for conversion to a walking cast one to three weeks after the cast has been applied. Weight-bearing is progressed to 50% with crutches until six weeks post-injury when full weight-bearing is allowed and crutches are discontinued.
- Analgesics for up to two weeks are appropriate, but in treating fractures, nonsteroidal anti-inflammatory (NSAIDS) may be associated with side effects that are deleterious to treatment outcome, including delayed bone healing. Pain is usually due to swelling and is best controlled with elevation of the ankle and foot. An initial intramuscular (IM) pain injection is often indicated.
- The patient should be rechecked seven to ten days after the fracture, seven to ten days after the beginning to partial weight bearing, and after progressing to full weight bearing.
- X-rays are repeated during the above visits and after the cast is removed at six weeks.
- Physical therapy (one to five visits) to teach patients range-of-motion and muscle-strengthening exercises may be needed after cast removal.
- If using a removable cast, starting at four weeks the patient should be allowed to begin gentle range-of-motion exercises with the cast off.
- Prescribe level of activity at work and job modifications at each visit.

Nondisplaced, bimalleolar fractures should be referred to an orthopaedic surgeon, as they are potentially unstable.

All other ankle fractures should be referred to an orthopaedic surgeon. Compound fractures, when appropriate, should have a tetanus toxoid injection before being referred to an orthopaedic surgeon.

c) Risk factor/recovery

Secondary evaluation for patients with persistent symptoms or minimal improvement after six weeks of therapy

- Review for compliance of the employee and employer to therapy programs and job modifications and restrictions. Also review for insurance company cooperation.
- Evaluate for delayed union, malalignment, or signs of associated tendon or nerve injury or signs of reflex sympathetic dystrophy (complex regional plain syndrome [CRPS 1]).
- Promptly refer to an orthopaedic surgeon if one of these conditions is found; otherwise continue therapy.

d) Return to work

Official disability guidelines (odg) return-to-work pathways

Closed reduction, sedentary /modified work: 1-7 days

Closed reduction, standing work without cast: 21 days

Open reduction, internal fixation, sedentary/ modified work: 14 days

Open reduction, internal fixation, standing work without cast: 84 days

Comorbidity fracture blister, add 21 days

(See ODG *Capabilities & Activity Modifications for Restricted Work* under "Work" in the Procedure Summary of the original guideline document)

Sprain, Sprain-fracture, or Contusion
ODG Return-To-Work Pathways

Ankle strapping/soft cast, mild sprain (Grade I) *: 1 day

Ankle strapping/soft cast, severe sprain (Grade II-III)*, sedentary/modified work (10 day crutches); 4-5 days

Ankle strapping/soft cast, severe sprain, manual/standing work: 21 days

Achilles tendon repair, sedentary/modified work: 10 days

Achilles tendon repair, manual/ standing work, without cast: 49-63 days

- A definition evaluation of a sprain is important, as sprains are the most common injury of the ankle. And inversion sprains make up the majority. Eversion sprains may be more severe due to their association with syndesmosis injuries. One classification of sprains is Grade I, Ii, and III* (least serious to most serious), and it is helpful to classify sprains in this manner as a guide to the initial therapy and prognosis. (Ankle sprains can range from stretching [grade I] to partial rupture [grade 2] to complete rupture of the ligament [grade 3] [Litt,1992]).

Laceration
ODG Return-To-Work-Pathways

Minor: 0 days

Major, clerical/modified work: 3 days

Major, manual work: 8 days

Major, heavy manual work: 14 days

Tendon repair, clerical/modified work: 14 days

Tendon repair, manual work: 91 days

Achilles tendonitis
odg return-to-work-pathways

Without surgery, clerical/modified work: 0 days

Without surgery, manual/standing work; 5-7 days

Without surgery, clerical/modified work: 7-10 days

With surgery, manual/ standing work: 42-49 days

8.Priority for Q-COMP

Rating criteria

Functional restoration Does the guideline consider graded increases in activity and function?	**4**
Psychosocial factors To what degree does the guideline consider psychosocial factors that may influence recovery?	**1**
Return to work process (vocational rehabilitation) To what degree does the guideline consider the Return to Work Process (vocational rehabilitation)?	**5**
Risk factors for recovery To what degree does the guideline consider Risk Factors for Recovery?	**5**
Total rating	**15**