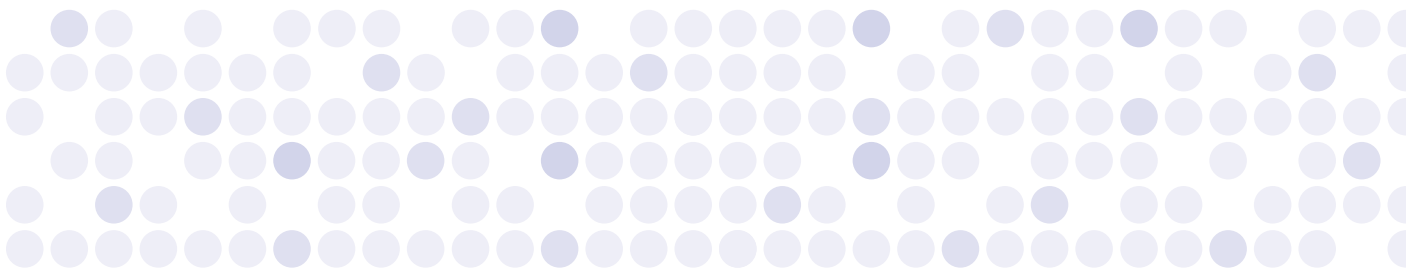


Clinical guidelines for the Queensland workers' compensation scheme

Back





Contents

Before you start

Relevance to the workers' compensation sector.....	2
Agree appraisal.....	3
Register of clinical practice guidelines for back.....	4

Click to the relevant guideline

Adult low back pain.....	5
Acute low back pain.....	26
New zealand acute low back pain guide – incorporating the guide to assessing psychosocial yellow flags in acute low back pain	34
Neck and upper back complaints	45
Neck and upper back (acute & chronic).....	51
Low back – lumbar & thoracic (acute & chronic).....	61
Low back complaints	71
Interventional techniques in the management of chronic spinal pain ; evidence based practice guidelines	78
Cervical/ thoracic.....	88

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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	4	5	6	7	8	9
	Adult low back pain	Acute low back pain	New Zealand Acute Low Back Pain Guide- Incorporating the Guide to Assessing Psychological Yellow Flags in Acute Low Back Pain 2 Guide	Neck & Upper Back Complaints	Neck and upper back (acute & chronic)	Low back – lumbar & thoracic (acute & chronic).	Low back complaints	Interventional techniques in the management of chronic spinal pain; evidence based guidelines	Cervical/ thoracic
Functional Restoration Does the guideline consider graded increases in activity and function?	4	4	5	2	5	5	2	2	1
Psychosocial Factors To what degree does the guideline consider psychosocial factors that may influence recovery?	5	1	5	1	3	1	1	1	1
Return to Work Process (vocational rehabilitation) To what degree does the guideline consider the Return to Work Process (vocational rehabilitation)?	4	1	4	2	4	4	2	2	1
Risk Factors for Recovery To what degree does the guideline consider Risk Factors for Recovery?	5	4	5	1	3	4	1	1	1
Total Score	18	10	19	6	15	14	6	6	4

Rating criteria

CPG 1 and CPG 3 have the highest rating score. This is due to their higher scores in all four of the categories. Both CPG 5 and CPG 6 rate less than CPG1 and CPG 3 on the Psychological factors, but are high in at least two of the other categories

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	4	5	6	7	8	9
	Adult low back pain	Acute low back pain	New Zealand Acute Low Back Pain Guide- Incorporating the Guide to Assessing Psychological Yellow Flags in Acute Low Back Pain	Neck & Upper Back Complaints	Neck and upper back (acute & chronic)	Low back – lumbar & thoracic (acute & chronic).	Low back complaints	Interventional techniques in the management of chronic spinal pain; evidence based guidelines	Cervical/ thoracic
Scope and Purpose	67%	50%	33%	61%	50%	50%	61%	56%	44%
Stakeholder Involvement	67%	50%	33%	54%	29%	33%	46%	42%	42%
Rigour of Development	14%	36%	31%	24%	55%	43%	26%	33%	40%
Clarity and Presentation	100%	79%	63%	79%	86%	71%	75%	71%	63%
Applicability	17%	0%	0%	0%	6%	11%	6%	0%	0%
Editorial Independence	67%	67%	0%	8%	17%	42%	17%	42%	17%

Register of clinical practice guidelines for back

CPG	Name	Source	Developed by
1	Adult low back pain	National Guideline Clearinghouse www.guideline.gov	Institute for Clinical Systems Improvement (ICSI). Adult low back pain. Bloomington (MN); Institute for Clinical Systems Improvement (ICSI); 2006 Sep.65 p. [124 references]
2	Acute low back pain	National Guideline Clearinghouse www.guideline.gov	University of Michigan Health System. Acute low back pain. Ann Arbor (MI): University of Michigan Health System;2003 Apr [rev.Oct 2004].13 p. [8 references]
3	New Zealand Acute Low Back Pain Guide - Incorporating the Guide to Assessing Psychosocial Yellow Flags in Acute Low Back Pain	National Guideline Clearinghouse www.guideline.gov	Accident Compensation Commission New Zealand Shamrock House 81-83 Molesworth St PO Box 242 Wellington New Zealand
4	Neck and Upper Back Complaints	National Guideline Clearinghouse www.guideline.gov	Neck and upper back complaints. Elk Grove Village (IL): American College of Occupational and Environmental Medicine (ACOEM) ; 2004.30 p. [75 references]
5	Neck and upper back (acute & chronic)	National Guideline Clearinghouse www.guideline.gov	Work Loss Data Institute. Neck and upper back (acute & chronic). Corpus Christi (TX) : Work Loss Data Institute; 2006.176 p. [226 references]
6	Low back – lumbar & thoracic (acute & chronic)	National Guideline Clearinghouse www.guideline.gov	Work Loss Data Institute .Low back – lumbar & thoracic (acute & chronic). Corpus Christi (TX) ; Work Loss Data Institute; 2006. 363 p. [494 references]
7	Low back complaints	National Guideline Clearinghouse www.guideline.gov	Low back complaints. Elk Grove Village (IL): American College of Occupational and Environmental Medicine (ACOEM) ;2004.41 p. [154 references]
8	Interventional techniques in the management of chronic spinal pain ; evidence based practice guidelines	National Guideline Clearinghouse www.guideline.gov	Boswell MV, Shah RV, Everett CR, Sehgal N, McKenzie-Brown AM, Abdi S, Bowman RC, Deer TR, Datta S, Colson JD, Spillnae WF, Smith HS, Lucas LF, Burton AW, Chopra P, Staats PS, Wasserman RA, Manchikanti L. Interventional techniques in the management of chronic spinal pain : evidence-based practice guidelines. Pain Phys 2005;8 (1); 1-47. [764 references]
9	Cervical/ thoracic	National Guideline Clearinghouse www.guideline.gov	Expert Clinical Benchmarks . Cervical/thoracic. King of Prussia (PA): MedRisk, Inc:2004.49 p.



Adult low back pain

Contents

1. Developed by	6
2. Guideline status	6
3. Where located/how accessed	6
4. Description/scope	6
5. Outcomes considered	8
6. Agree appraisal.....	9
7. Relevance/appropriateness of use in workers' compensation sector.....	9
A) functional progression	9
(1) Patient calls/presents with low back pain or sciatica/radiculopathy	9
(2) Emergent or urgent?	10
(3) Evaluation indicated?.....	10
(4) Primary care evaluation and x-ray indications	11
(5) Home self-care treatment program.....	13
(6) Consult or refer	14
(7) Has the patient failed conservative treatment?	14
(8) Re-evaluate and consider redirection.....	17
(9) Is pain chronic (greater than six weeks)?	18
(10) Chronic low back pain	18
(11) Active rehabilitation.....	19
(12) Chronic sciatica/radiculopathy	19
(13) Consider epidural steroid injection prior to surgical intervention.....	21
(14) Discuss options and consider surgical or non-surgical back specialist	22
b) Physical/psychiatric rehabilitation.....	23
c) Risk factor/recovery	24
d) Return to work.....	24
8. Priority for Q-COMP.....	25



1. Developed by

Institute for Clinical Systems Improvement (ICSI). Adult low back pain. Bloomington (MN); Institute for Clinical Systems Improvement (ICSI); 2006 Sep.65 p. [124 references]

2. Guideline status

This is the current release of the guideline.

This guideline updates a previous version: Routine prenatal care. Bloomington (MN); Institute for Clinical Systems Improvement (ICSI):2005 Aug.80 p.

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) 814-7060; fax, (952) 858-9675; Web site; www.icsi.org; email; icsi.info@icsi.org

The following companion documents are available:

- Adult low back pain. Executive summary. Bloomington (MN): Institute for Clinical Systems Improvement, 2006 Sep. 2 p. Electronic copies: Available from the Institute for Clinical Systems Improvement (ICSI) Web site.
- Functional ability questionnaire. Annotation Appendix A. in the original guideline document. Electronic copies: Available from the Institute for Clinical Systems Improvement (ICSI) Web site
- Oswestry low back pain scale. Annotation Appendix B in the original guideline document. Electronic copies: Available from the Institute for Clinical Systems Improvement (ICSI) Web site
- Psychosocial screening and assessment tools. Annotation Appendix C in the original guideline document. Electronic copies: Available from the Institute for Clinical Systems Improvement (ICSI) Web site.
- CT and MRI order set. Annotation Appendix D in the original guideline document. Electronic copies: Available from the Institute for Clinical Systems Improvement (ICSI) Web site.
- ICSI pocket guidelines. April 2006 edition. Bloomington (MN): Institute for Clinical Systems Improvement, 2006. 298 p.

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.

The following patient resource is available:

- Adult low back pain. Bloomington (MN): Institute for Clinical Systems Improvement, 2006 Oct. 22 p.

Electronic copies: Available in Portable Document Format (PDF) from the Institute for Clinical Systems Improvement (ICSI) Web site

4. Description/scope

Disease/condition(s)

- Acute lower back pain
- Chronic low back pain
- Acute sciatica/ radiculopathy
- Chronic sciatica/ radiculopathy



Guideline category

- Diagnosis
- Evaluation
- Management
- Treatment

Clinical speciality

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

Intended users

- Advanced Practice Nurses
- Allied Health Personnel
- Health Care Providers
- Health Plans
- Hospitals
- Managed Care Organizations
- Nurses
- Physician Assistants
- Physicians

Guideline objectives

- To increase the use of the recommended conservative approach as first-line treatment—such as activity, self-care, and analgesics—for patients with low back pain
- To reduce unnecessary imaging studies in patients with acute low back pain
- To increase the appropriate assessment of patients with chronic low back pain
- To increase the use of appropriate outcome tools (such as Oswestry Outcome Tool or other)

Target population

Adult patients age 18 and over in primary care who have symptoms of low back pain or sciatica.

Note: The guideline focuses on acute and chronic management, including indications for medical non-surgical or surgical referral. For workers' compensation patients, check with state guidelines where the patient resides and where the injury took place, or in Minnesota, see the workers' compensation treatment parameters at <http://www.doli.state.mn.us/pdf/treatparam.pdf>

Interventions and practices considered

Evaluation

- Phone triage or medical screening evaluation
- Medical history, including evaluation of cancer risk factors, spinal infection, Cauda Equina signs and symptoms, neurologic involvement, and psychosocial factors

- Physical examination including palpitation for spinal tenderness, neuromuscular testing, and bilateral straight leg raise
- Laboratory testing (complete blood count [CBC] and erythrocyte sedimentation rate) if suspicion of cancer or infection
- Lumbar spine x-rays (anterior to posterior [AP] and lateral [LAT] views for specific indications)
- Symptom classification by duration and location
- Early referral to physical therapy or spine care specialist

Treatment/management

- Home self care, including patient education, anti-inflammatory medication (e.g., aspirin, ibuprofen, naproxen sodium) or acetaminophen; ice packs or heat as preferred on sore area; careful reintroduction of light-duty activity, along with regular walking; safe back exercises; and stress management
- Acute low back pain or sciatica/ radiculopathy
 - Conservative treatment, including patient education cold and heat therapies ;analgesic medication; muscle relaxants; and activity recommendations including exercise programs
 - Discharge (return to work) or comprehensive reevaluation
 - Follow-up visits that include subjective pain rating, functional assessment, and clinician's objective assessment
 - Referral to a trained spine therapy professional
- Chronic low back pain
 - Lumbar spine x-rays (AP and LAT views)
 - Active rehabilitation including patient education (good body mechanics), resumption of psychosocial factors, and multidisciplinary approach
 - Consultation with/referral to a surgical or non-surgical back specialist
- Chronic sciatica/radiculopathy
 - Lumbar spine computed tomography (CT) or magnetic resonance imaging (MRI) if patient is potential surgical candidate
 - Other special diagnostic tests (bone scan, electromyography, radionuclide studies) for specific indications
 - Active rehabilitation
 - Epidural steroid injection
- Referral to a surgical or non-surgical back specialist

Primary Prevention

Patient education regarding healthy lifestyle and general aerobic fitness with emphasis on patient responsibility for good back care, workplace ergonomics and home self-care

5. Outcomes considered

- Number, duration and intensity of pain episodes and recurrences
- Change in functional status (strength, mobility, endurance) associated with low back pain
- Time required to return to work
- Utilization of health care resources
- Diagnostic accuracy of various imaging techniques including lumbar spine computed tomography, magnetic resonance imaging, and computed tomography myelography
- Patient satisfaction



6. Agree appraisal

- Scope and Purpose 67%
- Stakeholder Involvement 67%
- Rigour of Development 14%
- Clarity and Presentation 100%
- Applicability 17%
- Editorial Independence 67%

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

a) Functional progression

Evaluation

1. Phone triage or medical screening evaluation
2. Medical history, including evaluation of cancer risk factors, spinal infection, Cauda Equina signs and symptoms, neurologic involvement, and psychosocial factors
3. Physical examination including palpation for spinal tenderness, neuromuscular testing, and bilateral straight leg raise
4. Laboratory testing (complete blood count [CBC] and erythrocyte sedimentation rate) if suspicion of cancer or infection
5. Lumbar spine x-rays (anterior to posterior [AP] and lateral [LAT] views) for specific indications
6. Symptom classification by duration and location
7. Early referral to physical therapy or spine care specialist

Adult low back pain algorithm annotations

(1) Patient calls/presents with low back pain or sciatica/radiculopathy

Key points:

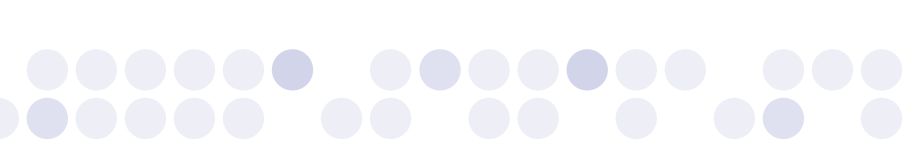
- Medical screening for low back pain should be performed via triage evaluation.
- If low back pain may be related to a possible work-related injury or workers' compensation claim, it is important to follow the Worker's Compensation Treatment Guidelines.

The patient calls the clinic or presents as a walk-in at the clinic. A medical screening should be performed via triage evaluation for phone contact and via provider examination for walk-ins. Each medical group may modify this proposed movement as needed.

The triage evaluation should first rule out emergent condition such as Cauda Equina Syndrome.

General Assessment:

- Recent back procedure or epidural anesthesia
- Location of pain:
 - Low back pain (LBP) (does not radiate past the knee)
 - Sciatica (LBP with radiation past the knee)
- Duration of symptoms, including date of injury or onset of symptoms:
 - Six weeks or less is acute
 - More than six weeks is chronic
- If injury: How did injury occur?

- 
- Unrelenting or severe pain
 - Scale of 0 to 10, with 10 indicating most severe pain
 - Other medical conditions
 - History of previous back pain or surgery
 - Psychosocial indications

For worker's compensation patients, check with state guidelines where the patient resides and where the injury took place; or in Minnesota, see the worker's compensation treatment parameters at <http://www.doli.state.mn.us/pdf/treatparam.pdf>.

Patient education regarding primary prevention

Providers in clinic systems are encouraged to provide primary education through other community education institutions/businesses to develop and make available patient education materials concerning back pain prevention and care of the healthy back. Emphasis should be on patient responsibility, workplace ergonomics, and home self-care treatment of acute low back pain. Employer groups should also make available reasonable accommodations for modified duties or activities to allow early return to work and minimize the risk of prolonged disability. Education is recommended for frontline supervisors in occupational strategies to facilitate an early return to work and to prevent prolonged disabilities.

For other patient education resources, please see the Support for Implementation section of the original guideline document.

(2) Emergent or Urgent?

Emergent - refer to emergency room (ER) for immediate evaluation

- Sudden onset or otherwise unexplained loss or changes in bowel or bladder control (retention or incontinence)
- Sudden onset or otherwise unexplained bilateral leg weakness
- Saddle numbness

Urgent - appointment within 24 hours:

- Fever 38 degrees C or 100.4 degrees F for greater than 48 hours
- Unrelenting night pain or pain at rest
- New onset (less than six weeks) of progressive pain with distal (below the knee) numbness or weakness of leg(s)
- Leg weakness
- Progressive neurological deficit
- Patient requests same-day appointment

(3) Evaluation Indicated?

Appointment within two to seven days **if the answer to any of the following is positive:**

- Exertion injury (e.g., lifting, digging, reaching)
- History of back symptoms - has been seen before, at least once
- Chronic back pain lasting longer than six weeks
- Unexplained weight loss (greater than 10 pounds in six months)
- Over age 50
- History of cancer



(4) Primary care evaluation and x-ray indications

Key points:

- Fear, financial problems, anger, depression, job dissatisfaction, family problems or stress can contribute to prolonged disability.
- Generally anterior to posterior (AP) and lateral (LAT) views x-rays are not helpful in the acute setting

This includes a history and physical and consideration of psychosocial factors.

If a serious underlying disease such as cancer, Cauda Equina Syndrome, significant or progressive neurologic deficit, or other systemic illness is present, consult or refer.

Patient history includes:

Cancer risk factors:

- 50 years old or older
- History of cancer
- Unexplained weight loss
- Failure to improve after four to six weeks of conservative LBP therapy

If all four of the above risk factors for cancer are absent, studies suggest that cancer can be ruled out with 100% sensitivity.

Risk factors for possible spinal infection:

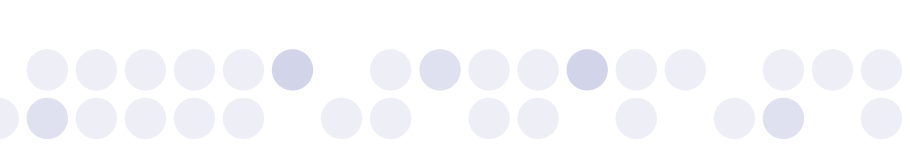
- Intravenous (IV) drug use
- Immunosuppression
- Urinary infection

Signs and symptoms of Cauda Equina Syndrome:

- Urinary retention (if no urinary retention, the likelihood of Cauda Equina Syndrome is less than 1 in 10,000)
- Saddle anesthesia, unilateral or bilateral sciatica, sensory and motor deficits, and abnormal straight leg raising are all common.
- Signs or symptoms of neurologic involvement:
- Complaint of numbness or weakness in the legs
- Sciatica with radiation past the knee (increases the likelihood of a true radiculopathy rather than pain radiating only to the posterior thigh)
- Sciatica has such a high sensitivity (95%) that its absence makes lumbar disc herniation unlikely
- The likelihood of disc herniation in a patient without sciatica would be 1 in 1,000
- Because more than 95% of lumbar disc herniations occur at the L4-5 or L5-S1 levels, the neurologic exam should focus on the L5 and S1 nerve roots; however, upper lumbar nerve root involvement may be suggested when pain conforms to L2, L3, or L4 dermatomal distribution and is accompanied by anatomically congruent motor weakness or reflex changes.

Psychosocial indications:

- Belief that pain and activity are harmful
- "Sickness behaviors" such as extended rest
- Depressed or negative moods, social withdrawal
- Treatment that does not fit best practice
- Problems with claim and compensation

- 
- History of back pain, time off, or other claims
 - Problems at work or low job satisfaction
 - Heavy work, unsociable hours
 - Overprotective family or lack of support

Psychosocial indications can be barriers to recovery. Consider factors such as fear, financial problems, anger, depression, job dissatisfaction, family problems, or stress which can contribute to prolonged disability. Refer to the National Guideline Clearinghouse (NGC) summary of the Institute for Clinical Systems Improvement (ICSI) guideline Major Depression in Adults in Primary Care for more information.

For more information on psychosocial indications, see the New Zealand Acute Low Back Pain Guide: Incorporating the Guide to Assessing Psychosocial Yellow Flags in Acute Low Back Pain, 2003.

(See Appendix C, “Psychosocial Screening and Assessment Tools” in the original guideline document.)

Physical examination should document:

Palpation for spinal tenderness

Neuromuscular testing to include:

- Ankle dorsiflexion strength
- Great toe dorsiflexion strength
- Ankle reflexes
- Knee reflexes
- Sensory exam with pinprick sensation in the medial, dorsal, and lateral aspects of the foot
- Significant or progressive neuromotor deficit requires surgical consultation.

Straight leg raise (SLR) should be assessed bilaterally to evaluate for nerve root impingement, including but not limited to disc herniation.

- Positive SLR is defined as pain in the posterior leg that radiates below the knee with the patient lying supine and the hip flexed 60 degrees or less, is suggestive of disc herniation.
- Negative SLR rules out surgically significant disc herniation in 95% of cases.

Laboratory evaluation

Consider a CBC (complete blood count) and erythrocyte sedimentation rate if suspicion of cancer or infection.

Referral

Early referral to physical therapy or another trained spine therapy professional could be considered. (See Annotations #13, “Re-evaluate and Consider Redirection,” and Annotation #23, “Discuss Options and Consider Possible Surgical or Non-surgical Back Specialist” for details on specialties and treatments.)

- Referral could be considered when patient presents with severe incapacitating, disabling back or leg pain; or
- Patient has significant limitation of functional or job activities

Lumbar spine x-ray (ap and lat views) red flag indications

Generally AP and LAT x-rays are not useful in the acute setting but may be warranted with:

- Unrelenting night pain or pain at rest (increased incidence of clinically significant pathology)
- History or suspicion of cancer (rule out metastatic disease)
- Fever above 38 degrees C (100.4 degrees F) for greater than 48 hours



- Osteoporosis
- Other systemic diseases
- Neuromotor or sensory deficit
- Chronic oral steroids
- Immunosuppression
- Serious accident or injury (fall from heights, blunt trauma, motor vehicle accident)--this does not include twisting or lifting injury unless other risk factors are present (e.g., history of osteoporosis) and
- Clinical suspicion of ankylosing spondylitis

Other conditions that may warrant AP or LAT x-rays:

- Over 50 years old (increased risk of malignancy, compression fracture)
- Failure to respond to four to six weeks of conservative therapy
- Drug or alcohol abuse (increased incidence of osteomyelitis, trauma, fracture)

Oblique view x-rays are not recommended; they add only minimal information in a small percentage of cases, and more than double the exposure to radiation.

(5) Home self-care treatment program

Key points:

- Low back pain is common and most patients significantly improve in four to six weeks.
- The long-term course of low back pain is typically a return to previous activities though often with incomplete recovery of pain.
- Patients should be re-evaluated if there is not significant improvement in one to three weeks or symptoms progress.

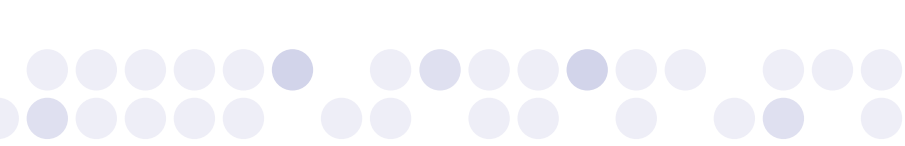
When patients are improving they should continue self-care as outlined. Document the phone triage and home self-care treatment in the patient's medical record (e.g., no appointment is needed at this time, patient is improving with home self-care instructions and will call back if questions arise or condition changes).

Etiology

- Pain in the lower back is very common. It can be related to certain activities, poor posture, physical stress, or psychological stress. Ninety percent of back pain patients improve within four to six weeks.
- Consider telling the patient that approximately two-thirds of the people who recover from a first episode of acute low back symptoms will have another episode within 12 months. Unless the back symptoms are very different from the first episode or there is a new medical condition, expect improvement to be similar for each episode.
- When pain or weakness lasts longer than six weeks, more specialized treatment(s) may be needed. For this reason it is important for the patient to keep the doctor informed of his or her progress.
- Other etiologies include pregnancy, labor, menstrual period, urinary tract problems, stomach upset with nausea, vomiting, and diarrhea

Instruct the patient to do the following:

- Carefully introduce activities back into his or her day as he or she begins to recover from the worst of the back pain episode. Light-duty activities and regular walking are good ways to get back into action.
- Apply ice packs or heat as preferred on the sore area will keep the inflammation down, and short duration in a position of comfort may be helpful.
- Use over-the-counter anti-inflammatory medications (e.g., aspirin, ibuprofen, naproxen sodium) or acetaminophen to help ease the pain and swelling in the lower back. If stomach complaints persist, call your provider

- 
- Learn safe back exercises and make them a regular part of your lifestyle. Some studies support a strengthening program and targeting specific muscles.
 - Take time to relax. Tension will only make your back feel worse.

Instruct the patient to call back in one to three weeks if:

- No improvement with home management
- Significant pain persists beyond a week
- Symptoms persist, worsen, or progress
- Improvement in symptoms, reinforcement of self-care program

(6) Consult or refer

Complete a diagnostic workup or refer to appropriate medical specialty for serious underlying conditions (e.g., cancer, or other systemic illness.) Each medical group may have other indications for specialty referral.

Consult or refer to neurosurgery or orthopedic surgery if:

- The patient is surgical candidate.
- Signs or symptoms of Cauda Equina Syndrome are present.
- Signs or symptoms of progressive or significant neuromotor deficit (e.g., foot drop, functional muscle weakness such as hip flexion weakness, or quadriceps weakness) are present.
- Neuromotor deficit persists after four to six weeks of conservative treatment (does not include minor sensory changes or reflex changes).
- The patient has chronic sciatica with positive SLR longer than six weeks.

Consult or refer to neurology (limited special indications)

- The patient has chronic sciatica longer than six weeks.
- The patient has atypical chronic leg pain (negative SLR).
- The patient has new or progressive neuromotor deficit.

(7) Has the patient failed conservative treatment?

Key points:

- Most patients who experience low back pain will have a recurrence within 12 months.
- Remaining active leads to a more rapid recovery with less chronic pain.
- Bed rest is not recommended. If the patient must rest, bed rest should be limited to no more than two days.
- It is important to evaluate non-physical factors that may impact returning to work or ongoing disability.
- The longer term course of low back pain is typically of a return to previous activities though often with incomplete recovery of pain.

Conservative treatment:

- Most patients who seek attention for their back pain will improve within two weeks. Most patients experience significant improvement within four weeks.
- Approximately two-thirds of the people who recover from a first episode of acute low back symptoms will have another episode within 12 months. Unless the back symptoms are very different from the first episode or the patient has a new medical condition, expect improvement to be similar for each episode.
- Recommend cold packs or heat as preferred by the patient.



- Recommend analgesic medication for short-term (less than 3 months) symptom control. Clinicians should consider the risk and benefits of any medication and prescribe the lowest effective dose possible.
- Muscle relaxants are sometimes helpful for a few days but can cause drowsiness.
- Narcotic analgesics are rarely indicated
- If the patient has been involved in home care and has had an adequate trial prior to the first visit, consider referral to a spine therapy professional on the initial visit. (See Annotation #14, "Consider Referral to a Spine Care Specialist.")
- While the work group acknowledges it is common practice to prescribe oral steroids for some patients, at this time there is not significant primary evidence to support it.

Activity recommendations:

Patients with acute low back pain should be advised to stay active and continue ordinary activity within the limits permitted by the pain. Remaining active leads to more rapid recovery with less chronic disability and fewer recurrent problems than either bed rest or back mobilizing exercises. [Conclusion Grade I: See Conclusion Grading Worksheet A -- Annotation #10, (Conservative Treatment) in the original guideline document].

- Activity modification
 - Continue routine activity while paying attention to correct posture.
 - Patients with acute low back problems may be more comfortable if they temporarily limit or avoid specific activities known to increase mechanical stress on the spine, especially prolonged unsupported sitting, heavy lifting, and bending or twisting the back, especially while lifting.
 - Activity recommendations for the employed patient with acute low back symptoms should take into consideration the patient's age and general health, and the physical demands of the patient's job.
 - Patients should discontinue any activity or exercise that causes spread of symptoms (peripheralization).
- Bed rest
 - Bed rest is not recommended. If the patient must rest, bed rest should be limited to no more than two days and only as an option for patients with severe initial symptoms of primarily leg pain.
 - A gradual return to normal activities is more effective and leads to more rapid improvement with less chronic disability than prolonged bed rest for treating acute low back problems.
 - Prolonged bed rest for more than four days may lead to debilitation and is not recommended for treating acute low back problems.
- Exercise
 - Patients should discontinue any activity or exercise that causes spread of symptoms (peripheralization)
 - Low stress aerobic and flexibility exercise can prevent debilitation due to inactivity during the first month of symptoms and thereafter may help to return patients to the highest level of functioning appropriate to their circumstances.
 - Recommended exercise quotas that are gradually increased result in better outcomes than telling patients to stop exercising if pain occurs. Aerobic (endurance) programs which minimally stress the back (walking, biking, or swimming) can be started during the first two weeks for most patients with acute low back problems.
 - Strengthening exercises for trunk muscles (especially back extensors), gradually increased, are helpful for patients with low back problems.
 - It is important to consult with a medical specialist, such as a qualified spine specialist, who can evaluate individual symptoms and recommend a safe and effective program. Self-treating with an exercise program not specifically designed for the patient may aggravate your symptoms.
 - Consider referral to a formal rehab program.



Self care brochure (See Support for Implementation, “Other Resources Available” in the original guideline document):

In general, brochures and information that place a greater emphasis on reducing fear and anxiety and promoting active self-management have a greater opportunity for improving outcomes than traditional brochures that emphasize anatomy, ergonomics, and specific back exercises.

Specific content recommendations include:

- Absence of serious disease is likely when red flags are not present
- Hurt does not equal harm.
- There is a good prognosis for low back pain. The majority of patients experience significant improvement in two to four weeks.
- Bed rest is not recommended and should be limited to no more than two days.
- Light activity will not further injure the spine and light activity typically helps speed recovery.
- A progressive resumption of work and activity levels leads to better short-term and long-term outcomes.
- Information and advice may be helpful regarding specific painful or limited activities, such as sitting, lifting, getting up from bed.

Return to work:

- Tell patients experiencing an episode of acute back pain that their pain is likely to improve and that the large majority of patients return to work quickly. They should understand that complete pain relief usually occurs after, rather than before, resumption of normal activities and their return to work can be before they have complete pain relief. Working despite some residual discomfort poses no threat and will not harm them.
- All persons recovering from back pain should understand that episodes of back pain may recur but can be handled similarly as the one from which they are recovering.
- Patients can reduce the likelihood of back pain recurrence by making exercise and lifestyle changes, as noted elsewhere.
- Consider using the following questions to guide your discussion about non-physical factors that can significantly impact risk for ongoing disability and return to work:
 - Do you enjoy the tasks involved in your job?
 - Do you get along with your closest or immediate supervisor?

Follow-up visit:

Because most patients with acute pain improve by two weeks, a conservative treatment approach is recommended. Low back pain patients who are not improving or who experience significant limitation of daily activity at home or work should contact their provider within one to three weeks of the initial evaluation. Patients who are improving should continue home self-care.

Red flag and psychosocial indicators should be reviewed and evaluated at each contact/visit. It is the consensus of the work group that an assessment that includes a subjective pain rating, functional assessment, and a clinician’s objective assessment should be done at each visit.

It is the consensus of the work group that patients who are improving should consider a follow-up with their provider. The benefit is to reinforce education and lifestyle changes that have enabled the patient to improve. This provides for outcome measures to be assessed as identified in the aims and measures section of the original guideline document.



(8) Re-evaluate and consider redirection

Key points:

- A spine care specialist consistently demonstrates competency in providing therapies based on continuing education and effective techniques supported by literature.

Choice of the trained professional will be determined by availability and preference of individual medical providers and organization systems. The patient and/or physician should request a trained spine therapy professional who consistently demonstrates competency in providing therapies for patients with low back pain based on effective techniques supported by literature as outlined in this guideline.

These therapies include education, exercise programs, and appropriate use of manual/manipulative therapies. Individuals who may have training in these therapies include physical therapists, chiropractic providers, osteopathic or allopathic physicians.

The following should be considered when selecting a spine therapy professional who will effectively evaluate and treat the lumbar spine, pelvic girdle (including sacroiliac [SI] joint), and muscle imbalances (piriformis):

Physician or spine therapy professional

- Participants should be in additional training and in ongoing continuing education courses in manual treatment of the spine
- Years of experience treating spine patients
- Volume of patients treated for spine dysfunction in the past year
- Number of referrals an individual provider receives on a regular basis

Spine therapy professional

- Provides treatment interventions which include manipulation, exercise, and education
- Average number of visits per episode of care for low back pain
- Percentage of patients who return to previous level of activity

Indications for referral include:

- Failure to make improvement with home self-care after two weeks
- Severe incapacitating and disabling back or leg pain and
- Significant limitation of functional or job activities

The professional's treatment plan should include both education and exercise. The treatment plan may include modalities, if necessary, to enable an individual to carry out an exercise program and self-care. It may also include limited passive treatments such as manual therapy (e.g., includes manipulation and mobilization), among others. Spinal manipulation should not be done if pre-manipulative testing peripheralizes symptoms.

Passive treatments are to be minimized and used only to progress an individual toward independence in exercise and self-care. Active treatment such as exercise must be introduced within a week of initiating passive treatments.

Within three to four visits, the patient must display documented improvement in order to continue therapy. If no improvement is noted, a comprehensive re-evaluation should be performed by the spine care professional for other causes of low back pain including regional SI joint dysfunction.

Continued improvement must be documented for continued therapy. Typically no more than four to six visits are needed.

After nine visits the primary care provider should be consulted to continue therapy.



(9) Is pain chronic (greater than six weeks)?

A patient with “recurrent acute” episodes will continue a trial of conservative treatment when the current symptoms are six weeks or less from onset. “Recurrent acute” means symptoms at some point improved, separating the current episode from previous episodes. When the current symptoms are more than six weeks from onset, the patient should be regarded as chronic and the provider should move to the corresponding sections of the algorithm (box 16 and beyond in the original guideline document). Sacroiliac joint dysfunction may be a contributor to low back pain and radicular pain in some individuals. This needs to be considered as a potential origin of pain.

If at initial evaluation the patient is identified as chronic LBP, see Annotation # 16, “Chronic Low Back Pain”. For chronic sciatica/radiculopathy see Annotation #19.

(10) Chronic low back pain

A comprehensive re-evaluation including a general assessment (see Annotation #4, “Primary Care Evaluation and X-Ray Indications”) should be done for patients not improving after six weeks. Most patients with acute back pain will improve within six weeks. Back pain and sciatica which persist longer than six weeks are defined as chronic.

An assessment that includes a subjective pain rating, functional assessment, and a clinician’s objective assessment should be done.

See Appendix C, “Psychosocial Screening and Assessment Tools” in the original guideline document. See the NGC summary of ICSI guideline Major Depression in Adults in Primary Care for the diagnosis and treatment of depression.

For patients not improving after six weeks see “Lumbar Spine X-Rays (AP and LAT views) if Indicated” in this annotation and Annotation #19, “Chronic Sciatica/Radiculopathy,” for imaging considerations.

Of the 10% of patients with chronic symptoms, 90% fall into the chronic LBP category and only 10% fall into the chronic sciatica category.

Physical factors which may lead to delayed recovery or prolonged disability include malignancy, infection, metabolic, or a bio-mechanical condition (e.g., sacroiliac joint dysfunction [SJD]). Consider blood testing (including CBC and erythrocyte sedimentation rate [ESR]) if there is suspicion of cancer or infection.

If the patient is not better, consider other etiologies for low back pain such as:

- Fractures
- Spondylarthropathies
- Infection
- Tumor
- Abdominal/pelvic pathologies
- Other sites of origin for low back pain such as facet syndrome, piriformis syndrome, stenosis, or claudication

Lumbar spine x-rays (ap and lat views) if indicated

Patients with chronic LBP or acute LBP who are not improving should receive consideration for further diagnostic testing. (See Annotation #4, “Primary Care Evaluation and X-ray Indications” above.) Oblique view x-rays are not recommended; they add only minimal information in a small percentage of cases, and more than double the exposure to radiation.

Several x-ray findings are of questionable clinical significance and may be unrelated to back pain. These findings include:

- Single disk space narrowing
- Spondylolysis
- Lumbarization



- Sacralization
- Schmorl nodes
- Spina bifida occulta
- Disk calcification
- Mild to moderate scoliosis

(11) Active rehabilitation

There is strong evidence that exercise therapy is effective for chronic LBP. However, there is inconclusive evidence in favor of one exercise over the other--flexion, extension, fitness. [*Conclusion Grade I: See Conclusion Grading Worksheet B -- Annotation #17 (Active Rehabilitation) in the original guideline document*]. High-grade mobilization/manipulation has been shown to be effective early in treatment when followed by appropriate active rehabilitation.

The treatment of chronic low back pain should include:

- Education (back book and advice by provider)
- Active self-management
- Gradual resumption of normal light activities as tolerated
- Prevention - good body mechanics
- Exercise - many studies show the benefit of an exercise program with chronic low back pain
 - Inconclusive evidence in favor of one exercise over the other (flexion, extension, or fitness)
 - Consider a graded active exercise program.
 - Consider specific exercises to strengthen the core trunk stabilizing muscles.
 - Consider intensive exercise program.
- Assess and manage psychosocial factors
- Multidisciplinary approach

(12) Chronic sciatica/radiculopathy

Key points:

- Magnetic resonance imaging (MRI) and computed tomography (CT) are not useful during acute sciatica unless red flag indications are present.

See Annotation #16, "Chronic Low Back Pain" for a comprehensive physical and psychosocial evaluation including a subjective pain assessment, functional assessment, and a clinician's objective assessment.

MRI or lumbar spine ct imaging indications when patient is a potential surgical candidate

MRI and CT generally are not useful during acute low back pain or acute sciatica unless surgery, cancer, or infection are considerations (red flag indications). If the primary care provider is uncertain whether an MRI or CT should be ordered, consultation with an appropriate consultant when the patient meets surgical referral criteria should be considered. (See Annotation #21, "Consider Epidural Steroid Injection Prior to Surgical Intervention.") Each medical group may have specific arrangements for ordering CT, MRI, or other special diagnostic tests prior to referral to a surgical back specialist.

In isolated cases of low back pain without radicular symptoms, MRI is the preferred diagnostic test. However, in an otherwise healthy adult without a previous history of back surgery and symptoms of low back pain with radicular symptoms, a CT scan may be as sensitive as an MRI.

The Adult Low Back Pain guideline work group has listed advantages for both CT and MRI imaging and a list of conditions for each. This list is not meant to be comprehensive but to aid the clinician in making a decision.

**MRI indications:**

- Major or progressive neurologic deficit (e.g., foot drop or functionally limiting weakness such as hip flexion or knee extension)
- Cauda Equina Syndrome (loss of bowel or bladder control or saddle anesthesia).
- Progressively severe pain and debility despite conservative therapy
- Severe or incapacitating back or leg pain (e.g., requiring hospitalization, precluding walking, or significantly limiting the activities of daily living).
- Clinical or radiological suspicion of neoplasm (e.g., lytic or sclerotic lesion on plain radiographs, history of cancer, unexplained weight loss, or systemic symptoms).
- Clinical or radiological suspicion of infection (e.g., endplate destruction of plain radiographs, history of drug or alcohol abuse, or systemic symptoms).
- Trauma (fracture with neurologic deficit, compression fracture evaluation in elderly patients with question of underlying malignancy, characterization in anticipation of vertebroplasty/kyphoplasty, stress fracture or subacute spondylosis in a patient less than 18 years of age).
- Severe low back pain or radicular pain, unresponsive to conservative therapy, with indications for surgical intervention.

For patients with mild to moderate claustrophobia, benzodiazepines one-hour prior to scan is effective. The patient will need to be accompanied by a driver.

MRI advantages:

- Better visualization of soft tissue pathology; better soft tissue contrast
- Direct visualization of neurological structures
- Improved sensitivity for cord pathology and for intrathecal masses
- Improved sensitivity for infection and neoplasm
- No radiation exposure
- Safer for women who are pregnant, especially in the 1st trimester due to no radiation exposure

CT indications:

- Major or progressive neurologic deficit (e.g., foot drop or functionally limiting weakness such as hip flexion or knee extension)
- Cauda Equina Syndrome (loss of bowel or bladder control or saddle anesthesia).
- Progressively severe pain and debility despite conservative therapy
- Clinical or radiological suspicion of neoplasm (e.g., lytic or sclerotic lesion on plain radiographs, history of cancer, unexplained weight loss, or systemic symptoms)
- Bone tumors (to detect or characterize)
- Severe or incapacitating back or leg pain (e.g., requiring hospitalization, precluding walking, or significantly limiting the activities of daily living).

CT advantages:

- Better visualization of calcified structures
- Direct visualization of fractures
- Direct visualization of fracture healing and fusion mass
- More accurate in the assessment of certain borderline or active benign tumors
- More available and less costly
- Better accommodation for patients over 300 lbs and patients with claustrophobia



- Safer for patients with implanted electrical devices or metallic foreign bodies
- Less patient motion. Particularly useful for patients who cannot lie still or for patients who cannot cooperate for an MRI

Other special diagnostic tests such as myelogram, electromyography (EMG), radio nuclide studies (RNS), and bone scan should be ordered as each medical group dictates and consider the preference of the specialist when referral is planned.

See Appendix D, “CT and MRI Order Sets” in the original guideline document.

(13) Consider epidural steroid injection prior to surgical intervention

Key points:

- Epidural steroid injections should only be considered after initial appropriate conservative treatment program has failed.
- Successful epidural steroid injections may allow patients to advance in a conservative treatment program.
- Epidural steroid injects should be performed under fluoroscopy with contrast for best results

There is limited evidence for epidural steroid injections; therefore, it is important that outcome data be gathered in order to grow the evidence.

The goal of epidural steroid injections in patients with back or leg pain and stenosis or a herniated disc on MRI or CT is pain control and functional improvement. Several studies have shown that a single epidural injection affords short-term relief of pain although in one randomized controlled trial, the steroid group seemed to experience a “rebound” phenomenon.

Based on limited data, the results appear promising. However, at this time there is insufficient evidence for the efficacy of epidural steroid injections. Epidural steroid injections should only be considered after initial appropriate conservative treatment program has failed. Successful epidural steroid injections may allow patients to advance in a conservative treatment program.

Injections should be performed under fluoroscopy and with contrast in order to deliver cortisone as close to the disc herniation, area of stenosis, or nerve root impingement as determined by MRI or CT, and with as little morbidity as possible. Failure of treatment may result from a failure to deliver medications to the treatment field.

No study has shown a clear advantage of one approach (interlaminar, caudal, or transforaminal), type of cortisone or volume of injectate. The approach needs to be individualized to each patient.

Procedural morbidity also varies with each approach. With interlaminar injections there is a risk of intrathecal injection and subsequent arachnoiditis, as well as post-procedural headaches. With transforaminal injections, patients frequently report significant, although in most cases transient, leg pain and there is a risk of spinal cord infarction when injected above L2.

Patient selection

- Patients should have predominantly complaints of leg pain in a dermatomal distribution with corroborative examination findings for radiculopathy (reflex changes, possible motor weakness, and root tension signs.) In addition, the pain should be of the severity that significantly limits function and quality of life and has not responded to oral analgesic medications and other conservative care measures.
- Corroborative neural axis imaging is required, either MRI or CT, with evidence of disk disease or bony stenosis which fits with the clinical syndrome.
- Patients should have no contraindications to injection therapy, including:
 - No signs or symptoms of active infection either systemically or locally
 - No history of bleeding disorders or current use of anticoagulants such as warfarin or clopidogrel; allow the patient to “drift” to the lowest effective International Normalized Ratio (INR) prior to procedure

- No allergies to local anesthetic agents, contrast agents, or corticosteroids
- No prior complications to corticosteroid injections
- Pregnancy is a contraindication for the use of fluoroscopy.
- Caution should be used in diabetic patients because of altered glycemic control, which is typically transient.
- Patients with congestive heart failure need to be aware of steroid-induced fluid retention.
- Though non-steroidal anti-inflammatory drug (NSAID) use is not a contraindication to injections, some practitioners discontinue NSAIDs several days prior to injection.

(14) Discuss options and consider surgical or non-surgical back specialist

Key points:

- The appearance of a disc herniation does not rule out a course of conservative therapy. Unless red flag indications are present, all patients should undergo a trial of conservative therapy.
- The decision to operate is a clinical decision based on the presence of severe, uncontrolled pain, profound or progressive neurological symptoms, or a failure to respond to conservative therapy.

Refer to the original guideline document for indications for the following specialty referrals: physiatrist/physical medicine and rehabilitation, medical orthopedics, neurology, occupational medicine, rheumatology.

Special diagnostic tests can be used to help clinicians decide the appropriate referral to a specialist. To decide which test, consult with subspecialty physicians.

- Bone scan (limited with single photon emission computer tomography [SPECT])
- EMG (electromyography)
- CT enhanced myelogram
- Myelogram
- RNS (radionuclide studies)

Neurosurgery or orthopedic surgery

- Patient is surgical candidate.
- Cauda Equina Syndrome
- Progressive or severe neuromotor deficit (e.g., foot drop or functional muscle weakness such as hip flexion weakness or quadriceps weakness)
- Persistent neuromotor deficit after four to six weeks of conservative treatment (does not include minor sensory changes or reflex changes)
- Chronic sciatica with positive SLR for longer than 4 to 6 weeks
- Uncontrolled pain

Patients with large, extruded, sequestered, or high-signal-intensity disc herniations do not have a worse prognosis than do patients with smaller contained disc herniations or protrusions. The presence of a disc extrusion or sequestration is not an indication for immediate surgery.

- The appearance of a disc herniation on MRI/CT (including extruded/sequestered disc) does not determine whether an individual patient will respond to conservative therapy. Assuming that the patient's pain can be controlled and that no red flags or contraindications exist, all patients should undergo a trial of conservative therapy.
- The decision to operate is a clinical one, not a radiologic one, and is generally based on the presence of severe, uncontrolled pain, profound or progressive neurological symptoms, or a failure to respond to conservative therapy.



- Even though it was not discussed above, it is important to emphasize the concept that a disc herniation on MRI/CT is of relevance only with respect to specific clinical symptoms. Disc herniations can be seen in asymptomatic patients, and one can surmise from the literature quoted that if a patient's symptoms resolve and the disc herniation does not resorb, it will be present on the next examination.

b) Physical/psychiatric rehabilitation

Active rehabilitation is mentioned in more detail in the Algorithm Annotations

Major recommendations

Note from the National Guideline Clearinghouse (NGC) and the Institute for Clinical Systems

Improvement (ICSI): For a description of what has changed since the previous version of this guidance, refer to Summary of Changes -- September 2006.

Clinical highlights

- Cauda Equina syndrome is a condition requiring emergent evaluation and surgery. A patient should be referred immediately to the emergency room (ER) if any of the following emergent symptoms are present (*Annotations #1, 2*):
 - Sudden onset or otherwise unexplained loss or changes in bowel or bladder control (retention or incontinence)
 - Sudden onset or otherwise unexplained bilateral leg weakness
 - Saddle numbness
- A patient should be offered an appointment within 24 hours if any of the following symptoms are present (*Annotation #2*):
 - Fever 38 degrees C or 100.4 degrees F for greater than 48 hours
 - Unrelenting night pain or pain at rest
 - New onset (less than six weeks) of progressive pain with distal (below the knee) numbness or weakness of leg(s)
 - Leg weakness
 - Progressive neurological deficit
 - Patient requests for same-day appointment
- Lumbar spine x-rays should be considered when the following red flag indications exist (*Annotation #4*):
 - Unrelenting night pain or pain at rest (increased incidence of clinically significant pathology)
 - History of or suspicion of cancer (rule out metastatic disease)
 - Fever above 38 degrees C (100.4 degrees F) for greater than 48 hours
 - Osteoporosis
 - Other systemic diseases
 - Neuromotor or sensory deficit
 - Chronic oral steroids
 - Immunosuppression
 - Serious accident or injury (fall from heights, blunt trauma, motor vehicle accident) – this does not include twisting or lifting injury unless other risk factors are present (e.g., history of osteoporosis)
 - Clinical suspicion of ankylosing spondylitis
- Red flag and psychosocial indicators should be reviewed and evaluated at each contact/visit. While there is no outcome data related to this, an assessment that includes a subjective pain rating, functional assessment, and a clinician's objective assessment should be done at each visit. (*Annotations #1, 4, 10, 16, 17*)

- Emphasize patient education and conservative home self-care which includes limited bed rest, early ambulation, postural advice, resumption of light-duty activities, use of ice and heat, anti-inflammatory and analgesic over-the-counter medication, and early return to work or activities. (*Annotation #5*)
- Based on history and physical, classify symptoms by duration and location into appropriate categories: (*Annotation #10*)
 - Acute low back pain
 - Chronic low back pain
 - Acute sciatica
 - Chronic sciatica
- The natural history of low back pain is that most patients will experience partial improvement in four to six weeks and will have a recurrence of low back pain in 12 months. (*Annotations #5, 10*)
- Patients with acute low back pain should be advised to stay active and continue ordinary daily activity within the limits permitted by the pain. For chronic back pain, there is evidence that exercise therapy is effective. (*Annotation #10*)
- Consideration should be given to epidural steroid injections if patient is being considered for surgical interventions. Epidural steroid injections should not be done without fluoroscopic guidance. (*Annotation #21*)
- Referrals for advanced imaging studies should be limited to patients with (*Annotation #19*):
 - Progressive neurological deficits
 - Minimal to no improvement of radicular symptoms despite six weeks of conservative treatment
 - Uncontrolled pain
 - Cauda Equina Syndrome

c) Risk factor/recovery

Potential harms

Epidural steroid injection

- Caution should be used in diabetic patients because of altered glycemic control which is typically transient. Also, patients with congestive heart failure need to be aware of steroid-induced fluid retention.
- With interlaminar injections there is a risk of intrathecal injection and subsequent arachnoiditis, as well as post-procedural headaches. With transforaminal injections, patients frequently report significant, although in most cases transient, leg pain and there is a risk of spinal cord infarction when injected above L2.

Contraindications

- *Fluoroscopy*: Contraindications include pregnancy.
- *Steroid injections*: Contraindications include patients with signs and symptoms of active infection either systemically or locally, history of bleeding disorders or current use of anticoagulants such as warfarin or clopidogrel, allergies to local anesthetic agents, contrast agents, or corticosteroids, prior complications to corticosteroid injections.

d) Return to work

Tell patients experiencing an episode of acute back pain that their pain is likely to improve and that the large majority of patients return to work quickly. They should understand that complete pain relief usually occurs after, rather than before, resumption of normal activities and their return to work can be before they have complete pain relief. Working despite some residual discomfort poses no threat and will not harm them.

- All persons recovering from back pain should understand that episodes of back pain may recur but can be handled similarly as the one from which they are recovering.



- Patients can reduce the likelihood of back pain recurrence by making exercise and lifestyle changes, as noted elsewhere.
- Consider using the following questions to guide your discussion about non-physical factors that can significantly impact risk for ongoing disability and return to work:
 - Do you enjoy the tasks involved in your job?
 - Do you get along

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?	5
Return to work process (vocational rehabilitation) To what degree does the guideline consider the Return to Work Process (vocational rehabilitation)?	4
Risk factors for recovery To what degree does the guideline consider Risk Factors for Recovery?	5
Total rating	18



Acute low back pain

Contents

1. Developed by	27
2. Guideline status	27
3. Where located/how accessed	27
4. Description/scope	27
5. Outcomes considered	29
6. Agree appraisal.....	29
7. Relevance/appropriateness of use in workers' compensation sector.....	30
a) Functional progression	30
b) Physical/psychiatric rehabilitation.....	32
c) Risk factor/recovery	32
d) Return to work.....	32
8. Priority for Q-COMP.....	33



1. Developed by

University of Michigan Health System. Acute low back pain. Ann Arbor (MI): University of Michigan Health System;2003 Apr [rev.Oct 2004].13 p. [8 references]

2. Guideline status

This is the current release of the guideline.

This guideline updates a previous version: University of Michigan Medical Centre. Acute low back pain. Ann Arbor (MI): University of Michigan Health System;1997.13p.

This guideline was updated by the guideline developer in October 2004 following the removal of Vioxx (rofecoxib) from the worldwide markets. See the US Food and Drug Administration (FDA) Web site for more information. This guideline was updated again by the guideline developer in December 2004 following the release of a public health advisory from the U.S. Food and Drug Administration regarding the use of some non-steroidal anti-inflammatory drug products. See the FDA web site for more information.

3. Where located/how accessed

National Guideline Clearinghouse

www.guideline.gov

Electronic copies; Available in Portable Document Format (PDF) form the University of Michigan Health System Web site.

The following patient resources are available:

- Low back pain exercises. Ann Arbor (MI): University of Michigan Health System; 2003 Apr. 3 p. Electronic copies: Available in Portable Document Format (PDF) from the University of Michigan Health System Web site.
- Adult low back pain. Patient education handout. University of Michigan Health System; 2003. Various p. Electronic copies: Available from the University of Michigan Health System Web site

4. Description/scope

Disease/condition(s)

- Acute low back pain

Guideline category

- Diagnosis
- Management
- Treatment

Clinical speciality

- Family Practice
- Internal Medicine

Intended users

- Advanced Practice Nurses
- Physician Assistants
- Physicians



Guideline objectives

- To enable primary care providers to:
 1. Identify persons at risk for chronic disability and intervene early
 2. Detect dangerous, but uncommon lesions
 3. Utilize diagnostic tests efficiently
 4. Initiate treatment and refer when appropriate

Target population

- Adults >18 years of age with pain for < 6 weeks

Interventions and practices considered

Diagnosis

1. Focused medical history:
 - Assess for serious disease
 - Assess psychological and social risk for chronic disability
2. Physical examination
 - General assessment including areas of back tenderness and back mobility, including degree of flexion, extension
 - Focused examination includes the testing of muscle strength, reflexes, and range of motion which may include;
 - L-5 innervated medial hamstring reflex test
 - Reproduction of pain in a specific anatomical structure
 - Palpitation of spine and flexion/extension of the spine
 - Straight leg raise test
 - Gordon Waddell's five non-organic pain signs
3. Diagnostic testing as indicated:
 - Complete blood count and erythrocyte sedimentation rate
 - Imaging studies (Magnetic resonance imaging [MRI], computed tomography [CT], CT-myelography)
 - Electromyography (EMG)
 - Plain x-rays (not recommended for routine evaluation, but can be used to rule out fractures)
 - Bone scan

Treatment

Non-medication treatments (e.g., ice, stretching)

Patient education including:

- Educational booklets/handouts
- Self-applied ice and heat
- Medication risks and side effects
- Minimize activity limitations

Treatment options considered but not specifically recommended include:

- Spinal manipulation for symptomatic relief
- Exercises (McKenzie exercises, aerobic and back-strengthening exercises)



- Physical modalities such as ultrasound, diathermy, phonophoresis or iontophoresis of medications, transcutaneous electrical nerve stimulators (TENS)
- Shock absorbing shoe inserts

Note: Lumbar corsets or belts and traction were considered but not recommended.

Medications

- Non-steroidal anti-inflammatory drugs (NSAIDs)

Note: NSAIDs are recommended over Cyclo-oxygenase-2 (cox-2) inhibitors in most patients

- Medications considered but not specifically recommended include:
 - Acetaminophen
 - Muscle relaxants
 - Opiate analgesics
 - Injections
 - Epidural steroid injections

Note: Trigger point injections with local anaesthetic “dry needling” and botulinum injections were considered but not recommended.

Follow –Up

1. Update history and physical
2. Reduce medications, increase activity
3. Diagnostic testing as indicated (e.g., MRI, EMG)
4. Specialist referral as indicated:
 - Surgery
 - Physiatry
 - Psychosocial counselling (biofeedback and hypnosis are not recommended)
 - Multidisciplinary rehabilitation

5. Outcomes considered

Recovery and recurrence rates

Patient satisfaction with treatment

6. Agree appraisal

- Scope and Purpose 50%
- Stakeholder Involvement 50%
- Rigour of Development 36%
- Clarity and Presentation 79%
- Applicability 0%
- Editorial Independence 67%



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

a) Functional progression

Diagnosis

1. Focused medical history:
 - Assess for serious disease
 - Assess psychological and social risk for chronic disability
2. Physical examination:
 - General assessment including areas of back tenderness and back mobility, including degree of flexion, extension
 - Focused examination includes the testing of muscle strength, reflexes, and range of motion which may include:
 - L-5 innervated medial hamstring reflex test
 - Reproduction of pain in a specific anatomical structure
 - Palpation of spine and flexion/extension of the spine
 - Straight leg raise test
 - Gordon Waddel's five non-organic pain signs
3. Diagnostic testing as indicated:
 - Complete blood count and erythrocyte sedimentation rate
 - Imaging studies (Magnetic resonance imaging [MRI], computed tomography [CT], CT-myelography)
 - Electromyography (EMG)
 - Plain x-rays (not recommended for routine evaluation, but can be used to rule out fractures)
 - Bone scan

Treatment

1. Non-medication treatments (e.g., ice, stretching)
2. Patient education including:
 - Educational booklets/handouts
 - Self-applied ice and heat
 - Medication risks and side effects
 - Minimize activity limitations
3. Treatment options considered but not specifically recommended include:
 - Spinal manipulation for symptomatic relief
 - Exercises (McKenzie exercises, aerobic and back-strengthening exercises)
 - Physical modalities such as ultrasound, diathermy, phonophoresis or iontophoresis of medications, transcutaneous electrical nerve stimulators (TENS)
 - Shock absorbing shoe inserts

Note: Lumbar corsets or belts and traction were considered but not recommended. 4. Medications

- Non-steroidal anti-inflammatory drugs (NSAIDs)

Note: NSAIDs are recommended over Cyclo-oxygenase-2 (COX-2) inhibitors in most patients



Medications considered but not specifically recommended include:

- Acetaminophen
- Muscle relaxants
- Opiate analgesics
- Injections
- Epidural steroid injections

Note: Trigger point injections with local anesthetic, “dry needling,” and botulinum toxin injections were considered but not recommended.

Follow-Up

1. Update history and physical
2. Reduce medications, increase activity
3. Diagnostic testing as indicated (e.g., MRI, EMG)
4. Specialist referrals as indicated:
 - Surgery
 - Physiatry
 - Psychosocial counseling (biofeedback and hypnosis are not recommended)
 - Multidisciplinary rehabilitation

Major outcomes considered

- Recovery and recurrence rates
- Patient satisfaction with treatment

Major recommendations

Note from the National Guideline Clearinghouse (NGC): The following key points summarize the content of the guideline. Refer to the full text of the original guideline document for detailed information on diagnosis; “red flags” for serious disease; risks for chronic disability; differential diagnoses; assessing muscle strength and reflexes; treatment and medications.

- **Natural history.** Low back pain occurs in about 80% of people within 6 weeks 90% of episodes will resolve satisfactorily regardless of treatment. Of all persons disabled for more than 1 year, 90% will never work again without intense intervention .
- **Initial visit**
 - Assess for “red flags” of serious disease (see Table 1 in the original guideline document), as well as psychological and social risks for chronic disability (see Table 2 in original guideline document). Diagnostic tests are usually unnecessary
 - Educate about good prognosis
 - Treatment options include: ice , nonsteroidal anti-inflammatory drugs (NSAIDs) , and return to usual activities - bed rest is not recommended (Cyclo-oxygenase-2 [COX-2] inhibitors are no more effective than traditional NSAID agents and should be reserved for carefully selected patients [see Table 8 in the original guideline document for COX-2 criteria].
 - Refer to the following tables in the original guideline document for detailed information on:
 - Non-Radiating (Axial) Low-Back Pain: Treatment and Follow Up (Pain Not Below the Knee) (Table 5)
 - Radiating Low-Back Pain: Treatment and Follow Up (Sciatica – Pain Below the Knee) (Table 6)

- Medications for Low Back Pain (Non-Radiating and Radiating) (Table 7)
- Close clinical follow up until return to work or key life activities **By 2 weeks** (acute). If work disability persists, consider psychiatric consultation especially if psychosocial risks to return to work exist.
- **For radicular pain, by 2-4 weeks:** If no improvement obtain magnetic resonance image (MRI) . If not diagnostic, obtain electromyography (EMG). If pathology proven, consider acute physiatric evaluation (for injection therapy) or surgical evaluation . If pathology not proven, consider physiatrist referral .
- **By 6 weeks** (subacute). **If activities are still limited, consider physiatric consultation regarding a complex rehabilitation program.**
- **By 12 weeks** (chronic). If still disabled from major life activities or work, strongly consider referral to a physiatrist or specialized spinal pain team for a complex rehabilitation team .

Special circumstances (see discussion in original guideline document):

- Primary prevention
- Chronic low back pain
- Recurrent low back pain
- Pregnancy and low back pain

b) Physical/psychiatric rehabilitation

As briefly mentioned above in Treatment, Follow Up and Treatment Options.

c) Risk factor/recovery

Potential harms

- Refer to Table 7 “Medications for Low Back Pain (Non-Radiating and Radiating)” in the original guideline document for a listing of medication side effects.
- Consider cyclo-oxygenase-2 inhibitors (COX-2 inhibitors) if patient: has a history of upper gastrointestinal bleeding is receiving chronic, high dose systemic corticosteroids has presence of a bleeding disorder is receiving anticoagulants has a documented intolerance to traditional non-steroidal antiinflammatory drugs (NSAIDs) is elderly with multiple co-morbidities

Note: Do not prescribe COX-2s to patients with known coronary heart disease. Exercise extreme caution in prescribing to patients with multiple risk factors for coronary heart disease.

Contraindications

In general, bone scans, x-rays and computed tomography (CT) scans are contraindicated during pregnancy

d) Return to work

Not mentioned



8. Priority for Q-COMP

Rating criteria

Acute low back pain

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?	4
Total rating	10



New Zealand Acute low back pain guide – incorporating the guide to assessing psychosocial yellow flags in acute low back pain

Contents

1. Developed by	35
2. Guideline status	35
3. Where located/how accessed	35
4. Description/scope	35
5. Outcomes considered	36
6. Agree Appraisal	36
7. Relevance/appropriateness of use in workers' compensation sector	37
a) Functional progression	37
b) Physical/psychiatric rehabilitation.....	41
c) Risk factor/recovery	42
d) Return to work.....	43
8. Priority for Q-COMP.....	44



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New Zealand Guidelines Group
New Zealand Society of Physiotherapists
New Zealand College of General Practitioners
New Zealand Register of Osteopaths

Guide to Assessing Psychological Yellow Flags in Acute Low Back Pain

Kendall, NAS, Linton, SJ & Main, CJ (1997). *Guide to Assessing Psycho-social Yellow Flags in Acute Low Back Pain: Risk Factors for Long-Term Disability and Work Loss*. Accident Compensation Corporation and New Zealand Guidelines Group, Wellington, New Zealand. (Oct, 2004 Edition)

2. Guideline status

This is the current release of the guideline.

Publication date 2003

This publication replaces the previous *New Zealand Acute Low Back Pain Guide* and incorporates the *Guide to Assessing Psychosocial Yellow Flags in Acute Low Back Pain*

3. Where located/how accessed

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www.nzgg.org.nz/index.cfm

4. Description/scope

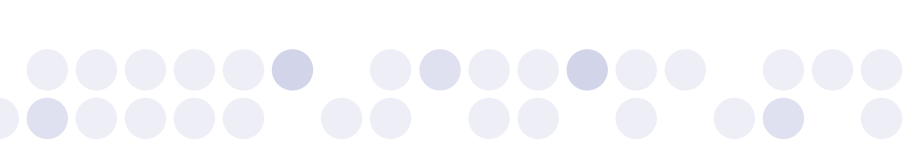
Disease/condition(s)

This guide deals with the management of acute low back pain and recurrent episodes – not chronic pain or serious disease or injury.

The effectiveness of treatment of acute low back pain for the prevention of chronic pain and disability

Guideline category

- Assessment
- Treatment
- Management



Clinical speciality

- None stated

Intended users

- Clinicians involved in first-contact care

Guideline objectives

The New Zealand Acute Lower Back Pain Guide aims to:

1. Provide recommendations on managing low back pain to clinicians involved in first – contact care
2. Promote a multidisciplinary approach to back pain management through the development and review process and through local implementation

Guide to Assessing Psychological Yellow Flags in Acute Low Back Pain

This guide complements the New Zealand Acute Low Back Pain Guide and is intended for use in conjunction with it. This guide describes ‘Yellow Flags’; psychosocial factors that are likely to increase the risk of an individual with acute low back pain developing prolonged pain and disability causing work loss, and associated loss of quality of life. It aims to:

- Provide a method of screening for psychosocial factors
- Provide a systematic approach to assessing psychosocial factors
- Suggest strategies for better management of those with acute low back pain who have ‘Yellow Flags’ indicating increased risk of chronicity.

This guide is **not** intended to be a rigid prescription and will permit flexibility and choice allowing the exercise of good clinical judgement according to the particular circumstances of the patient. The management suggestions outlined in this document are based on the best available evidence to date.

Target population

- People with acute low back pain

Interventions and Practices Considered

- Review of management options

5. Outcomes considered

Planned return to work

Ongoing management

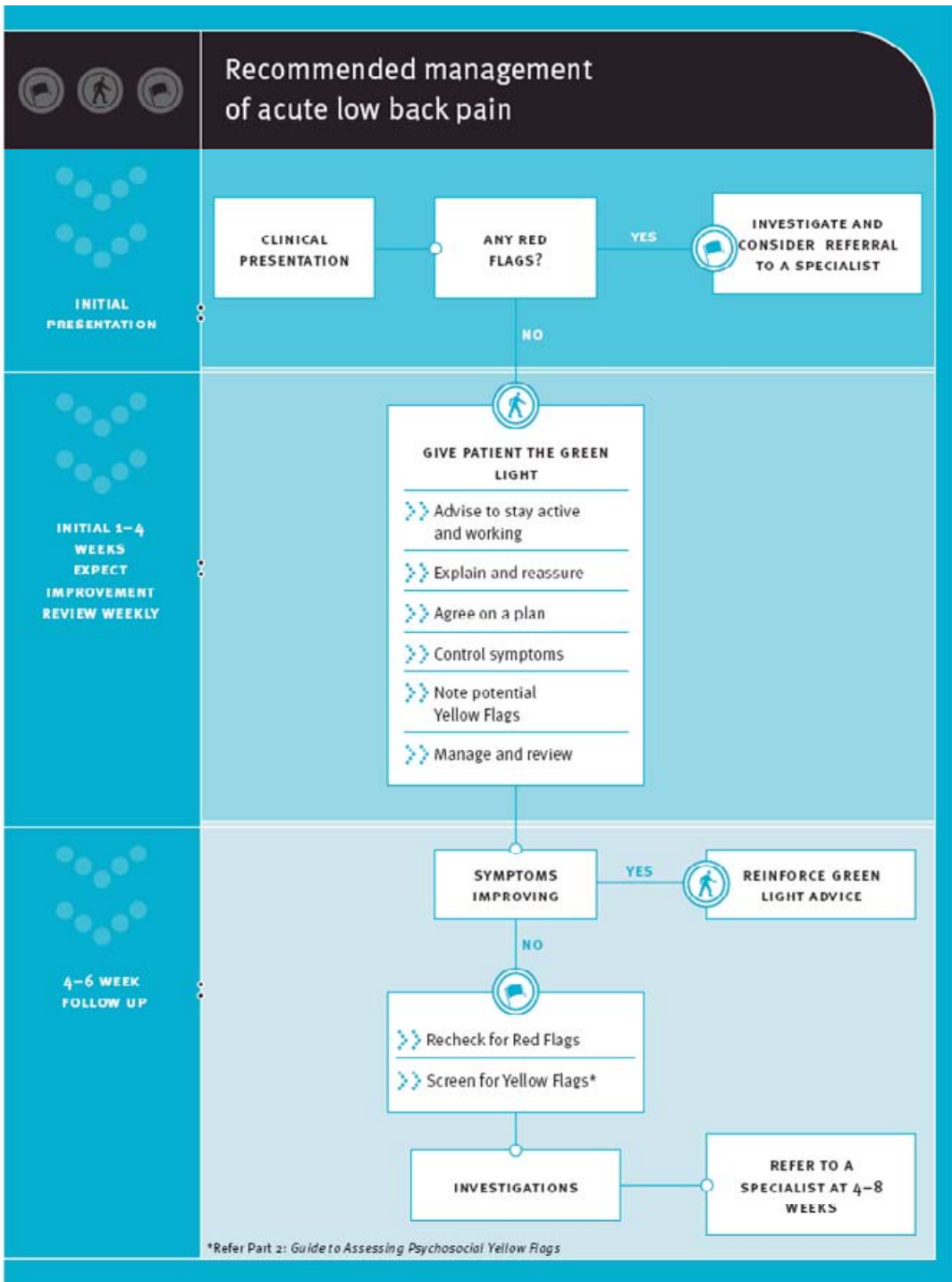
6. Agree appraisal

- Scope and Purpose 33%
- Stakeholder Involvement 33%
- Rigour of Development 31%
- Clarity and Presentation 63%
- Applicability 0%
- Editorial Independence 0%



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

a) Functional progression



Careful clinical assessment

At the initial assessment the critical role for health providers is to screen for Red Flags. These may indicate serious disease (not always confined to the back) that can cause back pain. If Red Flags are present, referral for specialist management should be considered.



Patient assessment

- The health provider must take a careful and thorough history to identify:
- The history of the acute episode
- Activities that may be associated with pain
- Any Red Flags – the risk factors for serious disease (see page 8)
- How limiting the symptoms are
- If there have been similar episodes before
- Any factors that might limit recovery and an early return to usual activities, including paid work (this includes assessing possible Yellow Flags)
- The level of activity required to resume usual activities – this includes taking a history of the demands of the patient's work, recreation and daily living activities.

The clinical examination should identify any relevant abnormal neurological signs and assess the degree of functional limitation caused by the pain.

The history may indicate the need for a more extensive general clinical examination, particularly if Red Flags for serious or systemic disease (such as cancer) are suspected. Investigations in the first 4–6 weeks do not provide clinical benefit unless there are Red Flags present. Radiological investigations (X-rays and CT scans) carry the risk of potential harm from radiation-related effects and should be avoided if not required for diagnosis or management. Red Flag pathology may lie outside the lumbar region and so may not be detected with radiology.

Ongoing reviews

The history and assessment should be reviewed at appropriate intervals (usually weekly) until the symptoms have mostly resolved and the patient has returned to their usual activities. the aim of the clinical assessment is to:

- Exclude Red Flags
- Identify any neurological deficit requiring urgent specialist management
- Assess functional limitations caused by the pain
- Determine clinical management options

Exclude red flags

Red Flags and/or abnormal tests indicate the need to consider referral to an appropriate specialist or at least fuller investigation. Certain Red Flags, such as severe pain at night or weight loss, should lead to full investigation and/or referral being considered, even if tests are normal.

Red flags for potentially serious conditions

red flags for potentially serious conditions. Features of Cauda Equina Syndrome include some or all of: urinary retention, faecal incontinence, widespread neurological symptoms and signs in the lower limb, including gait abnormality, saddle area numbness and a lax anal sphincter.

Cauda Equina Syndrome is a medical emergency and requires urgent hospital referral.

Other Red Flags include:

- Significant trauma
- Weight loss
- History of cancer
- Fever
- Intravenous drug use
- Steroid use



- Patient over 50 years
- Severe, unremitting night-time pain
- Pain that gets worse when lying down

In individuals who have never experienced back pain or sciatica, 65% over 50 years of age will show abnormalities on plain x-rays, 33% will show evidence of disc abnormality on MRI, with 20% under 60 showing evidence of a herniated disk.

Investigations and referrals

If Red Flags are present this is the recommended approach:

- All patients with symptoms or signs of Cauda Equina Syndrome should be referred urgently to hospital for orthopaedic or neurosurgical assessment.
- Patients with Red Flags should be investigated appropriately and referred to a specialist if indicated by clinical findings and test results.
- Investigations in the first 4–6 weeks of an acute low back pain episode do not provide clinical benefit, unless there are Red Flags.
- A full blood count and ESR should usually be performed only if there are Red Flags. Other tests may be indicated depending on the clinical situation.
- Radiological investigations (X-rays and CT scans) carry the risk of potential harm from radiation related effects and should be avoided if not required for diagnosis or management.
- Remember Red Flag pathology may lie outside the lumbar region and may not be detected by radiology.
- MRI scans are not indicated for non-specific acute low back pain.
- Many people without symptoms show abnormalities on X-rays and MRI.³ The chances of finding coincidental disc prolapse increase with age. It is important to correlate MRI findings with age and clinical signs before advising surgery.

Recommend management

Give patients the green light

There is clear evidence that the following strategies improve outcomes for people with acute low back pain:

- Advise patients to ‘stay active’ and continue their usual activities
- Provide them with an explanation and reassurance, rather than a diagnosis
- Control their pain with simple analgesics, or manipulation if necessary
- Promote staying at work – or an early return to work, with modifications if needed
- Provide ongoing management and review.

Symptom control

Effective interventions to control symptoms of acute low back pain include analgesics and manipulation.

- *Analgesics* – regular doses, rather than use ‘as required’ have been shown to provide effective pain control. Paracetamol and aspirin are effective first options. All non-steroidal anti-inflammatory drugs have proven to be equally effective. An incremental approach to prescribing analgesics to ensure that pain is adequately controlled whatever the level will support a return to usual activities.
- *Manipulation* – manipulation of the spine by trained practitioners using appropriate techniques is safe and effective in the first 4–6 weeks. Caution is required about using manipulation if there are neurological signs.

It is important to combine symptom control with encouraging activity and return to work. Treating symptoms without appropriate emphasis on staying active may lead the patient to fear moving or using their back.

Radiating leg pain

Back pain with radiating leg pain should be managed in the same way recommended for acute low back pain. Manipulation may not be advisable if there are neurological signs – caution is required.

Surgery

- Surgery is not indicated for non-specific acute low back pain unless disc decompression is indicated.
- The long-term results of surgery for back-related leg pain are no better than those of conservative management.
- If there is no improvement at 6 weeks, some patients with back-related leg pain and a defined disc lesion may improve more rapidly with surgery. Decisions about operative treatment should be made on the basis of informed consent in discussion between patient and surgeon.

SUMMARY OF MANAGEMENT OPTIONS		
EVIDENCE	MANAGEMENT OPTIONS	GRADE OF RECOMMENDATION
Improvement Evidence of improved clinical outcomes	»» Advice to stay active (including work)	A
	»» Analgesia using Paracetamol and non-steroidal anti-inflammatory drugs	A
	»» Manipulation – in the first 4-6 weeks only	A
	»» A multidisciplinary approach to management	B
No improvement Evidence of no improvement in clinical outcomes	»» TENS (transcutaneous electrical nerve stimulation)	A
	»» Traction	A
	»» Specific back exercises	A
	»» Education pamphlets about low back symptoms	A
	»» Massage	A
	»» Acupuncture	A
	»» Surgery (unless disc decompression is indicated)	A
Harmful Evidence of harm	»» Use of narcotics or diazepam	A
	»» Bed rest for more than 2 days	A
	»» Bed rest, with or without traction	A
	»» Manipulation under general anaesthesia	A
	»» Plaster jacket	A
Insufficient evidence Insufficient evidence to comment on effectiveness	»» Conditioning exercises for the trunk muscles »» Aerobic conditioning »» Epidural steroid injections »» Shoe lifts or corsets »» Biofeedback »» Physical agents and passive modalities (includes ice, heat, short wave diathermy, and ultrasound)	

The evidence on which these recommendations are made was graded using the SIGN (Scottish Intercollegiate Guidelines Network) grading system. Details of the grading system are on page 22.



Ongoing management

Proactive involvement in managing recovery can help prevent long-term problems. The recommended approach is to review the patient's progress by the end of the first week, unless all symptoms are resolved, then reassess pain and function weekly until the patient has resumed usual activities and is self-managing any symptoms effectively, although symptoms may not have completely resolved.

Regular reviews

At each follow-up consultation:

- Give Green Light advice to stay or become active and resume usual activities
- Provide specific advice on activities that may cause problems
- Support return to activity with optimal pain control
- Identify and address any barriers to recovery such as:
 - Excessively heavy or prolonged work
 - Problems with treatment, rehabilitation or compensation
 - Psychosocial Yellow Flags.

It is important to promote patient autonomy and self-management, and to avoid over-medicalisation. It is useful to develop a plan with the patient to help them manage their own recovery, agreeing on broad objectives and milestones.

If recovery is slow

If patients have not regained usual activities at 4 weeks they should be formally reassessed for both Red and Yellow Flags – and again at 6 weeks if progress is still delayed. Even if there are no Red Flags and neurological function is normal, you may need to consider full blood count, ESR and plain X-rays of the lumbar spine if pain is not resolving at six weeks. Specialist referral should be considered at 4–8 weeks after the acute low back pain started, to help prevent long-term problems and chronic back pain.

Ongoing management – key points

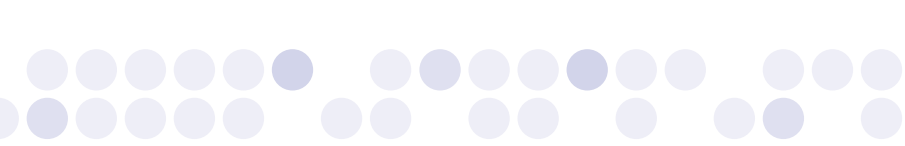
- Review the patient's progress each week until they have returned to usual activities
- Give the Green Light to be active at each review
- Identify and address potential barriers to recovery at each review
- Agree on a plan – and encourage autonomy and self-management
- If progress is delayed, reassess Red and Yellow Flags at 4 and 6 weeks
- Consider specialist referral at 4–8 weeks to prevent ongoing problems¹⁸

b) Physical/psychiatric rehabilitation

Staying active and continuing activities

Patients should progressively increase their physical activity levels according to an agreed plan rather than being guided by their pain level. They may need to modify some activities and postures for a while. They may also need suitable advice and adequate pain relief. Staying active and continuing usual activities, even though there may initially be pain and discomfort, usually results in a faster recovery from symptoms, less chronic disability and less time off work. Prolonged bed rest is harmful.

- Activities of daily living – encourage patients to do all the things they usually do and provide advice and support to help them overcome any limitations they experience. Reassure them that activity will not harm their back, and give advice on activities they usually do. Tell them how important it is to their recovery to increase their activity levels as soon as they can. It is important to monitor their pain and ensure they have sufficient pain relief to be active.

- 
- Sport – patients need to know that vigorous activity is unlikely to be harmful, but may cause some pain. In the early stages of recovery it may be best to avoid heavy contact sports (like rugby) and strenuous sports that place a heavy load on the back.
 - Resuming work – work (paid or unpaid) is important to both physical and mental recovery. Advice on a planned early return to work is likely to lead to less time off and reduce the risk of long-term problems and chronic back pain. It is important to discuss work activities, especially those involving heavy lifting, bending or twisting, which may make it difficult to return to work. It may be necessary to modify some tasks for a while.

Staying active – key points

Staying active – key points

- Increase activity according to a plan
- Modify activities if necessary and use pain relief – but stay active
- Avoid bed rest
- Continue usual daily activities and resume work as soon as possible

Pain does not equate to damage. Staying active and continuing usual activities, within tolerable pain limits, helps recovery.

Explanation and reassurance

Patients with severe pain may be fearful of aggravating their back pain or of developing chronic pain. Health providers need to provide advice in a reassuring, positive manner – and avoid using any labels that may add to these anxieties. It is important patients are told they have a very good chance of their pain resolving – and that most people make an excellent recovery. They also need to know, once you have done a full history and examination and found nothing serious, that there is no need for further investigations. In particular, they need to be reassured that doing the activity that triggered the episode (often a common action like a bend or twist) will not cause further injury.

Things that patients need to hear

Things patients need to hear

- The pain will settle – most people make an excellent recovery
- There is no sign of anything serious – and radiology is not needed
- Movement and activity will not cause harm – it is important to stay active

c) Risk factor/recovery

Red and yellow flags – a quick overview

Red flags help identify potentially serious conditions. They include:

- Features of Cauda Equina Syndrome (see page 8 for symptoms)
- Severe worsening pain, especially at night or when lying down
- Significant trauma
- Weight loss, history of cancer, fever
- Use of intravenous drugs or steroids
- Patient over 50 years old



Yellow flags indicate psychosocial barriers to recovery. They include:

- Belief that pain and activity are harmful
- ‘Sickness behaviours’ (like extended rest)
- Low or negative moods, social withdrawal
- Treatment that does not fit best practice
- Problems with claim and compensation
- History of back pain, time-off, other claims
- Problems at work, poor job satisfaction
- Heavy work, unsociable hours
- Overprotective family or lack of support

d) Return to work

Safe return to work

Long-term unemployment can be a serious consequence of acute low back pain. Health providers have a very important role to play in helping patients stay employed. You can help by developing a plan involving the patient – with advice to patients and employers on temporary changes to the rate, duration and nature of work – so that a safe and early return is possible.

Planned return to work

Planning a return to work reduces the risk of job loss. Help your patients by:

- Developing a plan for a progressive return to work as their physical work capacity improves
- Encouraging self-confidence – and maintaining regular contact with work
- Communicating with employers about ways to ensure a safe return to work
- Supporting a return to full activity with analgesia where needed.

Changes to work activities

Provide your patient, and their employer, with advice on monitoring and managing work activities that cause pain. Activities that commonly cause problems include lifting, bending, twisting and staying in the same posture for long periods. Helpful strategies for the return to work plan include:

- Suggesting alternatives and rotation through different activities – this may help an early return to normal work
- Reducing the duration of work for the first few weeks – this may help reduce the risk of further pain
- Working a half normal shift (about 4 hours at first) – this may improve pain tolerance.

Changes to the workplace

If the physical demands of the patient’s job are high, workplace modifications may be needed. You may be able to advise the employer on how to seek specialist occupational health advice about this.

Return to work – key points

- Provide a plan for progressive return to work
- Encourage ongoing contact with work
- Support return to activity with pain relief, if needed
- Give advice on monitoring and managing activities that cause pain
- Provide advice on changes to the rate, duration and nature of work
- Identify barriers to recovery – and involve other providers if required



8. Priority for Q-COMP

Rating criteria

Functional restoration Does the guideline consider graded increases in activity and function?	5
Psychosocial factors To what degree does the guideline consider psychosocial factors that may influence recovery?	5
Return to work process (vocational rehabilitation) To what degree does the guideline consider the Return to Work Process (vocational rehabilitation)?	4
Risk factors for recovery To what degree does the guideline consider Risk Factors for Recovery?	5
Total rating	19



Neck and upper back complaints

Contents

1. Developed by	46
2. Guideline status	46
3. Where located/how accessed	46
4. Description/scope	46
5. Outcomes considered	47
6. Agree Appraisal	47
7. Relevance/appropriateness of use in workers' compensation sector.....	48
a) Functional progression	48
b) Physical/psychiatric rehabilitation.....	48
c) Risk factor/recovery	50
d) Return to work.....	50
8. Priority for Q-COMP.....	50



1. Developed by

Neck and upper back complaints. Elk Grove Village (IL): American College of Occupational and Environmental Medicine (ACOEM) ; 2004.30 p. [75 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

Electronic version and print copies are available from ACOEM, 25 Northwest Point Boulevard, Suite 700, Elk Grove Village, IL 60007; Phone; 847-818-1800 x 399.

Print copies are available from ACOEM, 25 Northwest Point Boulevard, Suite 700, Elk Grove Village, IL 60007; Phone: 847-818-1800 x399. To order a subscription to the online version, call 800-441-9674 or visit <http://www.acoempracguides.org>

4. Description/scope

Disease/condition(s)

- Acute and subacute occupational neck and upper back 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 care in occupational and environmental medicine
- To improve the efficiency with which the diagnostic process is conducted , the specificity of each diagnostic test performed , and the effectiveness of each treatment in relieving symptoms and achieving cure
- To present recommendations on assessing and treating adults with potentially work-related neck and upper back complaints

Target population

- Adults with potentially work-related neck and upper back 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. Medication
3. Physical treatment methods
4. Injections
5. Rest and immobilization
6. Activity and exercise
7. Detection of neurologic abnormalities
8. Radiography
9. Other imaging procedures
10. Surgical considerations

5. Outcomes considered

Missed work days

6. Agree appraisal

- Scope and Purpose 61%
- Stakeholder Involvement 54%
- Rigour of Development 24%
- Clarity and Presentation 79%
- Applicability 0%
- Editorial Independence 8%

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

a) Functional progression

Clinical algorithm(s)

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 neck and upper back complaints
- Initial evaluation of occupational neck and upper back complaints
- Initial and follow-up management of occupational neck and upper back complaints
- Evaluation of slow-to-recover patients with occupational neck or upper back complaints (symptoms >4 weeks)
- Surgical considerations for patients with persistent radiating arm pain
- Further management of occupational neck and upper back complaints

b) Physical/psychiatric rehabilitation

Rehabilitation is not specifically mentioned, but activity and exercise is considered.

Major recommendations

Recommendations are followed by evidence classification (A-D) identifying the type of supporting evidence. Definitions for the types of evidence are presented at the end of the "Major Recommendations" field.

Summary of recommendations for evaluating and managing neck and upper back complaints (refer to the original guideline document for more detailed information)

Clinical Measure	Recommended	Optional	Not recommended
History and physical exam	Basic history and exam History of cancer infection History of significant trauma Neurologic exam		
Medication (See chapter 3 in the original guideline document)	Acetaminophen Non-steroidal anti-inflammatory drugs (NSAIDs)	Muscle relaxants Opioids, short course	Use of opioids for more than 2 weeks
Physical treatment methods		Physical manipulation for neck pain early in care only At-home applications of heat or cold Radio-frequency neurotomy	Traction Transcutaneous electrical stimulation (TENS) Other modalities
Injections		Epidural injection of corticosteroids to avoid surgery Botulinum toxin (dystonia only)	Facet injection of corticosteroids Diagnostic blocks



Clinical Measure	Recommended	Optional	Not recommended
Rest and immobilization		1 or 2 days' partial bed rest for severe pain	Bed rest longer than 1 or 2 days Cervical collar more than 1 or 2 days
Activity and exercise	Maintenance of activity levels while recovering Office instruction on exercises after initial pain decreases Low-stress conditioning and aerobic exercises to avoid debilitation		
Detection of neurologic abnormalities	Electromyography (EMG) to clarify nerve root dysfunction in cases of suspected disk herniation preoperatively or before epidural injection	Sensory evoked potentials (SEPs) if spinal stenosis or myelopathy suspected	EMG for diagnosis of nerve root involvement if findings of history, physical exam, and imaging study are consistent
Radiography	Initial studies when red flags for fracture, or neurologic deficit associated with acute trauma, tumor, or infection are present		Routine use in first 4 to 6 weeks if red flags are absent
Other imaging procedures	Magnetic resonance imagery (MRI) or computer tomography (CT) to evaluate red-flag diagnoses as above		Imaging before 4 to 6 weeks in absence of red flags
	MRI or CT to validate diagnosis of nerve root compromise, based on clear history and physical examination findings, in preparation for invasive procedure . If no improvement after 1 month, bone scan if tumor or infection possible		Preoperative diskography
Surgical considerations	Careful preoperative education of the patient regarding expectations, complications, and short- and long-term sequelae of surgery Indications clear for failed conservative treatment and history, exam, and imaging consistent for specific lesion		Discectomy or fusion without conservative treatment 4 to 6 weeks minimum Discectomy or fusion for nonradiating pain or in absence of evidence of nerve root compromise

c) Risk factor/recovery

Not stated

d) Return to work

Not stated

8. Priority for Q-COMP

Rating criteria

Functional restoration Does the guideline consider graded increases in activity and function?	2
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)?	2
Risk factors for recovery To what degree does the guideline consider Risk Factors for Recovery?	1
Total rating	6



Neck and upper back (acute & chronic)

Contents

1. Developed by	52
2. Guideline status	52
3. Where located/how accessed	52
4. Description/scope	52
5. Outcomes considered	55
6. Agree Appraisal	55
7. Relevance/Appropriateness of use in workers' compensation sector	55
a) Functional progression	55
b) Physical/psychiatric rehabilitation.....	55
c) Risk factor/recovery	59
d) Return to work.....	59
8. Priority for Q-COMP.....	60



1. Developed by

Work Loss Data Institute. Neck and upper back (acute & chronic). Corpus Christi (TX) : Work Loss Data Institute; 2006.176 p. [226 references]

2. Guideline status

This is the current release of the guideline.

This guideline updates a previous version: Work Loss Data Institute . Neck and upper back pain (acute & chronic). Corpus Christi (TX): Work Loss Data Institute ;2006.175 p.

3. Where located/how accessed

National Guideline Clearinghouse www.guideline.gov

Electronic copies 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 Encinitis, CA 92024; Phone:800-488-5548, 760-753-9992, Fax; 760-753-9995; www.worklossdata.com

The following companion documents are available:

- Background information on the development of the Official Disability Guidelines of the Work Loss Data Institute is available from the Work Loss Data Institute Web site.
- Appendix A. ODG Treatment in Workers' Comp. Methodology description using the agree instrument. Available to subscribers from the Work Loss Data Institute Web site

The following patient resource is available:

- Appendix B. ODG Treatment in Workers' Comp. Patient information resources. 2006.

Electronic copies: 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

Disease/condition(s)

- Work-related disorders of the neck and upper back

Guideline category

- Diagnosis
- Evaluation
- Management
- Treatment

Clinical speciality

- Chiropractic
- Family Practice
- Internal Medicine
- Neurological Surgery



- Neurology
- Physical Medicine and Rehabilitation

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

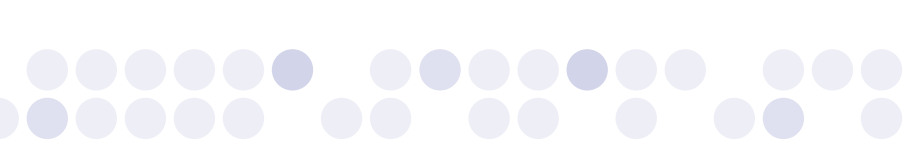
Target population

Workers with occupational disorders of the neck and upper back

Interventions and practices considered

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

1. Activity restrictions/work modifications
2. Bone scan
3. Botulinum toxin (injection) for cervical dystonia
4. Chiropractic care/manipulation
5. Cognitive behavioural rehabilitation for chronic cases
6. Cold packs
7. Discectomy/aminectomy
8. Electromyography (EMG) (needle, not surface), including H-reflex tests
9. Epidural steroid injection (ESI)
10. Exercise
11. Facet joint diagnostic blocks
12. Fluoroscopy (for ESIs)
13. Heat/cold applications
14. Home cervical autotractor (patient controlled) devices
15. Laminoplasty
16. Massage
17. Methylprednisolone
18. Muscle relaxants in acute cases
19. Nonprescription medication (e.g., acetaminophen, nonsteroidal anti-inflammatory drugs [NSAIDs])
20. Physical therapy/occupational therapy
21. Psychological screening prior to surgery
22. Return to work
23. Sensory evoked potentials (SEPS)

- 
24. Steroids (in acute spinal cord injury)
 25. Stretching as part of an exercise program
 26. Surgery
 27. Therapeutic exercises

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

1. Acupuncture
2. Bone growth stimulators
3. Electromagnetic therapy
4. Ergonomics
5. Facet joint radiofrequency neurotomy/facet rhizotomy
6. Greater occipital nerve block (diagnostic and therapeutic)
7. Multidisciplinary biopsychosocial rehabilitation
8. Patient education
9. Percutaneous electrical nerve stimulation (PENS)
10. Therapeutic ultrasound

The following interventions were considered, but are not recommended;

1. Back schools
2. Bed rest
3. Biofeedback
4. Botulinum toxin (injection) for mechanical neck disorders, including whiplash
5. Cervical orthosis
6. Cervical collars
7. Chymopapain (injection)]
8. Computed tomography (*Not recommended except for specific indications* [See original guideline document])
9. Diagnostic ultrasound
10. Diathermy
11. Discography
12. Disc prosthesis
13. Electrical muscle stimulation
14. Electrotherapies
15. Facet-joint therapeutic steroid injections
16. Flexibility /range of motion
17. Fusion (spinal)
18. Galvanic current
19. Immobilization (collars)
20. Iontophoresis
21. Laser therapy
22. Magnetic resonance imaging (*Not recommended except for specific indications* [See original guideline document])
23. Magnets
24. Manipulations under anaesthetic
25. Myelography (*Not recommended except for surgical planning*)
26. Opioids (*Not recommended except for short use in severe cases*)



27. Oral corticosteroids
28. Percutaneous nueromodulation therapy
29. Powered traction devices
30. Prolotherapy (sclerotherapy)
31. Radiography (*Not recommended except for specific indications* [See original guideline document])
32. Rest
33. Soft collars
34. Surface electromyography (EMG)
35. Thermography (diagnostic)
36. Trancutaneous electrical neurostimulation (TENS)
37. Trigger point injections
38. Videofluoroscopy (for range of motion)

5. Outcomes considered

- Diagnostic value of tests
- Effectiveness of treatments for relieving pain and restoring normal function

6. Agree appraisal

- Scope and Purpose 50%
- Stakeholder Involvement 29%
- Rigour of Development 55%
- Clarity and Presentation 86%
- Applicability 6%
- Editorial Independence 17%

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

a) Functional progression

Refer to major recommendations

b) Physical/psychiatric rehabilitation

For exercise and activities refer to "Cases without neurologic findings"

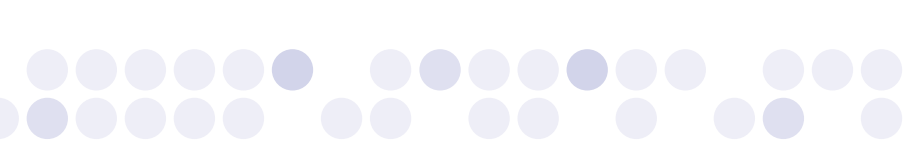
Major recommendations

Identify neurologic findings

- First visit: may be with Primary Care Physician MD/DO (50%), Orthopedist (35%), or Chiropractor (15%)
- Determine Neurologic Findings -- Initial Evaluation

History

- Note any previous neck problems or related disabilities.
- Determine the onset of the injury and mechanism of injury (any direct trauma, head injury, or fall).
- Determine any history of repetitive micro trauma to the neck and any initial acute episode of pain or whiplash injury.

- 
- Search for any symptoms of possible neurologic impairment, such as weakness in an upper extremity, numbness, or radicular pain radiating into upper extremities.
 - Note any psychosocial problems, such as substance abuse, job dissatisfaction, conflict with supervisors, marital problems, and/or financial problems.
 - Determine relevant medical history, history of systemic disease, or previous neck injury or disability. Note any history which produces radiating pain in the neck from structures such as the thyroid, the lymph nodes, the esophagus, the trachea, or from a Pancoast tumor in the apex of the lung. Note any history of cancer.

Physical examination

- Perform a comprehensive examination of the neck and upper extremities including attention to flexibility, strength, and range-of-motion of the neck.
- Perform a careful limited neurological examination of the neck and the upper and lower extremities to determine which diagnostic tests and therapy should be performed. This examination should include reflexes of the biceps, triceps, and brachioradialis tendons and those of the lower extremities, as well as weakness and sensory changes to pin prick by anatomical area (dermatomes) when needed. Check for long tract signs (Babinski and clonus).
- Evaluate for any evidence of weakness or atrophy of muscle groups of the arm.
- Evaluate for any signs of systemic disease.
- Note that any patient with an acute injury and positive neurologic findings requires a neck splint and referral to a spinal surgeon.

Imaging

- Imaging modalities are often not necessary for patients with typical acute neck pain, but due to the risk of treating patients with undiagnosed cervical vertebral fractures, x-rays are necessary if there is any possibility of a fracture, even in patients without neurologic findings. Any patient with a minimal fracture of the cervical spine should have a computed tomography (CT) scan to evaluate the status of the neural arch.
- Indications for x-rays of the cervical spine include the following:
 - A history of direct trauma, blow to the head, any significant whiplash type injury, or any significant fall. These patients should have an x-ray of the cervical spine. Patients with fractures of the cervical spine should be referred to a spinal surgeon.
 - Whiplash with any evidence of neurologic deficit or persistent pain
 - Chronic, slow onset of pain, especially if it is increasing or night pain
 - A history of systemic disease such as cancer, long-term steroid therapy, or alcohol abuse
 - Patients over 50 years of age with any question of etiology of symptoms
 - Patients with significant stiffness of the cervical spine
 - Lateral flexion and extension views may demonstrate instability of the spine and indicate the need for consultation even in the absence of a fracture (fingertip test), muscle atrophy (calf measurement), local areas of tenderness, visual pain analog
- Indications for magnetic resonance imaging (MRI) of the cervical spine include the following:
 - Any suggestion of abnormal neurologic findings below the level of injury
 - Progressive neurologic deficit
 - Persistent unremitting pain with or without positive neurologic findings
 - Previous herniated intervertebral disk within the last two years and radicular pain with positive neurologic findings
 - Patients with significant neurologic findings and failure to respond to conservative therapy despite compliance with the therapeutic regimen



- Imaging procedures such as CT scans are necessary for any fracture of the cervical spine, with referral to a spinal surgeon.
- Additional imaging procedures, such as bone scan or myelography, have special indications and are rarely needed at this stage, unless strong evidence of systemic disease exists and further evaluations are thought necessary by the spinal surgeon.
- Other tests such as electromyography (EMG) or nerve conduction studies are not necessary in the initial evaluation of patients with new symptoms, due to the fact that these tests will not become positive until four to six weeks after the onset of symptoms. An EMG is not necessary for the diagnosis of intervertebral disk disease with radiculopathy; rather, its value lies in differentiating other types of neuritis, neuropathy, or muscle abnormalities from radicular neuropathy and for cases where the etiology of the pain is not clear. An EMG is most appropriate to perform after an evaluation by a specialist.

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

- **Without neurologic findings**
 - Neck pain with no radiation of pain beyond the neck area
 - Neck pain with radiation of pain in shoulders and upper back, but with no radicular signs
 - Chronic neck pain or chronic neck problems
- **With neurologic findings**
 - Fracture of cervical spine
 - Radicular pain and positive signs indicate a presumptive diagnosis of herniated intervertebral disk
 - Neurologic signs and symptoms at the cervical level and in the lower body or lower extremities
 - Radicular pain and positive signs indicate a presumptive diagnosis of herniated intervertebral disk and an MRI or CT scan shows positive findings of a herniated intervertebral disk that matches the clinical findings

Cases without neurologic findings (95% of cases)

- Also first visit (day 1):
 - Prescribe decreased activity if necessary based on severity and difficulty of job, passive therapy with heat/ice (3 to 4 times/day), stretching/exercise, appropriate analgesia (i.e., acetaminophen) and/or anti-inflammatory (i.e., ibuprofen) [*Benchmark cost: \$14*], back to work except for severe cases in 72 hours, possibly modified duty. Avoid bed rest.
 - No x-rays unless major trauma (e.g., a fall)
 - If muscle spasms, then prescribe muscle relaxant with limited sedative side effects [*Benchmark cost: \$44*].
 - Reassure patient: common problem (90% of patients recover spontaneously in 4 weeks)
- Second visit (day 7 - about 1 week after first visit)
 - Document progress (areas of tenderness, motor strength).
 - If still 50% disabled then prescribe manual therapy [*Benchmark cost: \$250*]: Refer to massage therapist, chiropractor, physical therapist, or occupational therapist (3 visits in first week), or by treating DO.
 - Probably discontinue muscle relaxant.
- Third visit (day 14 - about 1 week after second visit)
 - Document progress.
 - Prescribe muscle-conditioning exercises.
 - At this point 66 to 75% should be back to regular work.
 - If still disabled, then first imaging study (anteroposterior [AP]/lateral 2-view x-ray of upper back) [*Benchmark cost: \$150*] to rule out cervical spondylolysis or joint narrowing/spinal stenosis (age related, not caused by recent trauma - will not change treatment)

- Continue therapist, change from passive to active modality, 2 visits in next week, teach home exercises
- End manual therapy (physical therapy or manipulation) at 4 weeks.
- Up to 3 more visits for follow up and documentation of progress

Cases with neurologic findings (5% of cases)

- Also first visit (day 1)
 - Same as non-radicular
- Second visit (day 7 – about 1 week after first visit)
 - Same as non-radicular, but
 - Reassure, but warn of increased numbness or weakness of either arm: if so, get back to provider in one day
 - Consider referral to musculoskeletal physician (orthopedist/physical medicine and rehabilitation (PM&R)/sports medicine)
- Third visit (day 14 – about 1 week after second visit)
 - Same as non-radicular, but
 - About 50% can be back at modified duty.
 - If improvement, then add strengthening exercises, increased activity
- Fourth visit (day 21 to 28 – about 1 to 2 weeks after third visit)
 - Document, if no improvement then:
 - First MRI (about 3% of total cases, or 30% of cases with neurologic symptoms) to confirm extruded disk with nerve root displacement [*Benchmark cost: \$1,600*]
 - MRI or CT not indicated without obvious clinical level of nerve root dysfunction or before 3 to 4 weeks
 - Consider epidural steroid injection (ESI) for severe cases hoping to avoid surgery [*Benchmark cost: \$676*].
 - Bone scan if spondylolisthesis
 - Second MRI only if progression of neurological symptoms (less than 1% of cases)
 - Refer to fellowship-trained Spine Surgeon: Neurosurgeon (50%), Orthopedist (50%)
 - Before surgery, screen for psychological symptoms that could affect surgical outcome (e.g., substance abuse, child abuse, work conflicts, somatization, verbalizations, attorney involvement, smoking).
 - If psychological factors retarding recovery are suspected, possibly refer to psychologist for testing (Minnesota Multiphasic Personality Inventory [MMPI] or, better, Waddell test) [*Benchmark cost: \$540*].
- Surgery (day 28 to 35) (about 2% of total cases, or 20% of radicular cases) (See also “ODG Indications for Surgery™ -- Discectomy” in the Procedure Summary of the original guideline document.)
 - Review options/outcomes with patient, let patient decide
 - Simple discectomy/laminectomy, minimally invasive [*Benchmark cost: \$17,400*]
 - Outpatient (23 hour stay)
 - Post-operative pain, walking exercises
- Follow-up visits as required



c) Risk factor/recovery

Potential harms

- Several reports have, in rare instances, linked chiropractic manipulation of the neck in patients 45 years of age and younger to dissection or occlusion of the vertebral artery. The rarity of cerebrovascular accidents makes any association unclear at this time and difficult to study.
- Risks of adverse effects from surgery
- Muscle relaxants have potential side effects, including drowsiness in up to 30 percent of patients.

d) Return to work

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

Whiplash grade 0 (Quebec Task Force grades): 0 days

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

ODG Return-to-work pathways (neck sprain)

Whiplash grade I-III, clerical/modified work: 5 days

ODG Return-to-work pathways (neck sprain)

Whiplash grade I-III, manual work: 21 days

Whiplash grade I-III, heavy manual work: 28 days

ODG Return-to-work pathways (cervical disc disorders)

Mild cases with back pain, avoid strenuous activity: 0 days

Initial conservative medical treatment, clerical/modified work: 0-3 days

ODG Return-to-work pathways (cervical disc disorders)

Initial conservative medical treatment, manual work: 35 days

ODG Return-to-work pathways (cervical disc disorders)

Cervical discectomy, clerical/modified work: 28-56 days

Cervical discectomy, manual work: 56 days

Cervical discectomy, heavy manual work: 126 days to indefinite

Cervical laminectomy/decompression, clerical/modified work: 28 days

Cervical laminectomy/decompression, manual work: 63 days

Cervical laminectomy/decompression, heavy manual work: 105 days to indefinite



8. Priority for Q-COMP

Rating criteria

Functional restoration Does the guideline consider graded increases in activity and function?	5
Psychosocial factors To what degree does the guideline consider psychosocial factors that may influence recovery?	3
Return to work process (vocational rehabilitation) To what degree does the guideline consider the Return to Work Process (vocational rehabilitation)?	4
Risk factors for recovery To what degree does the guideline consider Risk Factors for Recovery?	3
Total rating	15



Low back – lumbar & thoracic (acute & chronic)

Contents

1. Developed by	62
2. Guideline status	62
3. Where located/how accessed	62
4. Description/scope	62
5. Outcomes considered	65
6. Agree Appraisal	66
7. Relevance/Appropriateness of use in workers' compensation sector	66
a) Functional progression	66
b) Physical/psychiatric rehabilitation.....	68
c) Risk factor/recovery	69
d) Return to work.....	69
8. Priority for Q-COMP.....	70



1. Developed by

Work Loss Data Institute .Low back – lumbar & thoracic (acute & chronic). Corpus Christi (TX) ; Work Loss Data Institute; 2006. 363 p. [494 references]

2. Guideline status

This is the current release of the guideline.

This guideline updates a previous version: Work Loss Data Institute . Low back – lumbar & thoracic (acute & chronic). Corpus Christi (TX); Work Loss Data Institute; 2006.390 p.

3. Where located/how accessed

National Guideline Clearinghouse www.guideline.gov

Electronic copies; Available to subscribers from the Work Loss Data Institute Web site

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

The following companion documents are available:

- Background information on the development of the Official Disability Guidelines of the Work Loss Data Institute is available from the Work Loss Data Institute Web site.
- Appendix A. ODG Treatment in Workers' Comp. Methodology description using the agree instrument. Available to subscribers from the Work Loss Data Institute Web site

The following patient resource is available:

- Appendix B. ODG Treatment in Workers' Comp. Patient information resources. 2006.

Electronic copies: 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

Disease/condition(s)

- Work-related low back pain

Guideline category

- Diagnosis
- Evaluation
- Management
- Treatment

Clinical speciality

- Chiropractic
- Family Practice
- Internal Medicine
- Orthopaedic Surgery



- Physical Medicine and Rehabilitation
- Surgery

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

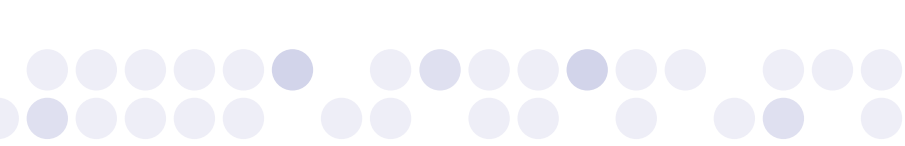
Target population

Workers with low back pain

Interventions and practices considered

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

1. Activity restrictions/work modifications
2. Aerobic exercise
3. Age adjustment
4. Antidepressants in chronic cases
5. Anti-inflammatory medications (e.g., ibuprofen)
6. Back schools
7. Behavioural treatment
8. Chiropractic /manipulation
9. Cold/heat packs
10. Differential diagnosis
11. Discectomy/ laminectomy
12. Electromyography (needle, not surface)
13. Epidural steroid injections (ESIs) (treatment and diagnostic)
14. Exercise
15. Facet joint diagnostic blocks (injections)
16. Fear-avoidance beliefs questionnaire (FABQ)
17. Fluoroscopy
18. Heat therapy
19. Implantable drug-delivery systems (IDDs) (as a last-resort option)
20. Kyphoplasty
21. Lumbar extension exercise equipment
22. Magnetic resonance imaging (MRI)
23. Massage

- 
24. McKenzie method
 25. Microdiscectomy
 26. Muscle relaxants for acute cases
 27. Myelography
 28. Nonprescription medications (e.g., acetaminophen, aspirin, ibuprofen)
 29. Occupational/physical therapy
 30. Patient education for treatment
 31. Percutaneous vertebroplasty
 32. Psychological screening prior to surgery
 33. Return to work and regular activities
 34. Shoe insoles/shoe lifts
 35. Spinal cord stimulation (SCS) for selected patients
 36. Stretching (as part of an exercise program)
 37. Work conditioning/ work hardening
 38. Yoga

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

1. Adhesiolysis/ neuroplasty/ percutaneous epidural neuroplasty
2. Adhesiolysis, spinal endoscopic
3. Aquatic therapy
4. Back brace/ corsets/ orthotracc vest/ lumbar supports for treatment
5. Bone-growth stimulators
6. Colchicine
7. Electromagnetic pulsed therapy
8. Ergonomic interventions for primary prevention
9. Facet joint intra-articular injections (therapeutic blocks)
10. Facet rhizotomy/facet joint radiofrequency neurotomy
11. Feldenkrais
12. Magnetic resonance (MR) neurography
13. Mattress firmness
14. Percutaneous electrical nerve stimulation (PENS)
15. Sympathetic therapy
16. Tumor necrosis factor (TNF) modifiers

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

1. Acupuncture
2. Back brace/ corsets/ lumbar supports for prevention
3. Bed rest
4. Biofeedback
5. Bone scan
6. Botulinum toxin (Botox)
7. Chemoneucleolysis (chymopapain)
8. Computed tomography (CT) and CT myelography
9. Cutaneous laser treatment



10. Diathermy
11. Disc prostheses/ replacement
12. Discography
13. Dynamic neutralization systems (Dynesys)
14. Epidural steroid injection , “series of three”
15. Facet-joint injections, thoracic
16. Flexibility
17. Fusion (spinal, endoscopic)
18. H-wave stimulation (devices)
19. Interferential therapy
20. Intradiscal electrothermal annuloplasty (IDET)
21. Intradiscal steroid injections
22. Ligamentous injections
23. Lower level laser therapy (LLLT)
24. Magnet therapy
25. Manipulation under anaesthetic (MUA)
26. Microcurrent electrical stimulation (MENS) devices
27. Neuromuscular electrical stimulators (except for patients with specific criteria)
28. Neuroflexotherapy
29. Nucleoplasty
30. Opioids/narcotics
31. Oral corticosteroids
32. Percutaneous discectomy (PCD)
33. Percutaneous endoscopic laser discectomy (PELD)
34. Percutaneous intradiscal radiofrequency (thermocoagulation)
35. Percutaneous neuromodulation therapy (PNT)
36. Prolotherapy, also known as sclerotherapy
37. Radiography
38. Single photon emission computed tomography (SPECT)
39. Standing MRI
40. Surface electromyography (SEMG)
41. Thermography (infrared stress thermography)
42. Traction
43. Transcutaneous electrical neurotransmission (TENS)
44. Trigger point injections
45. Ultrasound (diagnostic and therapeutic)
46. Vertebral axial decompression (VAX-D)/ powered traction devices
47. Videofluoroscopy

5. Outcomes considered

Reliability and value of diagnostic assessments

Effectiveness of treatment in relieving pain and restoring normal function

6. Agree appraisal

- Scope and Purpose 50%
- Stakeholder Involvement 33%
- Rigour of Development 43%
- Clarity and Presentation 71%
- Applicability 11%
- Editorial Independence 42%

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

a) Functional progression

Major recommendations

Identify radicular signs

- First visit: may be with Primary Care Physician MD/DO (50%), Orthopedist (33%), or Chiropractor (17%)
- Determine presence or absence of radiculopathy:
 - Medical history
 - Sensation: Feeling pain radiating below the knee (calf or lower), not just referred pain (pain radiating to buttocks or thighs), and dermatological sensory loss
 - Straight leg raising test (sitting and supine), productive of leg pain
 - Motor strength and deep tendon reflexes
 - Document flexibility/range of motion (ROM) (fingertip test), muscle atrophy (calf measurement), local areas of tenderness, visual pain analog, sensation alternation

Note: Radiculopathy is often over-diagnosed. For unequivocal evidence of radiculopathy, refer to the American Medical Association (AMA) *Guides to the Evaluation of Permanent Impairment*, 5th Edition, page 382-383.

- Rule out "red flag" diagnoses, including diagnostic studies, for specialist referral:
 - Cauda Equina Syndrome (Schedule emergency procedure) (Refer to the original guideline document for International Classification of Diseases, Ninth Revision [ICD-9] codes for this and other diagnoses)
 - Fracture, Compression fracture, Dislocation, Wound
 - Cancer, Infection
 - Dissecting/Ruptured Aortic Aneurysm
 - Others (prostate problems, endometriosis/gynecological disorders, urinary tract infections, and renal pathology)

Note: This guideline should not be used to suggest appropriate procedures for other conditions or comorbidities. When the treating doctor suspects any other diagnosis, they may decide what necessary testing should be performed, which may include laboratory tests such as erythrocyte sedimentation rate (ESR), complete blood count (CBC), and urinalysis (UA) to screen for nonspecific medical diseases (especially infection and tumor) of the low back.

Without radiculopathy (90% of cases)

- Also first visit (day 1):
 - Prescribe decreased activity, if necessary, based on severity and difficulty of job, limited passive therapy with heat/ice (3 to 4 times/day), stretching/exercise (training by physical therapist OK), appropriate analgesia (i.e., acetaminophen) and/or anti-inflammatory (i.e., ibuprofen) [*Benchmark cost: \$14*], back to work except for severe cases in 72 hours, possibly modified duty. Avoid bed rest.



- No x-rays unless significant trauma (e.g., a fall)
- If muscle spasms, then consider muscle relaxant with limited sedative side effects [*Benchmark cost: \$44*]
(**Note:** The purpose of muscle relaxants is to facilitate return to activity, but muscle relaxants have not been shown to be more effective than non-steroidal anti-inflammatory drugs [NSAIDs].)
- Reassure patient: patient education – common problem (90% of patients recover spontaneously in 4 weeks)
- Second visit (day 7 – about 1 week after first visit)
 - Document progress (flexibility, areas of tenderness, motor strength, straight leg raise--sitting and supine).
 - If still 50% disabled then consider referral for exercise/instruction/manual therapy [*Benchmark cost: \$250*]: Options are physical therapist, chiropractor, massage therapist, or occupational therapist (3 visits in first week), or by treating DO/MD (Choose providers supporting active therapy and not just passive modalities.)
 - Consider screening for psychosocial symptoms in cases with expectations of delayed recovery.
 - Discontinue muscle relaxant.
- Third visit (day 14 – about 1 week after second visit)
 - Document progress.
 - Prescribe muscle-conditioning exercises.
 - At this point 66 to 75% should be back to regular work.
 - While not indicated in the absence of red flags, if still disabled, then consider imaging study (anterior-posterior [AP]/lateral 2-view x-ray of lumbar) [*Benchmark cost: \$150*] to rule out tumor, fracture, osteoporosis, myelopathy
 - Continue therapist, change from passive to active modality, 2 visits in next week, teach home exercises
 - End manual therapy at 4 weeks (1 visit in last week)

With radiculopathy (10% of cases)

- Also first visit (day 1)
 - Same as non-radicular
- Second visit (day 7 – about 1 week after first visit)
 - Same as non-radicular, but
 - Reassure, but if increased numbness or weakness of either leg, get back to provider in one day
 - Consider referral to nonsurgical musculoskeletal physician (Orthopedist/Physical Medicine/Sports Medicine).
- Third visit (day 14 – about 1 week after second visit)
 - Same as non-radicular, but
 - About 50% can be back at modified duty.
 - If improvement, then add strengthening exercises, increased activity
- Fourth visit (day 21 to 28 – about 1-2 weeks after third visit)
 - Document, if no improvement then:
 - First magnetic resonance imaging (MRI) (about 3% of total cases, or 30% of radicular cases) to confirm extruded disk with nerve root displacement (>1 month conservative therapy) [*Benchmark cost: \$1,600*]
 - MRI or computed tomography (CT) **not** indicated without obvious clinical level of nerve root dysfunction, clear radicular findings, or before 3 to 4 weeks
 - EMGs (electromyography) may be useful to obtain unequivocal evidence of radiculopathy, after 1-month conservative therapy, but EMGs are not necessary if radiculopathy is already clinically obvious.
 - Consider an epidural steroid injection (ESI) for severe cases hoping to avoid surgery [*Benchmark cost: \$676*] (**Note:** The purpose of ESI is to reduce pain and inflammation, restoring range of motion and thereby facilitating progress in more active treatment programs, but this treatment alone offers no significant long-term functional benefit.)

- If psychological factors retarding recovery are suspected, possibly refer to psychologist for testing. [Benchmark cost: \$540]
- Education: Consider back school as an option, if available
- If no improvement 7 to 14 days after the first ESI, consider prescribing 2nd ESI [Benchmark cost: \$615]; there should be a maximum of two ESIs, and the second ESI can be 7 to 14 days after the first, depending upon the patient's response and functional gain.
- Surgery (three months or more -- after appropriate work-up and consultation, concordance between radicular findings on radiologic evaluation and physical exam findings) (about 2% of total cases, or 20% of radicular cases) (See also *ODG Indications for Surgery™ -- Discectomy* in the Procedure Summary of the original guideline document)
 - Refer to fellowship trained Spine Surgeon: Neurosurgeon (50%), Orthopedist (50%)
 - Before surgery, screen for psychological symptoms that could affect surgical outcome (e.g., substance abuse, child abuse, work conflicts, somatization, verbalizations, attorney involvement, smoking).
 - Review options/outcomes with patient, let patient be part of decision making.
 - Simple discectomy/laminectomy, minimally invasive [Benchmark cost:\$17,400]
 - Post-operative pain, walking exercises, physical therapy
 - Failure to recover:

See the Procedure Summary (in the original guideline document) for options that may be available, along with links to the medical evidence. Also see the Chronic Pain Chapter.

Definition of sprain/strain severity grade: In general, a Grade I or mild sprain/strain is caused by overstretching or slight tearing of the ligament/muscle/tendon with no instability, and a person with a mild sprain usually experiences minimal pain, swelling, and little or no loss of functional ability. Although the injured muscle is tender and painful, it has normal strength. A Grade II sprain/strain is caused by incomplete tearing of the ligament/muscle/tendon and is characterized by bruising, moderate pain, and swelling, and a Grade III sprain/strain means complete tear or rupture of a ligament/muscle/tendon. A sprain is a stretch and/or tear of a ligament (a band of fibrous tissue that connects two or more bones at a joint). A strain is an injury to either a muscle or a tendon (fibrous cords of tissue that connect muscle to bone).

b) Physical/psychiatric rehabilitation

As mentioned above:

Without radiculopathy

First visit (day 1)

- Prescribe decreased activity, if necessary, based on severity and difficulty of job, limited passive therapy with heat/ice (3 to 4 times/day), stretching/exercise (training by physical therapist OK), appropriate analgesia (i.e., acetaminophen) and/or anti-inflammatory (i.e., ibuprofen) [Benchmark cost: \$14], back to work except for severe cases in 72 hours, possibly modified duty. Avoid bed rest

Second visit (day 7 – about 1 week after first visit)

- If still 50% disabled then consider referral for exercise/instruction/manual therapy [Benchmark cost: \$250]: Options are physical therapist, chiropractor, massage therapist, or occupational therapist (3 visits in first week), or by treating DO/MD (Choose providers supporting active therapy and not just passive modalities.)

Third visit (day 14 – about 1 week after second visit)

- Prescribe muscle-conditioning exercise
- Continue therapist, change from passive to active modality, 2 visits in next week, teach home exercises
- End manual therapy at 4 weeks (1 visit in last week)



With radiculopathy

Third visit (day 14 – about 1 week after second visit)

- If improvement, then add strengthening exercises, increased activity

Fourth visit (day 21-28-about 1-2 weeks after third visit)

- If psychological factors retarding recovery are suspected, possibly refer to psychologist for testing. [Benchmark cost: \$540]

Surgery

- Post-operative pain, walking exercises, physical therapy

c) Risk factor/recovery

Potential harms

- Anti-inflammatory treatment of injuries may delay recovery.
- Muscle relaxants have potential side effects, including drowsiness in up to 30 percent of patients.

d) Return to work

Official disability guidelines (ODG) return-to-work pathways (*lumbar sprain and lumbago*)

Modified Duty -- Mild, (Grade I)1, clerical/modified work: 0 days Severe, (Grade II-III)1, clerical/modified work: 3 days (See *ODG Capabilities & Activity Modifications for Restricted Work* under "Work" in the Procedure Summary for Ergonomic accommodations of the original guideline document)

ODG Return-to-work pathways (*lumbar sprain and lumbago*)

Manual Work --

Mild, manual work: 7-10 days

Severe, manual work: 14-17 days

ODG Return-to-work pathways (*lumbar sprain and lumbago*)

Manual & Heavy Manual Work --

Severe, manual work: 14-17 days

Severe, heavy manual work: 35 days

ODG Return-to-work pathways (*intervertebral disc disorders*)

Disc bulge --

Mild cases with back pain, avoid strenuous activity: 0 days

Herniated disc --

Initial conservative medical treatment, clerical/modified work: 3 days

ODG Return-to-work pathways (*intervertebral disc disorders*)

Initial conservative medical treatment, manual work: 28 days

Initial conservative medical treatment, regular work if cause of disability: 84 days

ODG Return-to-work pathways (*intervertebral disc disorders*)

Discectomy, clerical/modified work: 28 days

Discectomy, manual work: 56 days

Discectomy, heavy manual work: 126 days to indefinite

Laminectomy, clerical/modified work: 28 days

Laminectomy, manual work: 70 days

Laminectomy, heavy manual work: 105 days to indefinite

8. Priority for Q-COMP

Rating criteria

Functional restoration Does the guideline consider graded increases in activity and function?	5
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)?	4
Risk factors for recovery To what degree does the guideline consider Risk Factors for Recovery?	4
Total rating	14



Low back complaints

Contents

1. Developed by	72
2. Guideline status	72
3. Where located/how accessed	72
4. Description/scope	72
5. Outcomes considered	73
6. Agree Appraisal	73
7. Relevance/appropriateness of use in workers' compensation sector.....	73
a) Functional progression	73
b) Physical/psychiatric rehabilitation.....	74
c) Risk factor/recovery	77
d) Return to work.....	77
8. Priority for Q-COMP.....	77



1. Developed by

Low back complaints. Elk Grove Village (IL): American College of Occupational and Environmental Medicine (ACOEM) ;2004.41 p. [154 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 Farm, MA : OEM Press:1997

3. Where located/how accessed

National Guideline Clearinghouse www.guideline.gov

Electronic version and print copies are available from ACOEM, 25 Northwest Point Boulevard, Suite 700, Elk Grove Village, IL 60007; Phone:847-818-1800x399

4. Description/scope

Disease/condition(s)

- Low back 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 care in occupational and environmental medicine.
- To improve the efficiency with which the diagnostic process is conducted, the specificity of each diagnostic test performed and the effectiveness of each treatment in relieving symptoms and achieving cure.
- To present recommendations on assessing and treating adults with potentially work-related low back problems.



Target population

Adults with potentially work-related low back 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. Physical treatment methods
5. Injections
6. Bed rest
7. Activities and exercise
8. Detection of physiologic abnormalities
9. Radiographs of lumbosacral spine
10. Imaging
11. Surgical considerations
12. Psychological factors

5. Outcomes considered

Missed work days

6. Agree appraisal

- Scope and Purpose 61%
- Stakeholder Involvement 46%
- Rigour of Development 26%
- Clarity and Presentation 75%
- Applicability 6%
- Editorial Independence 17%

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

a) Functional progression

Clinical algorithm(s)

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 low back complaints
- Initial evaluation of occupational low back complaints
- Initial and follow-up management of occupational low back complaints
- Evaluation of slow-to-recover patients with occupational low back complaints (symptoms >4 weeks)

- Surgical considerations for patients with anatomic and physiologic evidence of nerve root compression and persistent low back symptoms
- Further management of occupational low back complaints

b) Physical/psychiatric rehabilitation

Within the Recommendations are “Activities and exercise”, “Psychosocial factors”.

Major recommendations

Recommendations are followed by evidence classification (A-D) identifying the type of supporting evidence. Definitions for the types of evidence are presented at the end of the “Major Recommendations” field.

Summary of recommendations for evaluating and managing low back complaints (refer to the original guideline document for more detailed information)

Clinical measure	Recommended	Optional	Not recommended
History and physical exam	<ul style="list-style-type: none"> Basic history History of cancer or infection Signs or symptoms of cauda equina syndrome History of significant trauma Psychosocial history Straight- and crossed-leg raising tests Focused neurologic exam 	Pain drawing and visual analog scale	
Patient education	<ul style="list-style-type: none"> Patient education about low back symptoms Back school in occupational settings 	Back school in nonoccupational settings	
Medication (See Chapter 3 in the original guideline document)	<ul style="list-style-type: none"> Acetaminophen Non-steroidal anti-inflammatory drugs (NSAIDs) 	<ul style="list-style-type: none"> Opioids, short course Muscle relaxants Phenylbutazone 	<ul style="list-style-type: none"> Using opioids for more than 2 weeks Oral corticosteroids Colchicine Antidepressants



Clinical measure	Recommended	Optional	Not recommended
Physical treatment methods	Manipulation of low back during first month of symptoms without radiculopathy	Manipulation for patients with radiculopathy Relaxation techniques At-home applications of local heat or cold to low back Shoe insoles In occupational setting, corset for prevention	Manipulation for patients with undiagnosed neurologic deficits Prolonged course of manipulation (longer than 4 weeks) Traction Transcutaneous electrical neurostimulation (TENS) Biofeedback Shoe lifts Corset for treatment
Injections		Epidural corticosteroid injections for radicular pain, to avoid surgery Needle acupuncture	Epidural injections for back pain without radiculopathy Trigger-point injections Ligamentous injections Facet joint injections
Bed rest		Bed rest for 2 days for severe radiculopathy	Bed rest for more than 2 days
Activities and exercise	Temporary avoidance of activities that increase mechanical stress on spine Gradual return to normal activities Low-stress aerobic exercise Conditioning exercises for trunk muscles after 2 weeks		Back-specific exercise machines Therapeutic stretching of back muscles

Clinical measure	Recommended	Optional	Not recommended
Detection of physiologic abnormalities	<p>If no improvement after 1 month, consider:</p> <p>Bone scan</p> <p>Needle electromyography (EMG) and H-reflex tests to clarify nerve root dysfunction</p> <p>Sensory evoked potentials (SEPs) to assess spinal stenosis</p>		<p>EMG for clinically obvious radiculopathy</p> <p>Surface EMG and F-wave tests</p> <p>Thermography</p>
Radiographs of lumbosacral spine	<p>When red flags for fracture are present</p> <p>When red flags for cancer or infection are present</p>		<p>Routine use during first month of symptoms in absence of red flags</p> <p>Routine oblique views</p>
Imaging	<p>Computed tomography (CT) or magnetic resonance imaging (MRI) when cauda equina, tumor, infection, or fracture are strongly suspected and plain film radiographs are negative</p> <p>MRI test of choice for patients with prior back surgery</p> <p>Assure quality criteria for imaging tests</p>	<p>Myelography or CT myelography for preoperative planning if MRI is unavailable</p> <p>MR neurography</p>	<p>Using imaging test before 1 month in absence of red flags</p> <p>Diskography or CT diskography</p>
Surgical considerations	<p>Discuss surgical options with patients with persistent and severe sciatica and clinical evidence of nerve root compromise if symptoms persist after 4-6 weeks of conservative therapy</p> <p>Standard discectomy or microdiscectomy for herniated disk (procedures have similar efficacy)</p>	<p>Chymopapain, used after ruling out allergic sensitivity, acceptable but less efficacious than discectomy to treat herniated disk</p>	<p>Disk surgery in patients with back pain alone, no red flags, and no nerve root compression</p> <p>Surgery for spinal stenosis within the first 3 months of symptoms</p> <p>Surgery for spinal stenosis when justified by imaging test rather than patient's functional status</p> <p>Spinal fusion in the absence of fracture, dislocation, complications of tumor, or infection</p>



Clinical measure	Recommended	Optional	Not recommended
Psychosocial factors	Social, economic, and psychological factors can alter patient's response to symptoms and treatment	Referral for evaluation prior to surgical intervention	Referral for extensive evaluation and treatment prior to exploring patient expectations or psychosocial factors

c) Risk factor/recovery

Potential harms

- False-positive or false-negative diagnostic tests
- Risks and complications of surgical procedures and imaging studies (e.g., infection, radiation)

d) Return to work

Not stated

8. Priority for Q-COMP

Rating criteria

Functional restoration Does the guideline consider graded increases in activity and function?	2
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)?	2
Risk factors for recovery To what degree does the guideline consider Risk Factors for Recovery?	1
Total rating	6



Interventional techniques in the management of chronic spinal pain; evidence based practice guidelines

Contents

1. Developed by	79
2. Guideline status	79
3. Where located/how accessed	79
4. Description/scope	79
5. Outcomes considered	81
6. Agree appraisal.....	81
7. Relevance/appropriateness of use in workers' compensation sector.....	81
a) Functional progression	81
b) Physical/psychiatric rehabilitation.....	85
c) Risk factor/recovery	85
d) Return to work.....	86
8. Priority for Q-COMP.....	87



1. Developed by

Boswell MV, Shah RV, Everett CR, Sehgal N, McKenzie-Brown AM, Abdi S, Bowman RC, Deer TR, Datta S, Colson JD, Spillnae WF, Smith HS, Lucas LF, Burton AW, Chopra P, Staats PS, Wasserman RA, Manchikanti L. Interventional techniques in the management of chronic spinal pain : evidence-based practice guidelines. Pain Phys 2005;8 (1); 1-47. [764 references]

2. Guideline status

This is the current release of the guideline.

This guideline updates a previous version: Manchikanti L, Staats PS, Singh V, Schultz DM, Vilims BD, Jasper JF, Kloth DS, Trescot AM, Hansen HC, Falasca TD, Racz GB, Deer TR, Burton AW, Helm S, Lou L, Backit CE, Dunbar EE, Atluri SL, Calodney AK, et al. Evidence-based practice guidelines for interventional techniques in the management of chronic spinal pain. Pain Phys 2004; 6: 3-81

3. Where located/how accessed

National Guideline Clearinghouse www.guideline.gov

The following is available:

- Manchikanti L, Abdi S, Lucas LF, Evidence synthesis and development of guidelines in interventional pain management. Pain phys 2005;8:73-86.

Electronic copies; Available in Portable Document Format (PDF) from the American Society of Interventional pain Physicians Web site

Print copies: Available from the American Society of Interventional Pain Physicians, 2831 Lone Oak Road, Paducah, KY 42003; Phone: (270) 554-9412; Fax: (270) 554-8987; email: asipp@asipp.org

4. Description/scope

Disease/condition(s)

- Chronic spinal pain

Guideline category

- Diagnosis
- Management
- Technology Assessment
- Treatment

Clinical speciality

- Anaesthesiology
- Emergency Medicine
- Family Practice
- Internal Medicine
- Neurological Surgery
- Neurology
- Orthopaedic Surgery
- Physical Medicine and Rehabilitation
- Radiology
- Rheumatology



Intended users

- Allied Health Personnel
- Health Plans
- Managed Care Organizations
- Patients
- Physicians
- Utilization Management

Guideline objectives

To develop evidence-based clinical practice guidelines for interventional techniques in the diagnosis and management of chronic spinal pain, with utilization of all types of evidence, applying an evidence-based approach, with broad representation of specialists from academic and clinical practices.

To improve quality of care, improve patient access, improve patient outcomes, improve appropriateness of care, improve efficiency and effectiveness, and achieve cost containment by improving the cost-benefit ratio

Target population

All patients with chronic spinal pain who are eligible to undergo commonly utilized and effective interventional technique(s)

Interventions and practices considered

Diagnostic interventional techniques

1. Facet or zygapophysial joint diagnostic blocks
2. Provocative discography
3. Transforaminal epidural injections or selective nerve root blocks
4. Sacroiliac joint blocks

Therapeutic interventional techniques

1. Facet joint pain interventions
 - Intraarticular blocks
 - Medial branch blocks
 - Medial branch neurotomy
2. Epidural injections
 - Caudal epidural injections
 - Interlaminar epidural injections
 - Transdforaminal epidural injections
3. Epidural adhesiolysis
 - Percutaneous adhesiolysis
 - Endoscopic adhesiolysis
4. Sacroilliac joint interventions
 - Intraarticular injections
 - Radiofrequency neurotomy



5. Intradiscal therapies
 - Intradiscal electrothermal therapy
 - Nucleoplasty
6. Implantable therapies
 - Spinal cord stimulation
 - Implantable intrathecal drug administration system

Evaluation and management

1. Evaluation
2. Medical Necessity Management

5. Outcomes considered

- Validity, specificity, and sensitivity of diagnostic interventions for spinal pain
- Patient’s quality of life
- Patient’s mood ,activities of daily living
- Effectiveness of treatment in controlling pain (i.e., short – term and long-term pain relief)
- Complications of therapy
- Patient-reported pain intensity as recorded with standard pain scales
- Associated costs (e.g., healthcare expenditures, disability compensation, lost production, lost tax revenue)

6. Agree appraisal

- Scope and Purpose 56%
- Stakeholder Involvement 42%
- Rigour of Development 33%
- Clarity and Presentation 71%
- Applicability 0%
- Editorial Independence 42%

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

a) Functional progression

Clinical algorithm (s)

The original guideline document contains algorithms for:

- Approach to Diagnosis of Chronic Low Back Pain without Disc Herniation
- Application of Therapeutic Interventional Techniques in Management of Chronic Low Back Pain
- Approach to Diagnosis of Chronic Neck Pain without Disc Herniation

Major recommendations

These recommendations are presented in abbreviated form. Readers should refer to the text of the original guideline document for a detailed discussion of each of the following topics.

Definitions for the designations of levels of evidence (level I [conclusive], level II [strong], level III [moderate], level IV [limited], and level V [indeterminate]) are provided at the end of the “Major Recommendations” field.



Diagnostic interventional techniques

Facet or zygapophysial joint diagnostic blocks

The accuracy of facet joint nerve blocks was strong in the diagnosis of lumbar and cervical facet joint pain, whereas it was moderate in the diagnosis of thoracic facet joint pain.

Provocative discography

The evidence for cervical and thoracic discography is limited. The evidence for lumbar discography was strong for discogenic pain provided that lumbar discography is performed based on the history, physical examination, imaging data, and analysis of other precision diagnostic techniques. There is no evidence to support discography without other non-invasive or less invasive modalities of treatments or other precision diagnostic injections.

Transforaminal epidural injections

The evidence was moderate for transforaminal epidural injections or selective nerve root blocks in the preoperative evaluation of patients with negative or inconclusive imaging studies and clinical findings of nerve root irritation.

Sacroiliac joint blocks

The evidence for the accuracy of sacroiliac joint diagnostic injections was moderate for the diagnosis of sacroiliac joint pain.

Therapeutic interventional techniques

Facet joint interventions

- *Intraarticular Blocks.* For intraarticular injections of local anesthetics and Steroids, there was moderate evidence for short-term and limited evidence for long-term improvement in managing low back pain and the evidence was negative in managing neck pain.
- *Medial Branch Blocks.* The evidence for lumbar and cervical medial branch blocks in managing chronic low back and neck pain was moderate.
- *Medial Branch Neurotomy.* Evidence for radiofrequency neurotomy of medial branches was moderate to strong for short-term and long-term relief of lumbar and cervical facet joint pain.

Epidural injections

- *Caudal Epidural Injections.* The evidence for caudal epidural steroid injections with randomized trials and prospective trials was strong for short-term relief and moderate for long-term relief, in managing chronic low back and radicular pain. The evidence in postlumbar laminectomy syndrome and spinal stenosis was limited.
- *Interlaminar Epidural Injections.* The evidence of interlaminar epidural steroid injections in managing lumbar radiculopathy was strong for short-term relief and limited for long-term relief. In managing cervical radiculopathy, the evidence was moderate for short-term and long-term relief. The evidence was inconclusive in the management of neck pain, low back pain, and lumbar spinal stenosis.
- *Transforaminal Epidural Injections.* The evidence for lumbar transforaminal epidural steroid injections in managing lumbar nerve root pain was strong for short-term and moderate for long-term improvement. The evidence was moderate in managing cervical nerve root pain. The evidence was limited in lumbar post laminectomy syndrome, and lumbar spinal stenosis. The effectiveness of transforaminal epidural steroid injections in axial low back pain, lumbar disc extrusions, and axial neck pain was indeterminate.

Epidural adhesiolysis

- *Percutaneous Adhesiolysis.* The evidence was strong in managing chronic low back and lower extremity pain.
- *Endoscopic Adhesiolysis.* Evidence for spinal endoscopy was strong for short-term relief and moderate for long-term relief, in managing chronic refractory low back and lower extremity pain.



Sacroiliac joint interventions

- *Intraarticular Injections*. The evidence for intraarticular sacroiliac joint injections was moderate for short-term relief and limited for long-term relief.
- *Radiofrequency Neurotomy*. Evidence synthesis of radiofrequency neurotomy of sacroiliac joints included only retrospective evaluations with small numbers of patients, providing indeterminate evidence for managing sacroiliac joint pain.

Intradiscal therapies

- *Intradiscal Electrothermal Therapy*. The evidence for intradiscal electrothermal therapy (IDET) was strong for short-term relief and moderate for long-term relief in managing chronic discogenic low back pain.
- *Nucleoplasty*. The evidence of nucleoplasty is limited in managing lumbar discogenic pain.

Implantable therapies

- *Spinal Cord Stimulation*. The evidence for spinal cord stimulation in failed back surgery syndrome and complex regional pain syndrome was strong for short-term relief and moderate for long-term relief.
- *Implantable Intrathecal Drug Administration System*. The evidence for implantable intrathecal infusion systems was strong for short-term improvement in pain of malignancy or neuropathic pain. The evidence was moderate for long-term management of chronic pain.

Evaluation and management

Evaluation

Appropriate history, physical examination, and medical decision making are essential. There are numerous acceptable medical methods to evaluate a chronic spinal pain patient. These methods vary from physician to physician and textbook to textbook. The guidelines established by the Centers for Medicare and Medicaid Services (CMS) aid the physician in performing a comprehensive and complete evaluation, and assist in complying with regulations. The CMS guidelines define five levels of services. The three crucial components of evaluation and management services are history, physical examination, and medical decisionmaking. Other components include counseling, coordination of care, nature of presenting problem, and time.

Medical necessity management

The following criteria should be considered carefully in performing interventional techniques:

1. Complete initial evaluation, including history and physical examination
2. Physiological and functional assessment, as necessary and feasible
3. Determination of indications and medical necessity:
 - Suspected organic problem
 - Nonresponsiveness to less invasive modalities of treatments except in acute situations such as acute disc herniation, herpes zoster and postherpetic neuralgia, reflex sympathetic dystrophy, and intractable pain secondary to carcinoma
 - Pain and disability of moderate-to-severe degree
 - No evidence of contraindications such as severe spinal stenosis resulting in intraspinal obstruction, infection, or predominantly psychogenic pain
 - Responsiveness to prior interventions with improvement in physical and functional status to justify repeat blocks or other interventions
 - Repeating interventions only upon return of pain and deterioration in functional status



Delivery of interventional technology

Frequency and total number of injections or interventions are key issues, although controversial and rarely addressed. Descriptions of the frequency of various types of interventional techniques are described here. These are based on available evidence and consensus to the safety, clinical effectiveness, and cost effectiveness. However, these are not based on evidence synthesis methodology. Descriptions are provided only for some commonly used procedures.

Facet joint injections and medial branch blocks

- In the diagnostic phase, a patient may receive two procedures at intervals of no sooner than 1 week or, preferably, 2 weeks.
- In the therapeutic phase (after the diagnostic phase is completed), the suggested frequency would be 2 months or longer between injections, provided that >50% relief is obtained for 6 weeks.
- If the interventional procedures are applied for different regions, they may be performed at intervals of no sooner than 1 week or preferably 2 weeks for most types of procedures. It is suggested that therapeutic frequency remain at 2 months for each region. It is further suggested that all regions be treated at the same time, provided all procedures can be performed safely.
- In the treatment or therapeutic phase, the interventional procedures should be repeated only as necessary according to the medical necessity criteria, and it is suggested that these be limited to a maximum of six times for local anesthetic and steroid blocks for a period of 1 year, per region.
- Under unusual circumstances with a re-current injury or cervicogenic headache, procedures may be repeated at intervals of 6 weeks after stabilization in the treatment phase.

Medial branch neurotomy

- The suggested frequency would be 3 months or longer between each procedure, provided that >50% relief is obtained for 10 to 12 weeks.
- The therapeutic frequency for medial branch neurotomy should remain at intervals of at least 3 months for each region. It is further suggested that all regions be treated at the same time, provided all procedures are performed safely.

Epidural injections

- Epidural injections include caudal, interlaminar, and transforaminal.
- In the diagnostic phase, a patient may receive two procedures at intervals of no sooner than 1 week or preferably, 2 weeks, except in cancer pain or when a continuous administration of local anesthetic is employed for reflex sympathetic dystrophy.
- In the therapeutic phase (after the diagnostic phase is completed), the suggested frequency of interventional techniques should be 2 months or longer between each injection, provided that >50% relief is obtained for 6 to 8 weeks.
- If the neural blockade is applied for different regions, they may be performed at intervals of no sooner than 1 week and preferably 2 weeks for most type of procedures. The therapeutic frequency may remain at intervals of at least 2 months for each region. It is further suggested that all regions be treated at the same time, provided all procedures can be performed safely.
- In the treatment or therapeutic phase, the interventional procedures should be repeated only as necessary according to medical necessity criteria, and it is suggested that these be limited to a maximum of 6 times per year.
- Under unusual circumstances with a recurrent injury, carcinoma, or reflex sympathetic dystrophy, blocks may be repeated at intervals of 6 weeks after diagnosis/stabilization in the treatment phase.



Percutaneous adhesiolysis

- The number of procedures are preferably limited to:
 - With a 3-day protocol, 2 interventions per year
 - With a 1-day protocol, 4 interventions per year

Spinal Endoscopic adhesiolysis

The procedures are preferably limited to a maximum of 2 per year provided the relief was >50% for >4 months.

Sacroiliac joint injections

- In the diagnostic phase, a patient may receive two procedures at intervals of no sooner than 1 week or, preferably, 2 weeks.
- In the therapeutic phase (after the diagnostic phase is completed), the suggested frequency would be 2 months or longer between each injection, provided that >50% relief is obtained for 6 weeks.
- If the procedures are done for different joints, they may be performed at intervals of no sooner than 1 week or preferably 2 weeks. It is suggested that therapeutic frequency remain at 2 months for each joint. It is further suggested that both joints be treated at the same time, provided the injections can be performed safely.
- In the treatment or therapeutic phase, the interventional procedures should be repeated only as necessary according to the medical necessity criteria, and it is suggested that they be limited to a maximum of six times for local anesthetic and steroid blocks for a period of 1 year, per region.
- Under unusual circumstances with a re-current injury, procedures may be repeated at intervals of 6 weeks after stabilization in the treatment phase.

Sacroiliac joint radiofrequency neurotomy

- The suggested frequency is 3 months or longer between each procedure, provided that >50% relief is obtained for 10 to 12 weeks.
- The therapeutic frequency for neurotomy should remain at intervals of at least 3 months for each region. It is further suggested that all regions be treated at the same time, provided all procedures are performed safely.

b) Physical/psychiatric rehabilitation

Not discussed

c) Risk factor/recovery

Potential harms

Complications from diagnostic and therapeutic interventions are summarized briefly below. Refer to the original guideline document for a more detailed description.

Complications from diagnostic techniques

- Facet joint injections--hemorrhage, dural puncture, spinal cord trauma, infection, intra-arterial or intravenous injection, chemical meningitis, neuraltrauma, paralysis, pneumothorax, radiation exposure, facet capsule rupture, hematoma formation, steroid side effects, and epidural, subdural or subarachnoid spread Discography procedures--discitis, subdural abscess, spinal cord injury, vascular injury, epidural and prevertebral abscess
- Transforaminal epidural injections--dural puncture, infection, intravascular injection, air embolism, vascular trauma, particulate embolism, cerebral thrombosis, epidural hematoma, neural or spinal cord damage, and complications related to administration of steroids. Recent reports of paraplegia, vertebral artery dissection, neurological disorders, and death are concerning.
- Sacroiliac joint injections--infection, trauma to the sciatic nerve, embolic phenomena, and complications related to drug administration



Complications from therapeutic techniques

- Facet joint interventions–dural puncture, spinal cord trauma, infection, intraarterial or intravenous injection, spinal anesthesia, chemical meningitis, neural trauma, pneumothorax, radiation exposure, facet capsule rupture, hematoma formation, and steroid side effects. In addition, potential side effects with radiofrequency denervation include painful cutaneous dysesthesias, increased pain due to neuritis or neurogenic inflammation, anesthesia dolorosa, cutaneous hyperesthesia, pneumothorax, and deafferentation pain.
- Caudal, interlaminar, and transformational epidural injections–dural puncture, spinal cord trauma, infection, hematoma formation, abscess formation, subdural injection, intracranial air injection, epidural lipomatosis, pneumothorax, nerve damage, headache, death, brain damage, increased intracranial pressure, intravascular injection, vascular injury, cerebral vascular or pulmonary embolus, and effects of steroids. Spinal cord trauma and spinal cord or epidural hematoma formation are catastrophic complications, but rarely seen following epidural injections.
- Adhesiolysis and spinal endoscopy with lysis of adhesions–spinal cord compression, excessive intraspinal and intracranial pressures, epidural hematoma, bleeding, infection, increased intraocular pressures with resultant visual deficiencies and even blindness, and dural puncture. Unintended subarachnoid or subdural puncture with injection of local anesthetic or hypertonic saline is one of the major complications of the procedure with catheter adhesiolysis. Hypertonic saline injected into the subarachnoid space has been reported to cause cardiac arrhythmias, myelopathy, paralysis, and loss of sphincter control.
- Sacroiliac joint interventions–infection, hematoma formation, neural damage, trauma to the sciatic nerve, potential gas and vascular particulate embolism, leakage of the drug from the joint, and other complications related to drug administration
- Intradiscal electrothermal therapy (IDET)–catheter breakage, nerve root injuries, post-IDET disc herniation, cauda equina syndrome, infection, epidural abscess, and spinal cord damage
- Nucleoplasty–neural trauma, cauda equina syndrome, and other neurological complications
- Spinal cord stimulation–infection, hematoma, nerve damage, lack of appropriate paraesthesia coverage, paralysis, nerve injury, and death
- Implantable intrathecal drug administration systems–post–dural puncture headache, infection, nausea, urinary retention, pruritus, catheter and pump failure, pedal edema, hormonal changes, granuloma formation, and decreased libido

Contraindications

Contraindications include ongoing bacterial infection, possible pregnancy, bleeding diathesis, and anticoagulant therapy. Precautions are warranted in patients with antiplatelet or anticoagulant therapy, diabetes mellitus and artificial heart valves.

Qualifying statements

d) Return to work

Not discussed



8. Priority for Q-COMP

Rating criteria

Functional restoration Does the guideline consider graded increases in activity and function?	1
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	4



Cervical/thoracic

Contents

1. Developed by	89
2. Guideline status	89
3. Where located/how accessed	89
4. Description/scope	89
5. Outcomes considered	90
6. Agree appraisal.....	90
7. Relevance/appropriateness of use in workers' compensation sector.....	90
a) Functional progression	90
b) Physical/psychiatric rehabilitation.....	90
c) Risk factor/recovery	91
d) Return to work.....	91
8. Priority for Q-COMP.....	92



1. Developed by

Expert Clinical Benchmarks . Cervical/thoracic. King of Prussia (PA): MedRisk, Inc:2004.49 p.

2. Guideline status

This is the current release of the guideline.

3. Where located/how accessed

National Guideline Clearinghouse

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The expert Clinical Benchmarks (ECB) Physical Therapy Clinical Guidelines are available in electronic form to subscribers from the Expert Clinical Benchmarks Web site

4. Description/scope

Disease/condition(s)

- Work-related cervical/thoracic injury

Guideline category

- Treatment

Clinical speciality

- Chiropractic
- Family Practice
- Orthopaedic Surgery
- Physical Medicine and Rehabilitation

Intended users

- Physical Therapists
- Physicians
- Utilization Management

Guideline objectives

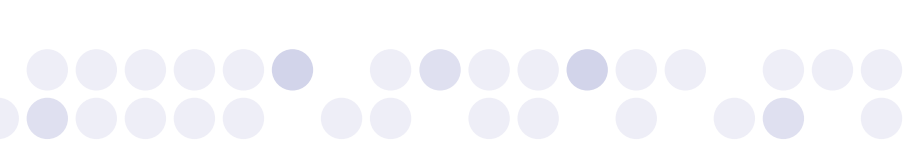
To offer evidence-based ranges of appropriate treatment of workers' compensation conditions

Target population

Workers with functional impairment due to work-related cervical/thoracic injury

Interventions and practices considered

1. Activities of Daily Living (ADL) training (home)
2. Aerobic capacity/endurance conditioning or reconditioning
3. Biofeedback
4. Electrical stimulation
5. Flexibility exercises
6. Functional training programs (home and work)

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7. Instrumental ADL (IADL) training (home and work)
 8. Injury prevention and reduction (home and work)
 9. Manual traction
 10. Mobilization/manipulation–joint mobilization
 11. Mobilization/manipulation of soft tissue
 12. Passive range of motion
 13. Relaxation
 14. Sound agents
 15. Thermotherapy

5. Outcomes considered

- Pain relief
- Participation in activities of daily living
- Length of sick leave/return to work
- Range of motion

6. Agree appraisal

- Scope and Purpose 44%
- Stakeholder Involvement 42%
- Rigour of Development 40%
- Clarity and Presentation 63%
- Applicability 0%
- Editorial Independence 17%

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

a) Functional progression

Not stated

b) Physical/psychiatric rehabilitation

Major recommendations

General

1. During the initial evaluation, the therapist should include questions about work task requirements in the patient history interview and incorporate these findings in the treatment objectives.
2. The therapist's treatment regimen should be directed toward improving the patient's functional ability rather than based on the patient's impairment.
3. The therapist's treatment regimen should emphasize active interventions over passive modalities and should become less frequent toward the end of the episode of care in order to encourage patient behavioral gains.

Non-surgical

For non-surgical cervical/thoracic conditions, a series of physical therapy treatments should be delivered ranging from 10 to 16 visits over a period of 6 to 8 weeks, depending upon severity (see table below). Refer to the original guideline document for recommendations on the time, choice, and sequence of interventions, as well as



interventions that are generally recommended, interventions recommended on a case-specific/clinical judgement basis, and interventions that are not recommended. Specific interventions are listed in the “Interventions and Practices Considered” field in the Complete Summary.

Surgical

For surgical cervical/thoracic conditions, a series of physical therapy treatments should be delivered ranging from 12 to 28 visits over a period of 5 to 16 weeks, depending upon severity (see table below). Refer to the original guideline document for recommendations on the time, choice, and sequence of interventions, as well as interventions that are generally recommended, interventions recommended on a case specific/clinical judgement basis, and interventions that are not recommended. Specific interventions are listed in the “Interventions and Practices Considered” field in the Complete Summary.

Pre-cert product treatment patterns -- no regional adjustments

	Surgical			Non-Surgical		
	Total visits	Sequence of visits	Total # weeks	Total visits	Sequence of visits	Total # weeks
Acute/non-delayed						
Non-complicated	12	3V @ 2 wks 2V @ 2 wks 1V @ 2 wks	6 weeks	12	2V @ 6 wks	6 weeks
Complicated	28	3V @ 4 wks 2V @ 6 wks 1V @ 4 wks	14 weeks	16	3V @ 2 wks 2V @ 4 wks 1V @ 2 wks	8 weeks
Acute delayed						
Complicated	28	3V @ 2 wks 2V @ 9 wks 1V @ 4 wks	15 weeks			
Chronic/non-delayed						
Non-complicated	12	3V @ 3 wks 2V @ 1 wk 1V @ 1 wk	5 weeks	10	2V @ 4 wks 1V @ 2 wks	6 weeks
Complicated	28	3V @ 4 wks 2V @ 6 wks 1V @ 4 wks	14 weeks	16	2 V @ 8 wks	8 weeks
Chronic delayed						
Complicated	28	3V @ 4 wks 2V @ 4 wks 1V @ 8 wks	16 weeks			

c) Risk factor/recovery

Not stated

d) Return to work

Not stated



8. Priority for Q-COMP

Rating criteria

Functional restoration Does the guideline consider graded increases in activity and function?	3
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?	2
Total rating	7