Provincial Spine: Low Back Primary Care Clinical Pathway

Quick Links: Primer & Expanded details | Provider resources | Patient pathway | Provide feedback

1a. History (Onset-acute/sub-acute), mechanism of injury, episodic, alleviating or exacerbating factors, positional factors, central vs peripheral dominant, etc.).

1b. Physical Examination Observe, examine & palpate (e.g., deformities), posture, gait, tenderness. Neuro exam.

2a. Red Flags

Fracture: History of trauma; age >70; osteoporosis; prolonged corticosteroid use; sharp/stabbing pain aggravated by movement or pressure
Cauda Equina: Change to bladder or bowel function; numbness, tingling or burning in saddle area; often with radiculopathy or weakness in lower limbs; sensory, motor, or reflex changes.
Spinal Cord Pathology: Rapid progression of sensory, motor, hyperreflexia; clonus; imbalance; gait disturbances.
Infection: Pain with systemic features of infection.
Abdominal and Visceral Disease: Abdominal pain radiating to back; faint or fainting spells.

Yes → **Emergent** referral to emergency department or RAAPID. For **spinal cord pathology**, if progression of symptoms isn't rapid, consider referral to spine surgeon using referral pathway or page spine surgeon.

Malignancy: History of cancer, night sweats, unexplained weight loss, deformity or masses, unremitting pain.

Yes → **Urgent imaging/lab work and consultation**

If unsure at any time consult specialist advice

2b. Other Considerations and Yellow Flags

Rheumatologic conditions: Rule out differential conditions such as inflammatory arthropathy (AM stiffness>30min, age<50).
Psychosocial flags & indicators for poor outcomes: See additional information.

Yes → **4. Consider Advice & Referral Information**

3. Follow Chronic Low Back Pain Pathway: All new patients should be thoroughly assessed.

If pain duration >12 weeks

No red flags or other concerns

5. Imaging is only required if there is clinical suspicion of serious pathology (Red Flags) or if planning a specific intervention. Otherwise, no imaging should be ordered before 12 weeks. Additional imaging recommendations in expanded details.

6. Identify Mechanical Back Pain Pattern

Where is your pain the worst/ dominant?

Back/buttocks → Is your pain constant or intermittent?
- Constant (rule out Red Flags)
- Intermittent → What increases your typical pain?
  - Flexion (+/- extension) → Pattern 1
  - Extension only → Pattern 2

Leg → Is your pain constant or intermittent?
- Constant (rule out Red Flags)
- Intermittent → What increases your typical pain?
  - Flexion (+/- extension) → Pattern 3
  - Extension only → Pattern 4

If the pattern is NOT identified → **7. Patient may have NON-MECHANICAL BACK PAIN**: Consider further investigations and appropriate clinical support tools.

8. Provide all patients with non-surgical management and education (general and pattern specific): Rest positions, pharmacologic and non-pharmacologic options, exercises, and functional recommendations should be trialed for 6 weeks

9. Rehab Options: If indicated, consider the use of Rehab Advice Line (RAL) as well as community physiotherapy

Consider → **Indicators for poor outcomes, including psychological flags (2b)**

Primary care 6-week follow-up: Reassess symptoms and risk factors and re-evaluate diagnosis. Is there improvement?

Not improving / Improving

Consider:
- **Modifying** treatment methods
- **Obtaining** appropriate labs and imaging (see DI checklist in section **6**)
- **Referral** to other interdisciplinary services
- **Reviewing** indicators for poor outcomes
- **Injection** should not be first-line of treatment in primary care

Reinforce non-surgical management strategies and follow-up as needed

12-week follow-up: Reassess symptoms and risk factors and re-evaluate diagnosis. Is there improvement?

Improving

Not improving

Patient NOT appropriate for referral to a specialist OR psychosocial factors are affecting the patient's recovery

Refer to **Consult & Imaging Decision AID TOOL (5)** and
Reassesses **Yellow Flags and indicators for poor outcomes (2b)**

Patient appropriate for referral to a specialist → REFER to spine surgeon

This primary care pathway was co-developed by primary and specialty care and includes input from multidisciplinary teams from all five zones. It is intended to be used in conjunction with specialty advice services, when required, to support care within the medical home.

EXPANDED DETAILS

Pathway Primer

This pathway focuses on the primary care management of adult patients presenting to Primary Care with low back pain that is acute, sub-acute or chronic in nature. This pathway will help primary care providers to manage low back pain within the medical home and indicate what referral triggers to watch for during ongoing patient monitoring.

Low back pain can be caused by problems with the muscles, ligaments, discs and bones (vertebrae) or nerves. Often, back pain is caused by strains and sprains involving the muscles or ligaments [1]. It is widely known that the majority of adults will have low back pain at some point in their lives. For many individuals, episodes of low back pain are self-limited and back pain is rarely an indication of serious medical illness [2]. In Alberta, nearly 10% of the population accessed physician services for a spine condition, amounting to nearly a million visits per year. Patients who continue to have low back pain beyond the acute period (<6 weeks, sequential days) have subacute pain (≥ 6 weeks to < 3 months, sequential days) and may go on to develop chronic pain (>3 months-sequential days) [1] [2]. Some patients have recurrent back pain (at least 2 episodes in the past 12 months).

As depicted in Figure 1 [3], education and conservative management should be considered as first line management for back issues. In most instances, in the absence of red flags or progressive motor loss, surgery is only indicated if patient has complied with and failed ≥ 6 months non-surgical measures. Psychosocial factors that may be impacting recovery should be addressed prior to surgical consult. If available, consider referral to a trained spine expert, physiatrist, or sports medicine physician, prior to surgical consult. In Alberta, of all patients who seek medical care from their primary care provider for spine (low back) pain, a relatively small percentage actually require a referral to specialty care and of these, not all will end up needing surgical management.

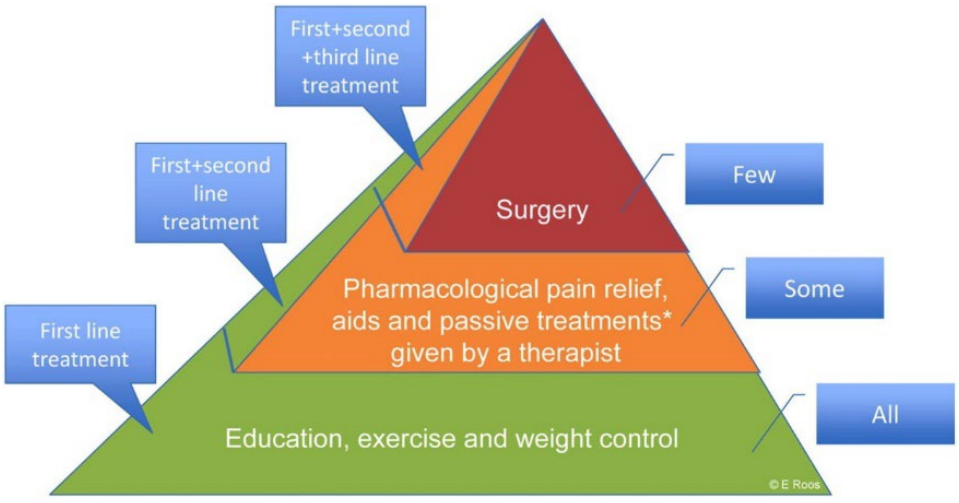


Figure 1. Illustration showing treatment focus that can be applied for back pain.

1a. History

Perform a focused history taking, including asking the patient the following questions.

1. What is the current problem or primary concern with your back?
2. How did your injury occur? Is this a low back injury that you suffered at work?
3. When did your problem start? (Specify date and determine if: **Acute**: < 6 weeks; **Sub-acute**: ≥ 6 weeks to <3 months; **Chronic**: ≥ 3 months; **Recurrent**: at least 2 episodes in the past 12 months)
4. Have you had similar episodes previously (e.g., have you had this type of pain before)?
5. Have you ever had surgery on your low back? (Which surgeries? When?)
6. What diagnostic imaging/lab tests have you had for your low back condition?
7. What medications have you had for your low back condition and were they effective? What medications are you currently on?
8. What treatments have you had, or healthcare providers have you seen, for your low back condition? Were they effective? When did you last attend treatment with that healthcare practitioner?
9. Do you have any medical conditions? Which ones?
10. Have you had any new, unexpected accidents with your bowel or bladder function, or any difficulties going to the bathroom since this episode of your low back condition started?
11. Do you have numbness, weakness, tingling, or burning sensations in the leg(s)? In the saddle area?
12. Knowing that you may experience recurring pain in your back, are you able to find relief with bending forward or backwards (e.g., is there ever a time or position you can get in where your pain is completely relieved?)
13. If age of onset <50 years old, are you experiencing morning stiffness in your back lasting >30 minutes after up and moving around?
14. Is there anything you CANNOT do now that you could do before the onset of your low back condition? If yes, consider use of risk stratification for poor outcomes.

1b. Physical Examination

Stepwise list provides an overview of the physical examination steps to be considered: Physical Exam checklist.

Step 1: OBSERVE: a. deformities, b. posture, c. asymmetries (e.g., side-to-side, upper vs lower extremities)

Step 2: EXAMINE: a. gait, b. standing, c. sitting, d. lying

Step 3: PALPATE for: a. vertebral point tenderness, b. soft-tissue tenderness

Step 4: DETERMINE points of maximal tenderness

2a. Red Flags

Screen all patients for red flags. May a) require additional resources to help manage the patient if not already being managed or b) need referral to alternative pathway measures. Groups of symptoms as listed below indicate red flags.			
DIFFERENTIAL DIAGNOSIS	**INDICATIONS**	**REFERRAL**	**ESSENTIAL INVESTIGATIONS**
Fracture	• Recent history of high-energy trauma (fall from height or MVA) • Sharp, stabbing pain aggravated by movement or pressure • Recent history of mild or moderate trauma AND any of: Age >70 years old, osteoporosis, or prolonged corticosteroid use	Same day urgent referral to emergency department	X-ray CT Bone Scan
Cauda Equina Syndrome	• Numbness, weakness, tingling, or burning sensations in the saddle area • Unexpected accidents with bowel or bladder function, or difficulties going to the bathroom • Bilateral/alternating radiculopathy; progressive bilateral foot or leg weakness	Same day urgent referral to emergency department	MRI
Spinal Cord Pathology (Myelopathy)	• Altered loss of sensation • Global progressive motor loss • Accentuated deep tendon reflexes • Gait disturbance • Clonus • Reduced fine motor control & balance	Same day urgent referral to emergency department.	MRI

DIFFERENTIAL DIAGNOSIS	**INDICATIONS**	**REFERRAL**	**ESSENTIAL INVESTIGATIONS**
Infection	• Constant or progressive pain unrelated to activity or not relieved with rest • Swelling unrelated to trauma • Systemically unwell, fever • Obvious wound • History of infection (e.g., discitis, osteomyelitis, epidural abscess, paraspinal abscess) • History of drug abuse • Immunosuppression (e.g., HIV)	Same day urgent referral to emergency department	MRI
Abdominal & Visceral Disease (e.g., pancreatitis, aortic aneurysm)	• Abdominal pain radiating to the back • Sudden onset of pain in absence of aggravating features (i.e., pain not aggravated by spinal movement) • Faint or fainting spells	Same day urgent referral to emergency department	Based on presentation
Malignancy	• History of cancer • Night sweats • Unexplained/unintentional/sudden weight loss • Unexplained deformity or mass • Unremitting pain that is unrelated to activity and not relieved with rest • Acute onset with no identifiable cause	Urgent imaging/lab work and consultation.	CT MRI

2b. Other Considerations and Yellow Flags

Rheumatologic Conditions

If the patient is over 50 years of age, are they experiencing morning stiffness in their back that lasts more than 30 minutes after being up and moving around?

- Consider collaborative management with Rheumatology

Psychosocial Flags

Patient assessment may identify other conditions that may require additional resources to help optimize management. These resources may include additional advice services, referrals to other medical specialties and connections to programs and services designed to target root causes and psychosocial factors. Programs and services may vary by zone. For further information follow the Spine: Low Back Assessment Clinical Pathway (ahs.ca)

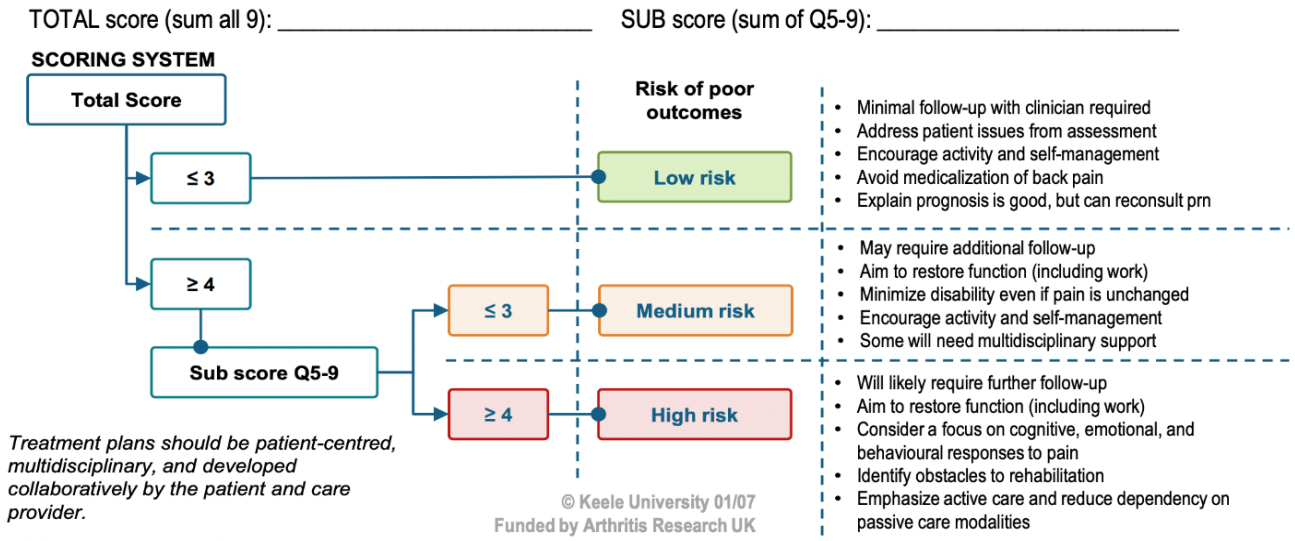
Indications for Poor Outcomes

The © Keele STaRT Back Screening Tool

This tool characterizes patients by risk of persistent symptoms (low, medium, or high) which assesses likely recovery outcomes and allows the clinician to tailor interventions appropriately.

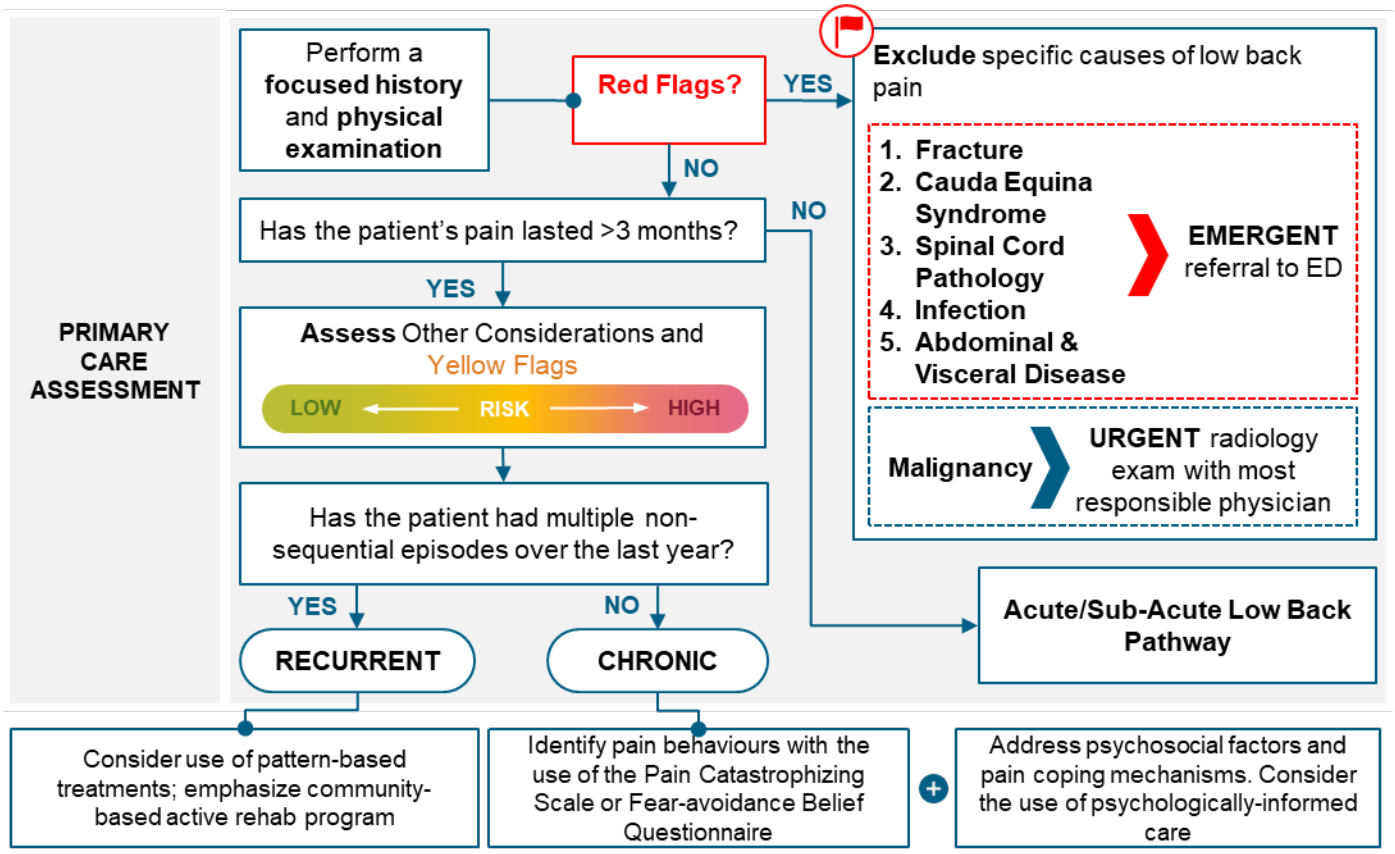
Thinking about the last 2 weeks, "X" your response to the following questions:	**Disagree (0)**	**Agree (1)**
1. My back pain has **spread down my leg(s)** at some time in the last 2 weeks		
2. I have had pain in the **shoulder** or **neck** at some point in the last 2 weeks		
3. I have only **walked short distances** because of my back pain		
4. In the last 2 weeks, I have **dressed more slowly** than usual because of back pain		
5. It's not really safe for a person with a condition like mine to be physically active		
6. **Worrying thoughts** have been going through my mind a lot of the time		
7. I feel that **my back pain is terrible** and **it's never going to get any better**		
8. In general, I have not enjoyed all the things I used to enjoy		

9. Overall, how bothersome has your back pain been **in the last 2 weeks?**				
Not at all	**Slightly**	**Moderately**	**Very much**	**Extremely**
☐	☐	☐	☐	☐
0	**0**	**0**	**1**	**1**



3. Chronic Low Back Pathway

Click on the link for Chronic Low Back Pathway for patients where pain has persisted for more than 12 weeks.



4. Advice Options

For emergency medical attention, call RAAPID for on-call Orthopedic Surgeon or call 911.

Zone	Program	Online Request	Phone Number
Urgent Telephone			
All Zones	RAAPID	N/A	**North:** 1-800-282-9911 or 780-735-0811 **South:** 1-800-661-1700 or 403-944-4486 *(In South Zone:* Call Surgeon on call to arrange urgent consult)
Non-Urgent Electronic			
All Zones	Netcare eReferral		N/A
Non-Urgent Telephone			
Edmonton, North	ConnectMD	Online Request	1-844-633-2263

In addition to where specified in the clinical pathway algorithm, you can request non-urgent advice at any point when uncertain about medications, next steps in treatment, imaging, or resources available.

4. Referral Process

Referral pathways are guidelines to help referring providers know what information, labs and diagnostic imaging are required with their referral to a specialty. These pathways are co-designed with Primary and Specialty Care, AHS Operations, and patients to ensure the right amount of information is included throughout the referral process to triage the patient as quickly as possible. To ensure referring providers have referral information at their fingertips, referral pathways may link to clinical pathways when available. AHS manages referral pathways and extensive work is ongoing as part of the Alberta Surgical Initiative. If you have questions or want to know more about the referral pathway development process, please email access.ereferral@ahs.ca.

- Urgent Referral – Call surgeon on call via RAAPID or call 911.
- Follow the Provincial Orthopedic & Spine, Adult Referral Pathway.
- Alberta Referral Directory is also a helpful resource for all referral information.

5. Imaging

The problems that cause low back pain can rarely be seen on imaging tests. Best practice clearly would recommend against routine imaging for low back pain [4] [5] unless: (a) there are clinical reasons to suspect serious underlying pathology (i.e., red flags), or (b) imaging is necessary for the planning and/or execution of a particular evidenced-based therapeutic intervention on a specific spinal condition.

Unless the image has a direct bearing on the treatment decision it is not required. Spinal “abnormalities” in asymptomatic individuals are common and increase with age. For those with back dominant symptoms (i.e., axial back pain) there is an extremely high false positive rate; most of the findings have no correlation with the clinical picture. For most low back complaints obtaining spinal imaging does not improve patient care but can lead to inappropriate interventions and may have a detrimental impact on patient outcomes.

Additional evidence: Spine - Choosing Wisely Canada.

These consult and imaging decision recommendations are intended for patients who do not respond to treatment after a 12-week period.

For imaging recommendations and requirements, please follow the Provincial Orthopedic & Spine, Adult Referral Pathway. CT myelogram should be considered for patients unable to undergo an MRI.

For patients with Lumbar Radiculopathy or Neurologic Claudication, who have not had an MRI will not be seen by spine triage and assessment clinic (STAC).

6. Mechanical Back Pain Patterns

Mechanical back pain (MBP): Arises from the spinal structures including bone, ligaments, discs, joints, nerves, and meninges. MBP is experienced in the lumbar region, buttocks, coccyx, or over the greater trochanters. MBP may also extend to include the groin, genitals, and upper thigh region as a result of referred pain. MBP fluctuates with activity and is produced by movement/positions and is relieved by rest or change in posture. Leg pain is radicular pain felt below the gluteal fold resulting from irritation of one or more nerve roots, particularly of the sciatic or femoral nerves.

Use the algorithm to determine **low mechanical back pain pattern**. If pattern is NOT identified, the patient may have **non-mechanical back pain**. Consider further investigations and other clinical support tools.

Pattern 1 	• Pain is worst in the back, buttocks, upper thigh, or groin, and may radiate into the legs • Pain may be constant or intermittent • Pain is **worse** when sitting or bending forward and **better** when walking or standing • Pain may be eased by bending backwards • Normal neurological exam
Pattern 2 	• Pain is worst in the back and buttocks, and may radiate into the legs • Pain is **always** intermittent • Pain is **worse** when bending backward and when standing or walking for extended periods • Pain **may be eased** by bending forward or sitting • Normal neurological exam
Pattern 3 	• Pain is mainly in the legs, but back pain may also be present • Pain is constant and often worse when sitting or bending • Pain can be made worse by any movement or specific back positions in the acute stage • Pain **may lessen** in some rest positions • Positive neurological findings

Pattern 4 	• Pain is worst in leg and can be described as heaviness or aching • Pain is always intermittent **Flexion aggravated (FA)** - Pain aggravated with flexion - Pain improved or abolished with unloaded extension - Variable neurological findings **Flexion relieved (FR) (neurogenic claudication)** - Pain is relieved by a change in position, proper rest, and usually by bending forward - Pain is worse when walking or bending backwards - Negative nerve root irritation tests

7. Non-Mechanical Back Pain

Non-mechanical back pain (NMBP): associated with symptoms or signs of serious medical (e.g., inflammatory arthritis, neoplasm) or psychological conditions. If you suspect non-mechanical back pain, reassess for red and yellow flags and consider further investigations and other clinical support tools, additionally, specialist advice may be appropriate in these cases.

8. Non-Surgical Management

The following links provide one-page summaries of each pattern and strategies for self-management that can be printed out for patient use.

Initial Management: Patient Education	Link to initial management for patient education.
Initial Management Pain Pattern 1	Link to initial management for pain pattern 1.
Initial Management Pain Pattern 2	Link to initial management for pain pattern 2.
Initial Management Pain Pattern 3	Link to initial management for pain pattern 3.
Initial Management Pain Pattern 4	Link to initial management for pain pattern 4.

Recommendations will be dependent on clinical circumstances. If you require guidance or support, consider specialist advice. For additional guidance on conservative management of a patient with mechanical low back pain, consider the following: [6]

- Patient education should be seen as a first-line treatment approach to patients with low back complaints, particularly where pain is present [7]. This should in an ideal situation be structured and real-time delivery that offers patients knowledge, tools and coping strategies that advocates a belief of self-management such as healthy lifestyle choices and symptom management techniques.
- Provide patient education on low back pain (LBP), including expected course, as most cases resolve with conservative measures. This is a critical component to patients understanding their condition, the timelines of recovery and the ways they can promote a return to activity. Examples can be found in above table or at Dynamed.

- Advise patients with nonspecific LBP to remain active and to gradually return to normal activities as soon as symptoms allow. (Strong recommendation). Appropriate language is key to ensuring that patients do not fear movement as this can lead to prolonged recovery.
- Suggest heat therapy for short-term pain reduction. (Strong recommendation). This can particularly help in cases where muscle spasm is present.
- Other nonpharmacologic options include massage, spinal mobilization and acupuncture, however, it should be stressed that creating a dependence on these adjunct therapies can significantly impact recovery, and furthermore, patients should be reassured that rehabilitation should be built around an active, exercise focused foundation.
- If using medications for acute LBP, offer nonsteroidal anti-inflammatory drugs (NSAIDs) or muscle relaxants. although side effects may limit use.

9. Rehab Options

The Rehabilitation Advice Line (1-833-379-0563) is a telephone service open Monday to Friday and provides rehabilitation advice and general health information for Albertans of any age.

The service can:

- Assess your rehabilitation needs over the phone.
- Speak to parents, guardians or caregivers about a child's development or well-being.
- Give advice on activities and exercises that help with physical, functional, or developmental concerns.
- Provide strategies to manage the day-to-day activities affected by these concerns.
- Link you to rehabilitation services.

Community Physiotherapy

Physiotherapists can assess, diagnose and treat the majority of lower back pain. This should be focused on education and exercise-based therapy which can be beneficial to patients. The majority of community-based physiotherapy is considered private-practice, so patients should be aware that additional costs may apply for these services.

Additional information on physiotherapy services in Alberta - see Physiotherapy Services | Alberta Health Services.

BACKGROUND

About this pathway

- These pathways will help guide appropriate procedures for patient management, investigations, and referrals. The purpose of this guideline is to initiate early, non-operative management for suitable patients, reduce unnecessary diagnostic imaging, increase appropriateness of surgical referrals, and reduce waiting lists for surgical consult.

Authors and conflict of interest declaration

- This pathway was co-designed for use in primary care settings by the Ortho/MSK pathways sub-working group. Work is based on the Spine: Low Back Assessment Clinical Pathway (*Spine: Low Back Assessment Clinical Pathway) which was developed under the guidance of the Bone and Joint Health Strategic Clinical Network™ and the Alberta Bone & Joint Health Institute in 2022. The pathway was developed by a multi-disciplinary team (individuals from across the continuum of care) using a modified Delphi process. Names of participants and their conflict of interest declarations are available upon request to AlbertaPathways@primarycarealberta.ca.

Pathway review process, timelines

- Primary care pathways undergo scheduled review every two years, or earlier if there is a clinically significant change in knowledge or practice. The next scheduled review is June 2026. However, we welcome feedback at any time. Please send us your feedback here.

PROVIDER RESOURCES

Resource	Link
Choosing Wisely Canada: Orthopedics	Orthopaedics - Choosing Wisely Canada
Alberta Health: Alberta Wait Times Reporting	Alberta Wait Times Reporting: Wait Time Trends
Smoking Cessation	• The importance of smoking in orthopedic surgery (tandfonline.com) • Alberta Quits | Alberta Health Services • COF_StopSmoking.qxp_Layout 1 (movepainfree.org)
BMI and weight management	• 1184-the-impact-of-obesity-on-bone-and-joint-health1.pdf (aaos.org) • Adult Weight Management | Alberta Health Services
DynaMed – Acute Low Back Pain	DynaMed
QuRE (Quality Referral Evolution)	QuRE one-page summary (ucalgary.ca)

CLINICAL CARE CHECKLIST	
☐	Thorough History and Physical
☐	Confirm that onset of pain is within 12 weeks (acute versus subacute)
☐	Checked for RED and YELLOW flag symptoms and made referrals as appropriate
☐	Reviewed ADDITIONAL considerations and made additional referrals as deemed appropriate
☐	Do NOT order imaging unless it will have direct bearing on the treatment decision
☐	Differentiate mechanical pain pattern or non-mechanical back pain
☐	Initiate self-management/conservative management and education
☐	Reassess in 6 weeks and re-evaluate diagnosis and assess for improvement
☐	If no improvement, adjust management and reassess in an additional 6 weeks
☐	If still no improvement, consider imaging and reassess for indicators for poor outcomes and psychosocial factors
☐	Refer to trained spine expert.

PATIENT RESOURCES

Resource	Link
The Rehabilitation Advice Line (1-833-379-0563).	A telephone service open Monday to Friday and provides rehabilitation advice and general health information for Albertans of any age.
Patient Pathway> A webpage and two PDF formats are available to allow for easy printing, download, or scanning a QR code with the patient's smart phone for more information at their convenience.	Your Journey with Low Back Pain myhealth.alberta.ca/HealthTopics/low-back-pain-pathway/Documents/low-back-pain-pathway-summary.pdf
MyHealth Alberta Health Topics	• Low Back Pain • Low Back Pain: Exercises to Reduce Pain • Stress and Back Pain • Back Pain During Pregnancy

REFERENCES

[1] Alberta Health Services Bone & Joint Strategic Clinical Network™; Alberta Bone & Joint Health Institute., "Spine: Low Back Assessment Clinical Pathway," November 2022. [Online]. Available: https://www.albertahealthservices.ca/assets/about/scn/ahs-scn-bjh-spine-low-back-assess-clinical-pathways.pdf. [Accessed August 2023].

[2] S. Wheeler, J. Wipf, T. Staiger, R. Deyo and J. Jarvik, "Evaluation of low back pain in adults," UpToDate, 26 May 2022. [Online]. Available: https://www.uptodate.com/contents/evaluation-of-low-back-pain-in-adults. [Accessed August 2023].

[3] GLA:D Canada, "Treatment of Osteoarthritis," 2022. [Online]. Available: https://gladcanada.ca/treatment-for-osteoarthritis/. [Accessed August 2023].

[4] Alberta Surgical Initiative, "Provincial Adult Orthopedic & Spine Referral Pathway," Alberta Health Services, 26 June 2023. [Online]. Available: https://www.albertahealthservices.ca/assets/info/hp/arp/if-hp-arp-asi-orthopedics-qr.pdf. [Accessed July 2023].

[5] Choosing Wisely, "Spine," September 2021. [Online]. Available: https://choosingwiselycanada.org/recommendation/spine/.

[6] DynaMed, "Acute Low Back Pain," DynaMed, [Online]. Available: https://www.dynamed.com/condition/acute-low-back-pain. [Accessed August 2023].

[7] J. Prior, G. Vesentini, J. Michell De Gregorio, P. Ferreira, D. Hunter and M. & Ferreira, "Health Coaching for Low Back Pain and Hip and Knee Osteoarthritis: A Systematic Review with Meta-Analysis.," *Pain Medicine,* vol. 24, no. 1, pp. 32-51, 2023.

[8] A. Goff, D. de Oliviera Silva, M. Merolli, E. Bell, K. Crossley and C. Barton, "Patient education for knee osteoarthritis systematic review and meta-analysis," *Osteoarthritis and Cartilage,* vol. 29, no. September, p. S394, 2021.