This care process model (CPM) was created by the Functional Restoration/Chronic Pain Development Team of Intermountain Healthcare’s Pain Management Service. Based on national guidelines, emerging evidence, and expert opinion, this CPM provides guidance for primary care providers on diagnosis and treatment of acute and chronic low back pain. This document presents an evidence-based approach that is appropriate for most patients; it should be adapted to meet the needs of individual patients and situations, and should not replace clinical judgment.

Why Focus ON LOW BACK PAIN?

• Prevalence and cost. Low back pain (LBP) is a common disorder estimated to affect up to 84% of adults at some time in their lives. In the U.S., low back pain causes direct and indirect economic losses of nearly $90 billion each year. 

• Natural history of low back pain. LBP is often a self-limiting problem; few patients with acute LBP have a serious underlying condition, and therefore they can be managed with self-care or conservative treatment. However, for some patients acute LBP can lead to chronic pain — a year after an acute episode, 20% of patients report persistent back pain that limits activity. One critical challenge is predicting which patients are at risk for chronic LBP, and intervening appropriately.

• Treatment variation and best clinical outcome. Although there is an abundance of research-based evidence to guide best practice for managing both acute and chronic LBP, the treatment of LBP varies widely, often resulting in increased cost and failure to meet treatment goals.

Key Points IN THIS CPM

• In most cases, imaging tests are NOT needed to diagnose acute LBP. Imaging tests can lead to expensive, unnecessary interventions, especially in the first 6 weeks. If there are no “red flags” (signs of serious pathology or injury), avoid imaging tests.

• For most LBP, conservative treatment and self-care is adequate and effective. The core treatment for acute LBP includes education and reassurance, avoidance of bed rest, a short course of medications, and — depending on the risk of developing persistent LBP — a course of physical therapy.

• Certain psychosocial factors can complicate the course of LBP; a patient’s risk for developing chronic LBP can be used to customize treatment. This CPM recommends a tool that helps you assess a patient’s risk of developing chronic LBP, and assign patients to an appropriate treatment pathway.

• A nonsurgical back specialist is the best resource for patients with LBP persisting beyond 6 weeks. A nonsurgical back specialist can obtain appropriate imaging studies, identify the pain generator, perform or recommend appropriate nonsurgical interventions, and expedite care to a surgeon if necessary.

• Chronic LBP that persists despite ongoing conservative treatment and nonsurgical back specialist treatment is best managed using a team approach. This includes physical therapy, physiatry (PM&R), anesthesia or neurology with pain subspecialty, and mental health support if indicated.

What’s New In This Update?

• Indications for ankylosing spondylitis. Five key indicators for ankylosing spondylitis and direction to refer to a rheumatologist if it is suspected. (See page 3.)

• Goals and measures. Intermountain has data capture and reporting to measure prescriptions, imaging, and other information for our LBP patients. (See sidebar and page 2.)
DEFINITIONS

Types of leg pain: Patients with low back pain often experience leg pain. Leg pain falls into 3 general categories:

- **Referred leg pain** radiates into the groin, buttock, and upper thigh, but without objective neuropathic findings (listed below). Referred leg pain is not caused by the spinal nerve root, but the result of sensory nerves that supply the low back, pelvis, and thigh. (Note: legs that are tender to palpation are usually a primary issue of the leg, not radicular pain.)

- **Radicular pain** is sharp, shooting pain that radiates along the course of a nerve root (often extending below the knee) — but without neurologic changes such as sensory disturbances, muscle weakness, or hypoactive muscle stretch reflexes.

- **Radiculopathy** is caused by dysfunction of the spinal nerve root. Signs and symptoms include pain in the distribution of the nerve root (often extending below the knee), dermatomal sensory disturbances, weakness of muscles innervated by that nerve root, and hypoactive muscle stretch reflexes of the same muscle.

Stages of low back pain: While some guidelines define the stages of LBP solely based on time since symptoms began, this CPM recommends also considering function and response to treatment in staging LBP:

- **Acute LBP**: Pain <6 weeks
- **Subacute LBP**: Continued pain after 6 weeks, but patient continues to function well and core treatment provides some relief; patient may also be receiving nonsurgical back specialist treatment at this stage.
- **Chronic LBP**: Core LBP treatment has failed, nonsurgical back specialist treatment has not helped, the patient is not a surgery candidate — and persistent pain interferes with function and alters the patient’s life.

ALGORITHM: LBP DIAGNOSIS AND CORE TREATMENT

Patient presents with acute low back pain

**EVALUATION**

- Obtain **Patient History** (a)
- Perform a **Physical Exam** (b)

Any RED FLAGS for serious illness or injury? (c)

EVALUATE for serious pathology and refer if necessary (c)

**LEG pain?** See definitions at left.

**Radicular pain?**

**Signs of radiculopathy?**

ASSESS RISK of chronic LBP using the Keele START Back Screening Tool (e)

**INITIATE** core treatment for mechanical LBP

Low risk of developing chronic LBP

- Education and reassurance. Cover these points (see page 4 for more details):
  - A history and physical did not show anything dangerous. You’re likely to recover in a few weeks.
  - Staying active will help you recover.
  - Imaging tests are not needed at this stage.
- Medication (see page 4), based on pain severity:
  - 1st line: Acetaminophen or NSAIDs
  - 2nd line: Muscle relaxants, 7 days max (not in elderly)
  - 3rd line: Consider short-acting opioids, 3 weeks max (opioids have no better outcomes than NSAIDs in LBP)

Moderate/high risk

Education/reassurance and medication (see left) PLUS:

- Physical therapy (PT). Early PT can decrease the likelihood of subsequent back surgery, injections, or frequent LBP-related physician visits. Determine PT approach based on risk:
  - Moderate risk: Treatment with standard PT approach
  - High risk: PT with practitioner trained in psychologically informed approach
- Mental health screening and treatment if needed (see page 5).

**FOLLOW UP RISK in 3–6 weeks**

yes — continue core treatment

Improving?

no

REFER to nonsurgical back specialist (see page 6)

AND

FURTHER EVALUATE psychosocial factors (see page 6)

If disabling pain persists despite nonsurgical interventions and other treatment

INITIATE chronic LBP management (see page 7)

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(a) **Patient history.** The patient history for acute low back pain should include the components below. Intermountain’s **Patient Self History: Back Pain** form can help in obtaining this information.

- Description of current pain, including time of onset and how pain responds to positioning
- Previous back history, including tests and treatments
- Systemic disease (osteoarthritis, cancer, arthritis, infection, etc.)
- Neurological symptoms
- Bowel/bladder symptoms
- Biological and psychosocial risk factors

(b) **Patient exam.** The physical exam should include the components below. Intermountain’s **Patient Exam: Lumbar Spine Evaluation** form can help in the exam, and HELP2 Hot Text (“LBPexam”) is available for import from Wayne Cannon, Primary Care Program Medical Director. (Auto Text will be available in iCentra.)

- Motor weakness and reflex changes
- Sensory deficit (perineal or lower extremity)
- Dural tension (straight leg raise, prone femoral nerve test)
- Upper motor neuron findings
- Localized spinal tenderness
- Hip examination

(c) **RED Flag evaluation and response**

<table>
<thead>
<tr>
<th>Suspected condition and signs</th>
<th>Labs</th>
<th>Imaging (see page 6)</th>
<th>Referral</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suspected cauda equina syndrome:</td>
<td>• New bowel or bladder dysfunction</td>
<td>• For suspected cauda equina: spinal MRI*</td>
<td>URGENT referral to ortho/neuro spine surgeon</td>
</tr>
<tr>
<td>New perineal numbness</td>
<td>• Perineal numbness/saddle anesthesia</td>
<td>• For myelopathy/upper motor neuron changes: MRI* or CT, spine or brain</td>
<td></td>
</tr>
<tr>
<td>Persistent increase</td>
<td>• Persistent/increasing lower motor neuron weakness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Myelopathy/upper motor neuron changes:</td>
<td>• New-onset Babinski or sustained clonus</td>
<td>• X-ray: anteroposterior (AP) and cone down, consider CT or MRI* if x-ray is nondiagnostic</td>
<td></td>
</tr>
<tr>
<td>New-onset gait or balance abnormalities</td>
<td>• New-onset gait or balance abnormalities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper motor neuron weakness</td>
<td>• Upper motor neuron weakness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recent trauma with suspected spinal fracture</td>
<td>• Upper motor neuron findings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suspected compression fracture: Osteoporosis or osteoporosis risk</td>
<td>• X-ray: AP and cone down, repeat in 2 weeks if suspicion high</td>
<td>Referral to nonsurgical back specialist if imaging reveals compression fracture</td>
<td></td>
</tr>
<tr>
<td>Suspected cancer: History of cancer, multiple cancer risk factors, or strong clinical suspicion</td>
<td>• X-ray: evaluate in context with ESR</td>
<td>URGENT referral to oncologist</td>
<td></td>
</tr>
<tr>
<td>Suspected infection: Immunocompromised patient, UTI, IV drug use, recent spinal procedure, or fever/chills in addition to pain with rest or at night</td>
<td>• Consider MRI* with gadolinium or bone scan</td>
<td>URGENT referral may be needed, depending on type of infection</td>
<td></td>
</tr>
<tr>
<td>Suspected spinal deformity or spondylolisthesis: Age &lt;20, pain with standing, walking, and extension (occurs more often in athletes and dancers)</td>
<td>• Standing x-rays, 3 view, flexion, extension, plus cone down</td>
<td>URGENT referral to ortho/neuro spine surgeon if x-ray or MRI positive</td>
<td></td>
</tr>
<tr>
<td>Suspected spondyloarthropathies:</td>
<td>• X-ray: lumbar spine and sacroiliac joint</td>
<td>Referral to rheumatologist</td>
<td></td>
</tr>
<tr>
<td>• Ankylosing spondylitis (AS): at least 4 of the following: age of pain onset &lt;40 years; insidious onset; improvement with exercise; no improvement with rest; pain at night (with improvement upon arising)**##; also consider morning stiffness.</td>
<td></td>
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<tr>
<td>• Reactive arthritis/Reiter’s Syndrome: recent history of genitourinary or gastrointestinal tract infection; acute onset; usually affecting lower joints; asymmetrically painful and swollen joints; weight loss; high temperatures.</td>
<td></td>
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</tr>
<tr>
<td>• Spondyloarthropathy associated with inflammatory bowel disease (IBD): abrupt onset; asymmetric, affecting lower limbs; generally subsides in 6–8 weeks; 10% develop chronic arthritis; other symptoms: uveitis, chronic skin lesions, dactylitis, enthesitis.</td>
<td></td>
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<tr>
<td>• Psoriatic arthritis: asymmetric, affecting distal joints; morning stiffness; pain accentuated by prolonged immobility, alleviated by physical activity; psoriatic lesions.</td>
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</tr>
</tbody>
</table>

*Ensuring a quality MRI. To reduce the need for a repeat MRI, ensure that the imaging center uses a 1.5 tesla magnet. Large bore and standard MRIs usually provide better image quality than open MRIs. Order sedation if necessary to get a quality MRI. See page 6 for details on Intermountain’s **Spinal MRI Order Guidelines**.

(d) **RADICULOPATHY.** Fewer than 10% of patients have true radiculopathy, even with leg pain; the majority is mechanical or nonspecific.

Consider early referral to nonsurgical back specialist for patients with radiculopathy. Patients with signs of radiculopathy may also need more frequent evaluation and follow-up. Signs of radiculopathy are motor deficit, reflex deficit, sensory deficit, and positive dural tension signs: positive straight leg raise and positive prone femoral stretch.

(e) **Assessing for risk of developing chronic LBP based on psychosocial factors, using the StarT Back Tool.** This 9-item screening tool identifies factors that increase a person’s risk for developing chronic low back pain; it is helpful in stratifying care and can alert you to factors that can influence prognosis. See page 5 for information on using the form, and page 12 for information on accessing this form.

**Scoring:** On questions 1 to 8, every “Agree” answer is worth 1 point; on question 9, “Very much” or “Extremely” is worth 1 point.

- **Low risk:** Total score is 0 to 3
- **Moderate risk:** Total score ≥4, score on questions 5 through 9 is 0 to 3
- **High risk:** Total score ≥4, score on questions 5 through 9 is ≥4
ACUTE MECHANICAL LOW BACK PAIN

Once “red flags” for serious disease or pathology have been eliminated (see page 3), approximately 85% to 90% of LBP patients have mechanical or “nonspecific” back pain.

Core treatment

This CPM recommends core treatment elements based on national guidelines and a method for stratifying treatment based on a patient’s risk of developing chronic pain.

Education and reassurance

To correct misconceptions, calm fears, and encourage patients to participate in their own recovery, focus on these four messages:

• A detailed history and physical didn’t reveal any serious problem. The spine is strong and flexible, and it’s difficult to damage or dislocate anything.

• Most people recover in a few weeks. Most people with acute mechanical back pain are symptom free within 2 weeks. Among those that don’t recover quite as quickly, many are back to normal work and activities within 3 months.

• Staying active helps your back recover. Research shows that bed rest for more than a day or two can be harmful. If you keep moving, your back will recover more quickly. Walking, yoga, and pool exercise are particularly helpful — and if you sit at your job, try to stand up and move around for 2 to 3 minutes every half hour.

• Imaging tests are NOT needed at this stage. An x-ray or MRI isn’t necessary to know what to do, and imaging may lead to expensive, unnecessary treatment.

Appropriate pain medication, with a conservative approach

See the table below; note that opioids do not have better outcomes than NSAIDs.

<table>
<thead>
<tr>
<th>TABLE 1. Medications for acute low back pain</th>
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</thead>
<tbody>
<tr>
<td><strong>Class</strong></td>
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<td>-----------</td>
</tr>
<tr>
<td>1st line</td>
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<tr>
<td>NSAIIS</td>
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<td>2nd line</td>
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<tr>
<td>3rd line</td>
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<td></td>
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<tr>
<td>4th line</td>
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</tbody>
</table>

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Additional treatment, based on chronic LBP risk

Multiple studies have shown that specific psychosocial factors can increase the risk of developing chronic disabling symptoms\textsuperscript{CHO2,HIL3} — and that early identification of patients more likely to develop chronic LBP can help guide treatment.

A tool to assess risk, based on psychosocial factors

The \textit{START (Subgrouping for Targeted Treatment) Back Screening Tool}, developed by Keele University, is a 9-item tool that helps clinicians stratify patients into appropriate treatment.\textsuperscript{HIL1,HIL2} It identifies patients at low, moderate, or high risk for persistent, disabling pain. Its questions focus on established predictors for persistent disabling LBP: radiating leg pain, pain elsewhere, disability, fear of activity, anxiety, catastrophizing, low mood, and how much the patient is bothered by the pain. Click the image at right to open the form, or for information on ordering, see page 12.

Scoring the tool and using the results to stratify care

The Intermountain form that incorporates the \textit{START Back Screening Tool} includes a scoring guide. The total score (questions 1–9) identifies low risk versus moderate/high risk, and a distress subscale score (questions 5–9) discriminates between moderate and high risk. See the table below for scoring and recommendations at each risk level.

<table>
<thead>
<tr>
<th>TABLE 2. Stratified care based on the START Back Screening Tool</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk Categories and Recommendations</td>
</tr>
<tr>
<td>Risk level</td>
</tr>
<tr>
<td>Low risk: • Total score = 0 to 3</td>
</tr>
<tr>
<td>Moderate risk: • Total score = 4 or above • Distress subscale (q. 5–9) score = 3 or less</td>
</tr>
<tr>
<td>High risk: • Total score = 4 or above • Distress subscale (q. 5–9) score = 4 or above</td>
</tr>
</tbody>
</table>

Setting patient expectations for physical therapy

Help patients referred to physical therapy understand the following points:

• Physical therapy includes guided exercise and exercise plans — exercise is a long-term therapy for low back pain. (See page 8 for exercise advice to give patients who are not referred to PT.)
• Patients may not get better after just one or two sessions; it takes time and daily exercise to improve their pain.
• Physical therapy may include strategies to change their thinking patterns about pain and activity.

VALIDITY OF THE TOOL

The \textit{START Back Screening Tool} has been tested for reliability and validity in an array of settings.\textsuperscript{HIL1,HIL2,HIL3,HIL4,FRI}

A recent, randomized clinical trial showed that using the tool to stratify treatment can improve efficiency in physical therapy referrals, improve clinical outcomes, and reduce costs.\textsuperscript{HIL2}

MENTAL HEALTH INTEGRATION

Mental Health Integration (MHI) is a program that coordinates mental health services within the primary care clinic. For more information on the MHI process and tools (including baseline packets to screen for mental health disorders), see page 12. If your clinic does not have the MHI program, you can use the MHI screening packets and refer to a mental health specialist if necessary.

PHYSICAL THERAPY FOR SOME LOW-RISK PATIENTS

This CPM suggests that the \textit{START Back Screening Tool} can be used to identify low-risk patients who will often recover without physical therapy. However, current physical therapy guidelines\textsuperscript{CHO1} also recommend that some low-risk patients can benefit from early evaluation and treatment by a physical therapist.
Nonsurgical back specialist referral after 6 weeks

A nonsurgical back specialist is the best treatment resource for patients with LBP that persists beyond 6 weeks. These providers include physiatrists, anesthesia/pain management specialists, and sports medicine specialists. They may work independently, in spine programs, or in pain clinics.

Referral considerations

A multidisciplinary spine care program is the best option. These programs integrate nonsurgical treatment, physical therapy, surgical treatment, and other modalities. (For spine procedures, an effective procedure suite has state-of-the-art equipment, uses fluoroscopy, has experienced staff, and can give IV sedation and antibiotics.)

Imaging considerations

Keep in mind that routine imaging at the acute stage does not improve outcomes in mechanical low back pain — and may lead to unnecessary or ineffective treatment. Avoid imaging for patients who do not have signs of serious pathology (see red flags on page 3), unless pain has persisted longer than 6 weeks.

Common questions about imaging tests as part of a referral:

- **Should I order imaging tests as part of a nonsurgical back specialist referral?**
  In most cases, no — unless there are obvious signs of radiculopathy or red flags for serious pathology.

- **Who should recommend interventions based on imaging tests?** A nonsurgical back specialist can evaluate imaging to identify which interventions (if any) may be helpful. It is not generally recommended for primary care providers to order interventions directly. However, it may be appropriate for a PCP to order an intervention for established patients who have been helped by a specific procedure in the past, if the same symptoms recur.

Goals of nonsurgical back specialist care

A nonsurgical back specialist aims to do the following (see page 10 for further details):

- Identify the pain generator through physical exam, history, and imaging
- Perform or recommend appropriate nonsurgical interventions (e.g., manipulation or manual therapy, local injections, or spinal injections)
- Initiate and encourage a regular aerobic exercise and conditioning program
- Expedite care to a surgeon if necessary

Setting patient expectations for nonsurgical specialist treatment

Patients should understand that the specialist evaluation may or may not reveal the cause of their pain and that it does not always result in procedures or a surgery referral. Remind patients that while the nonsurgical back specialist is evaluating or treating them, they should continue to remain as active as possible.

Further psychosocial evaluation after 6 weeks, if needed

If a patient’s pain and/or function have not improved after 6 weeks, and the patient has not yet been evaluated using the MHI Adult Baseline Packet, consider administering the packet. See the MHI Care Process Model for more information.
Patients with LBP that does not improve with core treatment or nonsurgical back specialist treatment — and that interferes with work and/or life activities — will need chronic management.

**Pain assessment**

- **For patients who have received core LBP treatment and nonsurgical specialist treatment without success:** Follow the advice in Intermountain’s *Management of Chronic Non-Cancer Pain Care Process Model (CPM)* (see sidebar) to assess psychosocial factors, medication-related risks, and other factors that can impact chronic pain management.

- **For patients who present to you with LBP of 12 weeks or more:** Screen for red flags that may indicate serious pathology (see page 3); refer if needed. If the patient has not yet been assessed by a nonsurgical back specialist, refer the patient for evaluation. If nonsurgical back specialist treatment is not helpful, follow the assessment advice in the *Chronic Non-Cancer Pain CPM* (see sidebar).

**Psychosocial evaluation**

If a patient has not yet been evaluated using the *MHI Adult Baseline Packet*, administer the packet and create a treatment plan for any mental health conditions that are identified, based on their complexity and severity. See the *MHI CPM* for more information about the MHI process and supporting tools.

**Patient education and pain management plan**

Intermountain’s booklet *Managing Chronic Pain: Reclaiming Your Life* helps patients take an active approach to pain management. Self-care education books are an efficient way to supplement provider advice, and self care has been shown to be as effective as modalities such as spinal manipulation or acupuncture. The booklet educates patients on proven strategies for low back pain such as mindfulness meditation, along with medication safety and other topics.

The *Pain Management Plan* that accompanies the *Chronic Non-Cancer Pain CPM* is a shared decision-making tool that documents the patient’s pain management goals, treatments, exercise, and other self-care approaches, and it can help engage patients in self-management. Click the images to open these tools or see page 12 for ordering information.

**Medication management**

Intermountain’s *Chronic Non-Cancer Pain CPM* contains a table listing chronic pain medications and links to tools for medication management. Key points on medication for chronic LBP are as follows:

- **Consider NSAIDs as first-line treatment.** While NSAIDs and opioids are both effective for chronic LBP, NSAIDs should be considered as first-line treatment. Avoid opioids if possible, based on the significant rate of opioid side effects and lack of convincing superiority of opioids over NSAIDs.

- **Monitor carefully.** Effective pain medication management includes regular monitoring of analgesia, adverse effects, aberrant behavior, activity, and affect.

- **Consider sleep.** Assess for sleep disturbance due to pain, and consider treating sleep problems with low-dose tricyclic antidepressants, unless contraindicated.
Considering other treatment options

Patients with back pain that persists long term — pain that is not helped by nonsurgical back specialist treatment — should consider treatment beyond pain medication. In discussing treatment options with patients, keep these points in mind:

- **Continue to encourage movement.** Exercise and everyday activity help to preserve function, delay or prevent further disability, and ease pain. Common exercise strategies for low back pain include:
  - Walking and aerobic exercises, which increase baseline physical activity levels, improve blood flow, and may increase endurance of postural muscles.
  - Core strengthening exercises, which focus on abdominal, paraspinal, gluteal, diaphragm, and pelvic floor muscles to foster lumbar stability.
  - End-range flexion/extension stretches with repeated movements (such as the McKenzie method), which are likely to be most effective when customized by a physical therapist or physician for each patient.
  - Yoga, which has been proven effective for pain management (see the table at right).
  - Aquatic exercise, which may be preferred by some patients, as warm water can enhance flexibility and support movement.

- **Consider a team-based approach.** Functional restoration programs, which provide multidisciplinary team care with a biopsychosocial approach, have been shown to improve function and reduce pain (see the table at right). If a full functional restoration program is not available in your region, consider a team-based approach that incorporates some of the elements of functional restoration (such as using MHI providers and creating plans for consistent communication with physical therapists and other specialists to whom the patient is referred).

- **Take a shared decision-making approach when discussing other treatment options.** This approach helps patients and families weigh the information about a treatment option, clarify their goals and values, and make the decision that’s right for them. Key elements of shared decision-making include:
  - Using conversational techniques that enhance communication (see sidebar).
  - Helping patients and families weigh the risk and cost of an option against its potential benefits. See the table at right for evidence-based outcomes research on a range of common treatment options patients may consider. (Intermountain Healthcare is piloting several online shared decision-making tools for low back pain; this CPM will include links to recommended tools as the pilot concludes.)

- **If patients want to try a benign, low-cost therapy, supporting this decision may be helpful — even if the research is not conclusive about outcomes.** The sense of self-efficacy that may come from pursuing an option can bring its own benefits in terms of pain and function.

- **If the patient asks about surgery, stress the guidance that a nonsurgical back specialist can provide.** An evaluation (or repeated evaluation) by a nonsurgical back specialist may be more helpful than a direct referral to a surgeon. If the specialist feels the patient needs a surgical evaluation, then a referral can be made.
### TABLE 3. Treatment options for chronic low back pain: outcomes research

<table>
<thead>
<tr>
<th>Treatments</th>
<th>Research on outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Exercise therapy</strong></td>
<td>Exercise therapy reduces pain and improves function in patients with chronic nonspecific LBP, as shown by several studies. Exercise therapy can be guided by a physical therapist or nonsurgical back specialist. Independent exercise can also be recommended by the primary care provider — see the general suggestions on the previous page.</td>
</tr>
<tr>
<td><strong>Physical therapy</strong></td>
<td>Spinal manipulation and mobilization, patient education/counseling, and exercise plans — guided by a physical therapist — can improve mobility and reduce pain/disability in some patients with subacute and chronic LBP.</td>
</tr>
<tr>
<td><strong>Yoga</strong></td>
<td>Several studies showed that yoga brought significantly better pain reduction than usual care, education, or conventional exercises.</td>
</tr>
<tr>
<td><strong>Team-based programs</strong></td>
<td>Functional restoration programs that integrate medical and psychosocial treatment improve function and reduce pain in patients with chronic LBP. If a functional restoration program is not available, consider incorporating as many features of team-based care within your clinic as possible — such as incorporating MHI and planning for consistent communication with physical therapists and other specialists.</td>
</tr>
<tr>
<td><strong>Cognitive behavioral therapy (CBT)</strong></td>
<td>Cognitive behavior therapy or psychoeducation are recommended to treat chronic LBP in multiple evidence-based guidelines. Multiple trials have shown that CBT is more effective for pain, functional status, and behavioral outcomes than placebo or no treatment.</td>
</tr>
<tr>
<td><strong>Surgery for lumbar spinal stenosis, radiculopathy, or deformity</strong></td>
<td>• Lumbar spinal stenosis: In highly symptomatic patients (with or without degenerative spondylolisthesis), the best proven intervention is surgery.  • Radiculopathy or radicular pain: In general, surgery brings moderate benefits, according to American Pain Society Guidelines. (Note that radiculopathy with progressive neurologic deficit or cauda equina syndrome is an absolute indication for surgery.)  • Deformity: Surgery is an effective treatment for scoliosis or spondylolisthesis.</td>
</tr>
<tr>
<td><strong>Massage therapy</strong></td>
<td>Massage may benefit some patients with chronic nonspecific low back pain if combined with exercise and education.</td>
</tr>
<tr>
<td><strong>Acupuncture</strong></td>
<td>Two recent systematic reviews indicated that acupuncture was more effective than no treatment and could be a useful supplement to conventional therapies, but patient beliefs may play an important role in the effectiveness of this treatment.</td>
</tr>
<tr>
<td><strong>Surgery for chronic mechanical back pain</strong></td>
<td>According to American Pain Society Guidelines, surgery has small to moderate benefits, but the majority of patients do not have an optimal outcome (defined as minimum or no pain, no pain medications or only occasional use, and return of high-level function).</td>
</tr>
<tr>
<td><strong>TENS</strong></td>
<td>A 2008 systematic review reported conflicting evidence about whether TENS reduced back pain intensity, and two trials showed TENS did not improve back-specific functional status.</td>
</tr>
<tr>
<td><strong>Traction</strong></td>
<td>Traction is not recommended to treat low back pain; this advice is consistent across a number of major guidelines.</td>
</tr>
<tr>
<td><strong>Surgery for degenerative changes shown on MRI</strong></td>
<td>• A 2011 evidence review concluded that surgery is not recommended if it is based on degenerative changes on MRI.  • Surgical strategies: A 2008 systematic review concluded that lumbar spinal fusion is beneficial for treating fractures, infections, or spondylolisthesis, but offers no or limited benefits over nonoperative management for common degenerative changes. Disc arthroplasty offers similar outcomes to fusion. There is no convincing evidence to support dynamic stabilization surgery for chronic LBP.</td>
</tr>
</tbody>
</table>

*Key to symbols:*

- ✓ = Research shows good outcomes and/or treatment is recommended in major guidelines.
- ? = Research is uncertain on outcomes.
- ✗ = Research shows limited benefits and/or treatment is not recommended in major guidelines.
NONSURGICAL BACK SPECIALIST TREATMENT

The table below describes problems that can generate low back pain, how a nonsurgical back specialist evaluates for each problem, and treatments that the specialist may consider.

<table>
<thead>
<tr>
<th>Pain generator</th>
<th>Evaluation</th>
<th>Treatments the specialist may consider</th>
</tr>
</thead>
</table>
| **Lumbar spinal stenosis:** Bony and ligamentous narrowing of the spinal canal that compresses nerves; typically degenerative, most common in patients >50 years old | • Symptoms: Buttock, leg, and back pain when standing and walking, relieved when sitting  
• Exam: Kyphotic gait, variable weakness, numbness, and loss of DTR; negative straight leg raise test (SLR)  
• Imaging: MRI imaging of choice | • Epidural steroid injection trial  
• Physical therapy trial  
• Surgical referral: In highly symptomatic patients, the best proven intervention is surgical decompression, with or without fusion |
| **Degenerative spondylolisthesis:** Often associated with spinal stenosis in patients >50 years old, especially women | • Symptoms: Back pain when standing and walking, relieved when sitting  
• Physical exam: Kyphotic gait; pain with lumbar extension  
• Imaging: Standing x-ray and flexion and extension | • Physical therapy with lumbar-based stabilization (core strength) and leg stretching/strengthening  
• Facet cortisone injections and/or radiofrequency ablation  
• Surgical referral for lumbar fusion |
| **Facet pain** | • Symptoms: Mechanical back pain with or without proximal lower limb pain  
• Physical exam: Exam does not predict the source of pain; degeneration of facets is a normal finding  
• Imaging: Not helpful; facet degeneration is a normal finding | • Physical therapy  
• Facet cortisone injection and/or radiofrequency rhizotomy |
| **Herniated disc** | • Symptoms: Acute and often severe buttock, leg, and back pain, usually worse when sitting, bending, lifting, or sneezing  
• Physical exam: Positive SLR; variable numbness, weakness, and loss of DTR  
• Imaging: MRI | • Education to explain the natural history of this problem (favorable to improvement)  
• Epidural cortisone injections  
• Surgery referral indicated with progressive neurologic deficit, profound weakness, or lack of improvement in 3 months |
| **Degenerative disc:** This is a normal finding that may also cause mechanical back pain; more commonly symptomatic in younger people | • Physical exam: Pain with lumbar flexion; negative straight leg test  
• Imaging: Not helpful; disc degeneration is a normal finding | • Physical therapy  
• Education to continue activity/exercise, vary activities, and avoid prolonged sitting or driving  
• Manipulation (may be considered)  
• Long-term home exercise program for stabilization, core endurance and leg flexibility; McKenzie-style extension exercises  
• Rarely indicated: Discography, intradiscal procedures, and surgery |
| **Sacroiliac (SI) joint:** SI joint pain is more common in pregnant women, inflammatory spondyloarthropathy, or after a fall on the buttocks  
*Often overdiagnosed* | • Symptoms: Buttock and proximal leg pain, which may be worse when sitting, bending, or lifting  
• Physical exam: Exam often nonspecific but points to upper buttock or mid- buttock as most painful location; positive FABER (flexion, abduction, and external rotation) test  
• Imaging: Imaging tests often not helpful; diagnosis often made by image-guided injection | • Manual therapy with mobilization and stabilization, provided by a physician or physical therapist  
• Image-guided SI joint cortisone injection  
• Surgery almost never indicated |
REFERENCES


WEB RESOURCES FOR PROVIDERS

- American Pain Society:  
  www.ampainsoc.org
- American Academy of Pain Management:  
  www.aapainmanage.org
- American Academy of Pain Medicine:  
  www.painmed.org
- Back Pain CME Learning Center:  
  www.medscape.org/resource/back-pain/cme

WEB RESOURCES AND BOOKS FOR PATIENTS

Websites:
- Back pain overview on MedLinePlus:  
- Back Pain Health Center on WebMD:  
  www.webmd.com/back-pain/guide/default.htm
- American Chronic Pain Association:  
  www.theacpa.org
- The Pain Action Back Pain Library:  
  www.painaction.com/members/Home.aspx?paintypeid=1

Books:

SUMMARY OF INTERMOUNTAIN RESOURCES

For providers:

To find the tools listed below, go to intermountainphysician.org/clinicalprograms, choose Clinical Topics A–Z, and then choose “Pain Management” from the A to Z menu. A Clinical Topic Page (see the example at right) provides access to CPMs and supporting tools. Resources include:

- Low Back Pain CPM
- Supporting forms:
  - Patient Self-History: Back Pain
  - Patient Exam: Lumbar Spine Evaluation
  - Start Back Screening Tool
  - Spinal MRI Order Guidelines

For patients:

- Clinicians can access Intermountain patient education materials using the Clinical Topic Pages described above, and order copies via printstore.com. Call 801-442-3186 for more information.
- Clinicians can access additional patient education from Krames from the PEL page. Type PEL in the browser window (from within the firewall) and click Krames On-Demand. Type “low back pain” to search for available materials. Appropriate materials will also appear in iCentra based on diagnosis code or can be found through the Education Module.
- Patients can also be referred to Intermountain’s public website at intermountainhealthcare.org for resources. To find resources, patients should open the Health Topic Library and search for “low back pain.”

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