



INSTITUTE FOR CLINICAL
SYSTEMS IMPROVEMENT

Health Care Guideline for Patients and Families

The information contained in this document is a translation of an ICSI health care guideline from medical terminology to commonly used and easily understood English. It is intended for patients, their families and/or caregivers, and other individuals who have little or no health care training. The medical terms used in this document are followed by italicized statements in parentheses that explain the meaning of the term.

The *Adult Low Back Pain for Patients and Families* should not be construed as medical advice or medical opinion related to any specific facts or circumstances. If you are seeking medical advice, you are urged to consult a health care professional regarding your own situation and any specific medical questions you may have. In addition, you should seek assistance from a health care professional in interpreting any *ICSI Health Care Guideline for Patients and Families* and applying it in your individual case.

This translation is available to view and download as a portable document file (PDF). Adobe Acrobat Reader is required. The document can be copied for individual use, and physicians and other direct providers of care may distribute copies to their patients.

All other copyright rights are reserved by the Institute for Clinical Systems Improvement, Inc. (ICSI). ICSI assumes no liability for any adaptations or revisions or modifications made to this *Health Care Guideline for Patients and Families*.

The next scheduled revision will occur within 24 months.

The numbers in the boxes correspond with the specific flow chart notes on the following pages for more detailed information. Not all items will have a flow chart note.

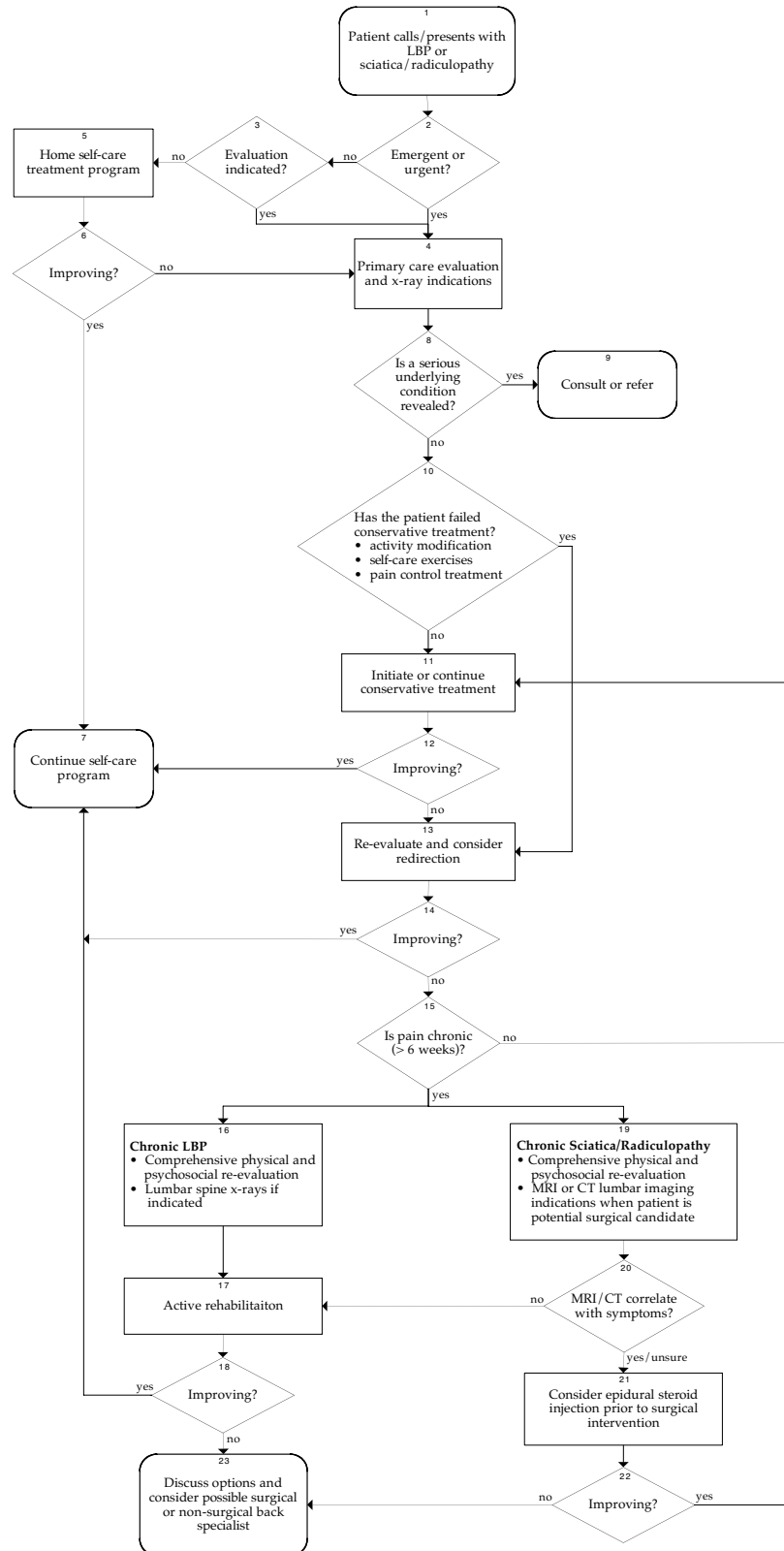


Table of Contents

Algorithm	1
Foreword	3
What is an ICSI Health Care Guideline for Patients and Families?	3
How are ICSI Health Care Guidelines Developed?	3
How Do I Use the Flowchart?	3
Flow Chart Notes	4-18
Patient Calls/Presents with Low Back Pain (LBP) or Sciatica (<i>Pain Along the Sciatic Nerve</i>)/ Radiculopathy (<i>a Pathological Condition of the Nerve Roots</i>)	4
Emergent or Urgent?	5
Evaluation Indicated?	5
Primary Care Evaluation and X-Ray Indications	5-8
Home Self-Care Treatment Program	8-9
Continue Self-Care Program	9
Is a Serious Underlying Condition Revealed?	9
Consult or Refer	9
Has the Patient Failed Conservative Treatment?	9-12
Re-Evaluate and Consider Redirection	12-13
Chronic Low Back Pain	13-14
Active Rehabilitation	14-15
Chronic Sciatica/Radiculopathy	15-16
Consider Epidural Steroid Injection Prior to Surgical Intervention	17
Discuss Options and Consider Surgical or Non-Surgical Back Specialist	17-18
Appendices	19-20
Appendix A – Glossary	19-20
Web site Resources	21

Foreword

What Is an ICSI Health Care Guideline For Patients and Families?

This document is a summary of an ICSI health care guideline that has been "translated" from medical terminology to commonly used and easily understood English. It is intended for patients, their families and/or caregivers, and other individuals who have little or no health care training. The guideline is designed to help you understand the diagnostic and treatment options recommended for a particular condition. Being better informed should help you during discussions with your physician or other health care professional.

However, an ICSI Health Care Guideline for Patients and Families should not be construed as medical advice or medical opinion related to any specific facts or circumstances. If you are seeking medical advice, please consult a health care professional regarding your particular situation, any specific medical questions you may have, and the application of the guideline to your individual case.

This translation can be viewed and downloaded as a portable document file (PDF) on <http://www.icsi.org>. Adobe Acrobat Reader is required. The document may be copied for individual use, and health care professionals may distribute copies to patients. Instructions for accessing these guidelines are listed below:

- <http://www.icsi.org>
- click on "For Patients" at the top
- select the category you are interested in

You will find the healthcare guideline for Patients and Families as well as links to other resources for that topic.

All other copyright rights are reserved by ICSI. ICSI assumes no liability for any adaptations or revisions or modifications made to this guideline.

How are ICSI Health Care Guidelines Developed?

ICSI, the Institute for Clinical Systems Improvement, is an independent, non-profit organization dedicated to helping identify best clinical practices for health care professionals. A significant part of ICSI's mission is to create and maintain clinical guidelines to help health care professionals evaluate and treat patients with a particular condition. A team of experts develops each ICSI guideline, using the most current information about a particular condition. This information is carefully evaluated, reviewed, and compiled before it is published.

Each guideline recommends a strategy for making decisions, but it is not intended to replace a physician's judgment or establish a protocol (strict plan) for all patients. One set of recommendations is rarely the only approach to a problem.

How Do I Use the Flowchart?

The flowchart represents the major steps in the process of evaluating and treating a patient with a particular condition. Numbers within the flowchart correspond with a flowchart note. Some flowchart boxes will not have a corresponding note.

Flowchart Notes

1. Patient Calls/Presents with Low Back Pain (LBP) or Sciatica (*Pain Along the Sciatic Nerve*)/Radiculopathy (*a Pathological Condition of the Nerve Roots*)

The patient calls or visits the clinic. A medical screening should be performed via telephone triage (*prioritizing the urgency of treatment*) by provider examination. Each medical group may modify this draft according to need.

The triage (*prioritizing the urgency of treatment*) evaluation should first rule out emergent (*emergency*) conditions.

General Assessment:

- Recent back procedure or epidural (*through the skin*) anesthesia
- Location of pain:
 - Low back pain (does not radiate [*spread out*] past the knee)
 - Sciatica (LBP with radiation past the knee)
- Duration of symptoms, including date of injury or onset of symptoms:
 - Acute for fewer than 6 weeks.
 - Chronic for longer than 6 weeks.
- 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 the state guidelines where the patient resides, where the injury took place, or in Minnesota refer to the mandated Worker's Compensation treatment parameters at www.doli.state.mn.us/pdf/treatparam.pdf.

Patient Education for Primary Prevention

Health care professionals are encouraged to develop patient education materials on low back pain (LBP) prevention and healthy back care and make them available throughout the community (for example, community education and local businesses). Emphasis should be on patient responsibility, workplace ergonomics, and home self-care treatment of acute LBP. Employers should also make reasonable accommodations that include modified duties or activities to allow a patient's early return to work and to minimize the risk of prolonged disability. Frontline supervisors should learn about occupational strategies to facilitate an early return to work and to prevent prolonged disabilities.

2. Emergent or Urgent?

Emergent (*emergency*) – refer to 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 (*both sides*) leg weakness
- Saddle numbness (*numbness at or around the tail bone area*)

Urgent appointment within 24 hours:

Assessment:

- Fever of 38°C or 100.4°F for longer 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 (*decrease in function of the brain, spinal cord, muscles, and nerves*).
- Patient requests same-day appointment.

3. Evaluation Indicated?

Appointment within 2-7 days **if the answer to any of the following is positive and/or there is no improvement with self-care.**

Assessment:

- Exertion injury (for example, lifting, digging, reaching).
- History of back symptoms - has been seen before, at least once.
- Chronic back pain longer than 6 weeks
- Unexplained weight loss (more than 10 pounds in 6 months).
- Older than 50.
- History of cancer.

4. Primary Care Evaluation and X-Ray Indications

This includes a medical history and physical exam and consideration of psychosocial (*involving both psychological and social*) factors.

If a serious underlying disease such as cancer, Cauda Equina Syndrome (*disease of the nerve roots near the tail bone*), significant/progressive neurologic deficit (*decrease in function of the brain, spinal cord, muscles, and nerves*), or other systemic illness is present, consult with or refer to a specialist.

Patient history includes:

Cancer risk factors:

- 50 or older

- History of cancer
- Unexplained weight loss
- Failure to improve after 4-6 weeks of conservative LBP therapy

Studies suggest that if all 4 of the above risk factors for cancer are absent, then cancer can be ruled out with 100% sensitivity.

Likelihood of spinal infection increases with:

- IV drug use.
- Immunosuppression (*decreased immune system*)
- Urinary infection.

Signs or symptoms of Cauda Equina Syndrome (*disease of the nerve roots near the tail bone*) symptoms:

- Urinary retention (if no urinary retention, then the likelihood of Cauda Equina Syndrome is less than 1 in 10,000).
- Saddle anesthesia (*numbness in the groin and inner thighs*), unilateral or bilateral sciatica (*pain along the sciatic nerve on one or both sides of body*), sensory and motor deficits (*decrease in function of nerve sensation and muscle movement*), and abnormal straight leg raising (SLR) 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 [*a pathological condition of the nerve roots*] compared to pain radiating only to the posterior [*back segment*] thigh).

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. See the ICSI Major Depression in Adults in Primary Care Patient and Family guideline for more information.

Physical examination should document:

Palpation (*examination through touch*) for spinal tenderness.

Neuromuscular (*involving nerves and muscle*) testing to include:

- Ankle dorsiflexion strength (*strength to turn ankle upward*), great toe dorsiflexion strength (*strength to turn big toe upward*), ankle reflexes, and knee reflexes. The sensory exam with pinprick sensation in the medial, dorsal, and lateral aspects (*middle, back, and side*) of the foot should be noted.
- Significant or progressive neuromotor deficit (*decrease in function of the nerves and muscles*) requires surgical consultation.

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

- Positive SLR is defined as pain in the posterior (*back segment of*) leg that radiates below the knee with the hip flexed 60 degrees or less while the patient is lying supine (*flat on the back*), and 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 (*a blood test used to monitor inflammatory or malignant disease*) if there is suspicion of cancer or infection.

May consider early referral to physical therapy or another trained spine therapy professional. (See Note #13, "Re-Evaluate and Consider Redirection" and Note #23, "Discuss Options and Consider Possible Surgical or Nonsurgical Back Specialist" for details on specialties and treatments.)

- Patient has severe incapacitating, disabling back, or leg pain, or
- Experiences significant limitation of functional or job activities.

Red flag indications for lumbar spine x-ray (AP [*anteroposterior or front to back*] and LAT [*lateral or from the side*] views)

Generally, AP and LAT x-rays are not useful in the *acute (intense)* setting but *may* be warranted when:

- Patient is older than 50 (increased risk of malignancy, compression fracture).
- Unrelenting night pain or pain at rest (increased incidence of clinically significant pathology [*disease state*]).
- History of or suspicion of cancer (rule out metastatic [*spreading*] disease).
- Fever above 38°C (100.4°F) for longer than 48 hours.
- Osteoporosis.
- Other systemic (*affecting the entire body*) diseases.
- Neuromotor or sensory deficit (*decrease in function of nerves and motion or of sensation*).
- Chronic use of oral steroids (*medication containing steroids*).
- Immunosuppression (*decreased immune system*).

- 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 [*decrease in bone mass producing brittleness*]).
- Failure to respond to 4-6 weeks of conservative therapy.
- Drug or alcohol abuse (increased incidence of osteomyelitis (*inflammation of the bone marrow*), trauma, fracture).
- Clinical suspicion of ankylosing spondylitis (*a form of inflammatory arthritis such as rheumatoid arthritis*).

Oblique (*45 degree angle*) view x-rays are not recommended. Oblique (*45 degree angle*) view x-rays on routine screening are rarely indicated, add only minimal information in a small percentage of cases, and more than doubles the exposure to radiation.

5. Home Self-Care Treatment Program

When patients are improving, they should continue self-care as instructed by their health care provider. Document the phone triage and have self-care treatment in the patient's medical record (e.g., no appointment is needed, but if questions arise or condition changes, patient should call).

Etiology:

- Pain in the lower back is very common. It can be related to certain activities, poor posture, physical stress, or psychological stress. 90% of LBP patients improve within 4-6 weeks.
- Consider telling the patient that approximately two-thirds of the people who recover from a first episode of acute LBP 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, the patient can expect improvement to be similar after each episode.
- When pain or weakness lasts longer than 6 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 (*origins*) include pregnancy, labor, menstrual period, urinary tract problems, stomach upset with nausea, vomiting, or diarrhea.

Instruct the patient to:

- Carefully introduce activities back into your day as you begin to recover from the worst of your back pain episode. Gradual stretches and regular walking are good ways to get back into action.
- Ice packs or heat as preferred on the sore area will keep the inflammation down and short periods of time in a position that is comfortable may be helpful.
- Use over-the-counter anti-inflammatory (*reduces inflammation*) like ibuprofen, naproxen sodium, or aspirin or use acetaminophen to help ease the pain and swelling in the lower back. If stomach complaints occur, call the clinic.
- 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 patient to call back in 1-3 weeks :

- There is no improvement with home self-care.
- Significant pain persists beyond a week.
- Symptoms persist, worsen, or progress.
- Symptoms improve - reinforce home self-care and lifestyle changes.

7. Continue Self-Care Program

If patients are improving, they should continue self-care as outlined in Note #5, "Home Self-Care Treatment Program."

8. Is a Serious Underlying Condition Revealed?

Examples of serious conditions include: cancer, Cauda Equina Syndrome (*disease of the nerve roots near the tail bone*), significant or progressive neurologic deficit (*decreased function of the brain, spinal cord, muscles, and/or nerves*), or other systemic (*affecting the entire body*) illness.

9. Consult or Refer

Complete a diagnostic work-up or refer to the appropriate specialist for serious underlying conditions (for example, cancer or other systemic illness.) For conditions such as Cauda Equina Syndrome (*disease of the nerve roots near the tail bone*), or significant/progressive neurologic deficit (*decreased function of the brain, spinal cord, muscles, and/or nerves*), ask for consultation or make a referral. Each medical group may have other indications for specialty referral.

Neurosurgery or Orthopedic Surgery:

- Patient is surgical candidate.
- Signs or symptoms of Cauda Equina Syndrome (*disease of the nerve roots near the tail bone*).
- Signs or symptoms of progressive or significant neuromotor deficit (for example, foot drop, functional muscle weakness such as hip flexion weakness, or quadriceps weakness).
- Persistent neuromotor deficit (*decrease in nerve or muscle*) for longer than 4-6 weeks of conservative treatment (does not include minor sensory changes or reflex changes).
- Chronic sciatica with positive SLR (*straight-leg raise*) for longer than 4-6 weeks.

Neurology (limited special indications):

- Chronic sciatica for longer than 6 weeks.
- Atypical chronic leg pain (negative SLR).
- New or progressive neuromotor deficit (*decreased function of the nerves and muscle motion*).

10. Has the Patient Failed Conservative Treatment?

Conservative Treatment:

- We expect that most patients who seek attention for their LBP 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 LBP 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 from each episode.
- Cold and heat therapies.
- Recommend analgesic (*pain relief*) medication for short-term (less than 3 months) symptom control. Clinicians should consider the risk and benefit 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 (*habit-forming pain relievers*) are rarely indicated.
- If the patient has been involved in home self-care and has had an adequate trial prior to the first visit, consider referral to a spine therapy professional on the first visit. (See Note #13, "Re-Evaluate and Consider Redirection").
- 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 LBP should be advised to stay active and continue ordinary daily activity within the limits permitted by the pain. Remaining active leads to more rapid recovery with less prolonged disability and fewer recurrent problems than with either bed rest or back-mobilizing exercises.

For patients with chronic LBP, there is evidence that exercise therapy is effective. See Note #17, "Active Rehabilitation."

Activity modification:

- Continue routine activity while paying attention to correct posture.
- Patients with acute LBP 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 LBP need to consider the patient's age and general health and the physical demands of job tasks.
- Patients should discontinue any activity that cause spread of symptoms.

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 primary leg pain.
- A gradual return to normal activities is more effective and leads to more rapid improvement with less prolonged disability than extended bed rest for treating acute LBP.
- Prolonged bed rest for more than 4 days may lead to debilitation and is not recommended for treating acute LBP.

Exercise:

- Patients should discontinue any activity or exercise that causes spread of symptoms (peripheralization).
- Low-impact aerobic exercise and flexibility exercise can prevent debilitation caused by inactivity during the first month of symptoms. Thereafter, it may help return patients to the highest level of functioning appropriate to their circumstances.
- Recommended exercise quotas that are increased gradually 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 2 weeks for most patients with acute LBP.
- Strengthening exercises for trunk muscles (especially back extensors [*stretching*]), increased gradually, are helpful for patients with acute LBP.

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 symptoms.

- Consider referral to a formal rehab program.

Self-Care Brochures or the Equivalent:

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

Specific content recommendations include:

- When red flags are not present, serious disease is not likely to be present.
- Hurt does not equal harm.
- Emphasize the chances of a good prognosis. The majority of patients experience significant improvements in 2-4 weeks.
- Bed rest is not recommended and should be limited to no more than 2 days.
- Light activity will not further injure the spine and typically helps speed recovery.
- A progressive resumption of work and activity levels leads to better short-term and long-term outcomes.
- Information and advice regarding specific painful or limited activities such as sitting, lifting, getting up from bed, etc., may be helpful.

Return to Work:

- Tell patients who are experiencing LBP that their pain is likely to improve and that a large majority of patients return to work quickly. They should understand that they can return to work before experiencing complete pain relief because complete pain relief usually occurs after, rather than before, resumption of normal activities. Working despite some residual discomfort poses no threat and will not harm them.
- All persons recovering from LBP should understand that episodes may recur but they can be treated in similar fashions.

- Patients can reduce the likelihood of LBP recurrence by making exercise and lifestyle changes, as noted elsewhere in this guideline.
- Consider using the following questions to guide your discussion about non-physical factors that can significantly impact risk for prolonged disability and a 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 LBP improve within 2 weeks, a conservative treatment approach is recommended. Patients with LBP who are not improving or who experience significant limitation of daily activity at home or work should contact their health care provider within 1-3 weeks of the initial evaluation.

Red flag and psychosocial (*related to mental and social*) indicators should be reviewed and evaluated at each contact/visit. An assessment that includes a subjective pain rating, functional assessment, and a clinician's objective assessment should be done at each visit.

For patients who are improving, 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 an opportunity to assess improvements that are directly related to the treatments outlined in this guideline.

13. Re-Evaluate and Consider Redirection

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 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 that 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 improve with home self-care after 2 weeks.
- Severe incapacitating/disabling back or leg pain.
- Significant limitation of functional or job activities.

The spine care professional's treatment plan should include both education and exercise. The treatment plan may include modalities (*different type of treatments*), 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 (which includes manipulation and mobilization). Spinal manipulation should not be done if pre-manipulative testing peripheralizes (*spreads out*) symptoms.

Passive (*involving no activity*) treatments should be minimized and used only to help an individual achieve independence in exercise and self-care. Active treatment such as exercise must be introduced within a week of starting passive treatments.

Within 3-4 visits, the patient must display documented improvement in order to continue therapy. If there is no improvement, a comprehensive re-evaluation should be performed by the spine care professional for other causes of LBP, including regional sacroiliac joint dysfunction (*SJD, a disorder related to the sacrum and ilium*).

Continued improvement must be documented for continued therapy. Typically, no more than 4-6 visits are needed.

After 9 visits, the primary care provider should be consulted before continuing therapy.

16. Chronic Low Back Pain

A comprehensive re-evaluation (including a general assessment [see Note #4, "Primary Care Evaluation and X-Ray Indications"]) should be done for patients who do not improve after 6 weeks. However, most patients with acute LBP will improve within that time. Back pain and sciatica that persist longer than 6 weeks are defined as chronic.

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

See the ICSI Major Depression in Adults in Primary Care for Patient and Family guideline for the diagnosis and treatment of depression.

Of the 10% of patients with chronic symptoms, 90% fall into the chronic LBP category and only 10% fall into the chronic sciatica (*pain along the sciatic nerve*) category.

For patients who do not improve within 6 weeks, see "Lumbar Spine X-Rays (AP and LAT views) if Indicated," in this Note and Note #19, "Chronic Sciatica/Radiculopathy," for imaging considerations.

Physical factors that may lead to delayed recovery or prolonged disability include malignancy, infection, and metabolic (*related to chemical and physical changes in tissue*) or biomechanical (*related to the effect of a force on a body*) conditions. Consider blood testing (including ESR) if there is suspicion of cancer or infection.

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

- Fractures
- Spondylarthropies (*degeneration of the vertebra*)

- Infection
- Tumor
- Abdominal/pelvic problems
- Other sites of origin for low back pain such as facet syndrome (*a condition of the bone*), piriformis syndrome (*condition marked by pain in the hip and buttock that radiates into the lower back and down the leg*), stenosis (*narrowing of a passage*), or claudication (*cramping and weakness*)

Lumbar Spine X-rays (AP [front to back] and LAT [from the side] views) if Indicated

Patients with chronic LBP or acute LBP who are not improving should be considered for further diagnostic testing. (See Note #4, "Primary Care Evaluation and X-ray Indications.") Oblique (*45 degree*) view x-rays are therefore not recommended. Oblique (*45 degree*) view x-rays on routine screening are rarely indicated, 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 (*degeneration of the vertebra*)
- Lumbarization (*congenital defect characterized by 6 lumbar vertebrae instead of 5*) and sacralization (*abnormal development of the first vertebra*).
- Schmorl nodes (*a type of vertical disc herniation*).
- Spina bifida occulta (*type of congenital spinal defect*).
- Disk calcification.
- Mild to moderate scoliosis (*curvature of the spine*).

17. Active Rehabilitation

There is strong evidence that exercise therapy is effective for chronic LBP. High-grade mobilization/manipulation (*passive joint stretching/movement*) has been shown to be effective early in treatment when followed by appropriate active rehabilitation.

The treatment of chronic LBP should include:

- Education (back book and advice from provider).
- Active self care.
- Gradual resumption of normal light activities, as tolerated.
- Prevention – good body mechanics.
- Exercise – many studies show the benefit of an exercise program with chronic LBP.
 - There is no conclusive evidence that favors one exercise over another (flexion, extension, or fitness [*bending, stretching, or aerobic*]).
 - Consider a graded active exercise program.
 - Consider specific exercises to strengthen the core trunk-stabilizing muscles.
 - Consider an intensive exercise program.

- Assess and manage psychosocial (*involving both psychological and social*) factors.
- Consider a multidisciplinary approach.

19. Chronic Sciatica/Radiculopathy (a Pathological Condition of the Nerve Roots)

See Note #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 (*magnetic resonance imaging, a diagnostic technique that results in a 3-D compute model of an organ*) and CT (*computed axial tomography, a diagnostic technique that uses computers to generate a 3-D image from flat x-rays*) generally are not useful during acute LBP or acute sciatica unless surgery, cancer, or infection are considerations. 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 Note #21, "Consider Epidural Steroid Injection Prior to Surgical Intervention"). Each medical clinic 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 LBP without radicular (*pertaining to a nerve root*) symptoms, MRI is the preferred diagnostic test. However, in an otherwise healthy adult without a history of back surgery and symptoms of LBP with radicular (*pertaining to a nerve root*) symptoms, a CT scan may be as sensitive a diagnostic tool 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 neurological (*related to nerves and brain*) dysfunction such as foot drop (*not completely picking up or moving the foot*) or functionally limiting weakness such as hip flexion (*strength to turn the leg upward*) or knee extension (*straightening the leg at the knee*).
- Cauda Equina syndrome (*disease of the nerve roots near the tail bone*) (loss of bowel or bladder control or saddle [*area around the tail bone*] numbness).
- Progressively severe pain and limitations despite conservative therapy.
- Severe or incapacitating back or leg pain, such as requiring hospitalization, limiting the ability to walk or significantly limiting the activities of daily living.
- Clinical or radiological (*x-ray images*) suspicion of neoplasm (*cancerous growth*), history of cancer, unexplained weight loss, or systemic (*related to the entire body*) diseases.
- Clinical or radiological suspicion of infection, such as endplate (*area at the end of bones*) destruction, history of drug or alcohol abuse, or systemic diseases.
- Trauma (fracture with neurologic [*related to nerves and brain*] deficit, compression fracture evaluation in elderly patients with question of underlying malignancy [*related to cancer*], stress fracture or subacute [*not immediate*] spondylosis [*inflammatory arthritis in the spine*] in patients less than 18 years of age.

- Severe low back pain or radicular (*nerve root compression at the disc*) pain, unresponsive to conservative therapy, with indications for surgical interventions.

For patients with mild to moderate claustrophobia (*fear of small, enclosed spaces*), benzodiazepines one hour prior to the MRI scan may be effective. The patient will need to be accompanied by a driver.

MRI Advantages:

- Better visualization of soft tissue pathology (*abnormalities*). Better soft tissue contrast.
- Direct visualization of neurological structures (*related to spinal cord and spinal column*).
- Improved sensitivity (*able to detect*) for cord pathology (*abnormalities*) and for intrathecal masses (*abnormal tissue within the spinal column*).
- Improved sensitivity for infection and neoplasm (*cancerous growth*).
- 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 (*related to nerves and brain*) deficit such as foot drop (*not completely picking up or moving the foot*) or functionally limiting weakness such as hip flexion (*strength to turn the leg upward*) or knee extension (*straightening the leg at the knee*).
- Cauda Equina syndrome (*disease of the nerve roots near the tail bone*) (loss of bowel or bladder control or saddle [*area around the tail bone*] numbness).
- Progressively severe pain and limitations despite conservative therapy.
- Clinical or radiological (*x-ray images*) suspicion of neoplasm (*cancerous growth*), history of cancer, unexplained weight loss, or systemic (*related to the entire body*) diseases.
- Bone tumors (*abnormal growth*)
- Severe or incapacitating back or leg pain, such as requiring hospitalization, limiting the ability to walk or significantly limiting the activities of daily living.

CT Advantages:

- Better visualization of calcified (*boney*) structures.
- Direct visualization of fractures.
- Direct visualization of fracture healing and fusion mass (*the area where the fracture rejoined*).
- More accurate in the assessment of certain borderline or active benign (*not related to cancer*) tumors.
- More available and less costly.
- Better accommodation for patients over 300 lbs. and patients with claustrophobia (*fear of small, enclosed spaces*).

21. Consider Epidural Steroid Injection Prior to Surgical Intervention

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 (*through the skin*) injections in patients with low back or leg pain and stenosis (*narrowing*) or a herniated (*protrude through an abnormal opening*) disc is pain control and functional improvement.

Several studies have shown that a single epidural injection affords short-term relief of pain, although in one study, the steroid group seemed to experience a "rebound" phenomenon. There is limited evidence to support one or more epidural injections to control pain and advance appropriate conservative therapy in attempt to delay or prevent surgical intervention.

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 has failed. Successful epidural steroid injections may allow patients to advance in a conservative treatment program.

Patient selection

- Patient's predominant complaint should be leg pain in a dermatomal distribution (*an area of the leg that follows a specific nerve distribution*) with corroborative physical examination findings for radiculopathy (*a pathological condition of the nerve roots*) (reflex changes, possible motor weakness, and root tension signs [*nerve tension*].) In addition, the pain should be severe enough to significantly limit function and quality of life, and not respond to oral analgesic (*pain relief*) medications and other conservative care measures.
- Neural axis imaging (*spine and spinal cord*), either MRI or CT, is required to verify evidence of disk disease or bony stenosis (*narrowing of the bone*).
- Patients should have no contraindications to injection therapy, including:
 - signs or symptoms of active infection, either systemically or locally
 - history of bleeding disorders or current use of anticoagulants such as Coumadin or Plavix; all the patient to "drip" to the lowest effective INR prior to the procedure
 - allergies to local anesthetic agents, contrast agents, or corticosteroids
 - prior complications to corticosteroid injections in the past

Pregnancy is a contraindication for the use of fluoroscopy (*type of x-ray used during diagnostic and therapeutic procedures*). Caution should be used in diabetic patients because of altered glycemic control (*change in blood sugar control*), which is typically transient. Also, patients with congestive heart failure need to be aware of steroid-induced fluid retention. Though NSAIDs (*nonsteroid anti-inflammatory drugs*) use is not a contraindication to injections, some practitioners discontinue the use of these drugs several days before injection.

23. Discuss Options and Consider Possible Surgical or Non-Surgical Back Specialist

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

Indications for specialty referral may include:

- Physiatrist/physical medicine and rehabilitation
 - Chronic back pain for longer than six weeks
 - Chronic sciatica for longer than six weeks
 - Chronic pain syndrome
 - Recurrent back pain
- Medical orthopedics
 - Chronic back pain for longer than six weeks
 - Chronic sciatica for longer than six weeks
- Neurology (limited special indications)
 - Chronic sciatica for longer than six weeks
 - Atypical chronic leg pain (negative SLR)
 - New or progressive neuromotor deficit
- Occupational medicine (limited special indications)
 - Difficult workers' compensation
 - Disability/impairment ratings
 - Return-to-work issues
- Rheumatology (limited special indications)
 - Ruled-out inflammatory arthropathy
 - Ruled-out fibrositis/fibromyalgia
 - Ruled-out metabolic bone disease (e.g., osteoporosis)
- Bone scan (*limited to SPECT*).
- EMG (*electromyography, a test that measures muscle response to nervous stimulation*).
- CT enhanced myelogram (*x-ray exam used to detect abnormalities of the spine, spinal cord, or surrounding structures*).
- Myelogram (*x-ray exam used to detect abnormalities of the spine, spinal cord, or surrounding structures*).
- RNS (radionuclide studies, *imaging technique that uses a small amount of a radioactive chemical to detect trauma, infection, etc.*).

Neurosurgery or Orthopedic Surgery:

- Patient is surgical candidate.
- Cauda Equina Syndrome (*disease of the nerve roots near the tail bone*),
- Progressive or severe neuromotor deficit (*decrease in function of muscle motion*), for example, foot drop or functional muscle weakness such as hip flexion weakness or quadriceps weakness).
- Persistent neuromotor deficit after 4-6 weeks of conservative treatment (does not include minor sensory changes or reflex changes).
- Chronic sciatica with positive SLR for longer than 4-6 weeks.
- Uncontrolled pain.

Appendix A – Glossary

A

ADL: activities of daily living

arthrodesis: surgical fusion of joints

B

botulinum: a bacteria used to control certain conditions marked by involuntary muscle contractions

C

Cauda Equina Syndrome: disease of the nerve roots near the tailbone, characterized by numbness in the pelvic area or thigh, accompanied by bowel or bladder dysfunction

D

decompression: release from pressure

dermatomol: thickened skin

dorsal column: back of the spine

E

endocrine: related to hormones

epidural: on the skin

electrodiagnostic: use of electronic devices for diagnostic purposes

EMG: electromyography, a test that measures muscle response to nervous stimulation

H

hi velocity-low amp or grade V mobilization: a type of x-ray technique

HNP: herniated nucleus pulposis, a dislocation of the mucoprotein gel within the intervertebral disc

L

L2, L3: designates the location of particular vertebrae

lumbararthrodesis: surgical fusion of the lumbar vertebrae

lumbosacral: related to the lumbar vertebrae and sacrum

M

MEP: motor-evoked potentials, generated by stimulating a group of muscles, used to diagnose neuropathies

metabolic: related to chemical and physical changes in tissue

MSO4 pump: a type of morphine pump

musculoskeletal: pertaining to the muscles and skeletal structure

N

neurologic deficit: decreased function of the brain, spinal cord, muscles, and/or nerves

neurological: related to the brain, spinal cord, and nervous system

neuropathic: related to a nervous system disorder

neuropathy: any disorder affecting any segment of the nervous system

P

plethysmography: measuring and recording changes in volume of an organ, other body part, or whole body

prolotherapy: nonsurgical ligament reconstruction, used to treat chronic musculoskeletal pain

psycheval: related to the psychological or spiritual

R

radicular: pertaining to a nerve root

radiculopathy: a pathological condition of the nerve roots

S

SI injections: injections of a long-acting steroid to treat pain in the sacroiliac (SI) joint

somatic: related to the trunk

SSEP: somatosensory-evoked potentials, their monitoring is used to assess the speed of electrical conduction across the spinal cord (electrical signals will travel slower if the spinal cord is significantly pinched)

systemic: affecting the entire body

T

thermography: diagnostic technique for measuring temperature on the surface of the body

U

ultrasound: using sound frequencies for diagnostic purposes

Web site Resources

A number of websites provide more in-depth information on Adult Low Back Pain. The table below includes details.

Web site Sponsor	Description	Web site Address
Agency for HealthCare Research and Quality	This website contains clinical practice guidelines, quick reference guides for clinicians, and consumer information (English and Spanish) on back pain.	http://www.ahrq.gov/clinic/
AMA	This website contains a wealth of easily accessible information on low back pain for physicians. This site contains the latest in low back pain treatment and advances, including step-by-step protocols and education for the patient. This site also has multiple links to other sites.	http://www.ama-assn.org
Center for the Advancement of Health	This website contains a series of studies on health behavior change in the clinical setting for chronic back pain.	http://www.cfah.org/
Mayo Clinic Oasis	Consumer information on back health-related topics.	http://www.mayoclinic.com
National Library of Medicines MEDLINE Plus/ National Institutes of Health	Federal government source of back health-related information and research; related links.	http://www.nlm.nih.gov/hinfo.html
Park Nicollet Health Services	Consumer information on back health-related topics.	http://www.parknicollet.com/healthadvisor/conditions/back-pain.cfm
Spine Universe in partnership with American Association of Neurological Surgeons, Scoliosis Research Society, AANS/CNS Joint Section on Disorders of the Spine and Peripheral Nerves, International Spinal Injection Society, National Association of Orthopaedic Nurses, National Pain Foundation.	Internet based network dedicated to dissemination of back pain information for clinicians and patients including education, consumer information community resources.	http://www.spineuniverse.com
WebMD	WebMD provides services for physicians and consumers on clinical processes and education.	http://www.webmd.com

Web site Sponsor	Description	Web site Address
Kim Burton & Martin Roland	The Back Book; Low back pain booklet for patients: evidence-based advice on how to deal with backache, stay active, etc. Promotes positive belief and reduces disability.	<p>http://www.balogh.com left click health and medicine, click on the stationery office then click on tso a-d scroll to The Back Book</p> <p>The Back Book: (pack of 10 copies). Kim Burton & Martin Roland. 1-217-355-9331</p> <p>6/2002 new edition. 23 pp. ISBN 011 702 950 5. For 1 pack of 10 copies, \$25.00; for 5 packs of 50 copies \$85; for 20 packs of 200 copies \$198.00. Only sold in packs of 10 copies - Back Book</p>
Park Nicollet	Low Back Pain; brochure	http://www.icsi.org/knowledge/ Listed under Patient Education Resources
Regions Hospital	Understanding Your Low Back; brochure	http://www.healthpartners.com/files/25929.pdf