

Nonspecific low back pain

Manage initially with reassurance, activity and analgesia

STEVEN J. KAMPER BSc(Hons), BAppSc(Phy), PhD; CHRISTOPHER G. MAHER BAppSc(Phy), PhD;
RACHELLE BUCHBINDER MB BS(Hons), MSc, PhD, FRACP

Key points

- Low back pain is one of the most common and costly musculoskeletal conditions treated in primary care.
- Patients accessing primary care for low back pain should be screened for serious pathologies such as cancer, fracture and systemic diseases, but these conditions are very rare in such patients.
- Evidence supports the providing of reassurance about a likely good prognosis and advice to stay active, and the prescribing of simple analgesia. Most patients recover well when treated in this manner.
- Routine imaging and bed rest are not recommended.

Evidence-based management of nonspecific low back pain involves reassurance about a favourable prognosis, advice to maintain daily activities and stay active, and the prescribing of simple analgesic medications.

Low back pain is responsible for considerable personal and societal burden in Australia. Approximately two-thirds of people in Australia experience low back pain in any 12-month period and up to a half of these people seek care, most being seen in primary care.¹ Economic costs to the community are about \$9 billion annually, and those with the condition suffer pain, impaired daily living, work and social functioning, psychological problems and reduced quality of life. Despite the extent of this burden and the availability of clinical practice guidelines, there exists an 'evidence-practice gap' whereby

patients often do not receive management aligned with the best quality evidence.

This article provides a brief overview of the presentation and evidence-based management of low back pain in primary care. Although a common problem in general practice, contemporary management of low back pain is variable and often suboptimal, resulting in poorer outcomes for patients and society at large. By clearly articulating current understanding of low back pain and best-practice management, this article can serve as a guide to clinicians in their day-to-day care of these patients. Patients whose back pain arises

Dr Kamper is a Research Fellow at The George Institute for Global Health, The University of Sydney, and at The EMGO+ Institute for Health and Care Research, VU University Amsterdam, The Netherlands. Professor Maher is Director of the Musculoskeletal Division at The George Institute for Global Health, and Professor of Physiotherapy, Sydney Medical School, The University of Sydney, NSW. Professor Buchbinder is Director of the Monash Department of Clinical Epidemiology at Cabrini Hospital, and a Professor in the Department of Epidemiology and Preventive Medicine, School of Public Health and Preventive Medicine at Monash University, Melbourne, Vic.

from 'red flag' conditions such as cancer, inflammatory arthritis, infection or fracture are uncommon in primary care. Although screening for these conditions is mentioned, their management is beyond the scope of this article. Likewise, the management of patients with back pain of presumed neurological origin is also not covered in detail.

DIAGNOSIS OF LOW BACK PAIN

Clinical guidelines typically recommend triage of patients presenting in primary care with low back pain into three categories:

- 'serious spinal pathologies', including cancer, infection, spondyloarthritis (e.g. ankylosing spondylitis), cauda equina syndrome and vertebral fracture
- radiculopathy due to compression and/or inflammation of the spinal nerve root
- nonspecific low back pain (covering patients not included in either of the above two groups).

Serious spinal pathologies

Patients with 'serious spinal pathologies' make up about 1% of the presentations of low back pain in primary care. Clinical suspicion of these conditions is raised by the presence of clusters of 'red flags', which may include recent unexplained weight loss, fever, saddle anaesthesia and recent trauma to the back (Table 1).² Immediate imaging is appropriate for patients in whom there is a strong suspicion of serious spinal pathology (Table 2).³ It should be noted that the diagnostic probabilities change with age and the risk of serious causes of low back pain such as cancer, aortic aneurysm and vertebral fracture are increased in older patients.

Radiculopathy

Radiculopathy due to compression and/or inflammation of the spinal nerve root is recognised by dermatomal sensory loss, myotomal power loss and reduced reflexes. Spinal stenosis involves the narrowing of the spinal canal in older patients; these patients present with radiating leg pain and pseudoclaudication. Together radiculopathy and spinal stenosis account for around 5% of presentations. For



both conditions, imaging is necessary only if surgery is being considered (Table 2).³

A diagnosis of radiculopathy can typically be made when leg pain is more severe than back pain, there is unilateral pain that radiates below the knee, there is a positive straight-leg raise test and neurological signs (weakness, sensory changes, reduced reflexes) are present in the distribution of a spinal nerve.⁴

Nonspecific low back pain

Nonspecific low back pain is the term used to describe the low back pain in patients who do not have serious spinal pathologies or radiculopathy/spinal stenosis; these patients comprise the majority (about 94%) of presentations of low back pain in primary care. The term reflects the fact that current diagnostic techniques are unable to reliably identify the pathoanatomic source or sources of pain in these patients.

Although numerous attempts have been made to divide this group into meaningful subgroups based on assumed pathology, symptom pattern or treatment response, none have demonstrated the necessary validity and reliability to achieve universal acceptance. A review of diagnostic procedures, including

TABLE 1. ALERTING FEATURES OF SERIOUS SPINAL PATHOLOGIES ('RED FLAGS')²

Features	Condition
<ul style="list-style-type: none"> • Symptoms and signs of infection (e.g. fever) • Risk factors for infection (e.g. underlying disease process, immunosuppression, penetrating wound, intravenous drug use) 	Infection
<ul style="list-style-type: none"> • Significant trauma • Minor trauma (if age over 50 years, history of osteoporosis and/or taking glucocorticoids) 	Fracture
<ul style="list-style-type: none"> • History of malignancy • Age over 50 years • Failure to improve with treatment • Unexplained weight loss • Pain at multiple sites • Pain at rest 	Tumour
<ul style="list-style-type: none"> • Sudden onset/absence of aggravating features • Associated collapse/hypotension • Pain not aggravated by spinal movement • Abdominal pain radiating to back 	Aortic aneurysm, leak or rupture
<ul style="list-style-type: none"> • Urinary retention • Bilateral neurological symptoms and signs • Saddle anaesthesia <p>The presence of these features requires very urgent referral</p>	Cauda equina syndrome

Adapted with permission from: Evidence-based Management of Acute Musculoskeletal Pain. Australian Acute Musculoskeletal Pain Guidelines Group; 2003.²

physical assessments conducted in the clinic, revealed little utility for valid subdivision of this group.⁵ The designation 'nonspecific' is intended to include all patients whose pain is presumed to be of a musculoskeletal (sometimes called mechanical) origin, and separates these patients from those with an underlying systemic condition or tumour (the serious spinal pathologies group above) and those with pain of a presumed neurological origin (the radiculopathy group above).

Routine imaging is generally not necessary in patients with nonspecific low back pain of short duration (Table 2).³ Imaging is discussed in more detail later in the article.

PROGNOSIS

The outlook for patients who present for care with a short history of nonspecific low

back pain is generally good; most of these patients will improve quickly. However, a small proportion (fewer than 5%) develop persisting symptoms that are severe and disabling.⁶ Of those who do recover early, about one-quarter will have a recurrence in the next 12 months.⁷ People who present with more chronic symptoms are less likely to recover quickly or completely.⁸

Recent studies have explored the potential of stratifying patients according to their risk of developing long-term symptoms at initial presentation.⁹ People at low risk of developing persistent disabling low back pain need minimal intervention, but those at greater risk may benefit from targeted intervention tailored to their risk indicators. Prognostic studies have suggested that people with greater pain and disability at presentation and/or indicators of psychological dysfunction (catastrophic thinking,

fear, anxiety, depression) are more likely to experience ongoing symptoms.¹⁰ Other factors that have also been found to raise the likelihood of poor outcome include older age, poor general health, poor relations with work colleagues, physically demanding work and the availability of compensation.¹¹

Patients with radiculopathy have a generally less favourable prognosis than those with nonspecific low back pain.

MANAGING NONSPECIFIC LOW BACK PAIN

The initial management of patients with nonspecific low back pain involves:

- provision of reassurance and advice to maintain daily activities and stay active, and
- prescription of simple analgesic medication and/or NSAIDs if required (see the box on page 21).

An approach to management is outlined in the flowchart on page 22.

Advice and reassurance

Advice and reassurance for patients should include the components listed below.

- Encourage patients to:
 - stay active, continue daily activities and refrain from extended bed rest
 - continue work activities (modified if necessary); work participation plays an important role in recovery
 - take responsibility for their own management; self-management is the cornerstone of effective treatment.
- Reassure patients that:
 - there is no reason to suspect serious damage or disease; such conditions are extremely rare
 - the prognosis is likely to be good; most people improve rapidly and severe ongoing limitations are uncommon
 - it is important to understand that 'hurt does not mean harm'
 - they should maintain a positive attitude.

TABLE 2. ACUTE LOW BACK PAIN: SUGGESTED IMAGING STRATEGY AND TIMING³

Clinical situation	Imaging type
Immediate imaging	
<ul style="list-style-type: none"> Major risk factors for cancer (new onset of low back pain with history of cancer, multiple risk factors for cancer, or strong clinical suspicion for cancer) Risk factors for spinal infection (new onset of low back pain with fever and history of intravenous drug use or recent infection) Risk factors for or signs of the cauda equina syndrome (new urine retention, faecal incontinence, or saddle anaesthesia) Severe neurological deficits (progressive motor weakness or motor deficits at multiple neurological levels) 	<ul style="list-style-type: none"> Radiography plus erythrocyte sedimentation rate* Magnetic resonance imaging
Defer imaging until after a trial of therapy	
<ul style="list-style-type: none"> Weaker risk factors for cancer (unexplained weight loss or age over 50 years) Risk factors for or signs of ankylosing spondylitis (morning stiffness that improves with exercise, alternating buttock pain, awakening because of back pain during the second part of the night, or younger age [20 to 40 years]) Risk factors for vertebral compression fracture (history of osteoporosis, use of glucocorticoids, significant trauma or older age [over 65 years for women or over 75 years for men]) Signs and symptoms of radiculopathy (back pain with leg pain in an L4, L5, or S1 nerve root distribution or positive result on straight leg raise or crossed straight leg raise test) in patients who are candidates for surgery or epidural glucocorticoid injection Risk factors for or symptoms of spinal stenosis (radiating leg pain, older age or pseudoclaudication) in patients who are candidates for surgery 	<ul style="list-style-type: none"> Radiography with or without erythrocyte sedimentation rate Magnetic resonance imaging
No imaging	
<ul style="list-style-type: none"> No criteria for immediate imaging and back pain improved or resolved after a one-month trial of therapy Previous spinal imaging with no change in clinical status 	–

* Consider magnetic resonance imaging if the initial imaging result is negative but a high degree of clinical suspicion for cancer remains.

Adapted with permission from: Chou R, et al. *Ann Intern Med* 2011; 154: 181-189.³

Avoid giving patients diagnostic labels based upon presumed pathophysiology such as disc degeneration, disc herniation or arthritis. Imaging findings showing these pathologies are seen in many people without low back pain, so their relation to back pain is unclear. Also avoid advising patients to let pain be the guide for return

to usual physical activity, as patients should keep moving despite pain.

It is important to address workplace issues at the outset.¹² Having an understanding of the patient's work context and job demands in relation to their physical capacity and beliefs may help to prevent and/or reduce work disability.

EFFECTIVE INTERVENTIONS FOR ACUTE AND PERSISTENT NONSPECIFIC LOW BACK PAIN

Acute pain

- Paracetamol
- NSAIDs
- Superficial heat
- Advice to remain active

Persistent pain

- Paracetamol
- NSAIDs
- Exercise therapy
- Multidisciplinary rehabilitation
- Spinal manipulation

Communicating with the workplace/ employer to facilitate remaining at work, with modified duties if necessary, can be helpful, as can strategies to promote prompt return to work.

There is often a mismatch between the patient and the physician regarding expectations and beliefs about low back pain, and open communication during the consultation is crucial.¹³ There are several commonly held beliefs that may result in poorer outcome, including the following:¹⁴

- the notion that fluctuations in pain intensity signify actual or potential anatomical damage/injury
- fear of performing particular activities or movements (including work) because of concerns of further damage
- catastrophic beliefs about long-term prognosis
- expectations regarding the need for imaging or investigations
- expectations associated with particular treatments, particularly a preference for passive treatments.

Eliciting and addressing erroneous beliefs and identifying enablers and barriers that are likely to influence treatment adherence are an important part of the initial consultation.¹⁵ The presence of high levels of symptom reporting, psychological distress and strongly held mistaken

AN APPROACH TO MANAGING LOW BACK PAIN

Patient presents to GP with low back pain

Diagnostic triage – take history and perform physical examination to exclude:

- serious spinal pathologies (look for red flags)*
- radiculopathy

Serious spinal pathology suspected

Refer patient urgently to appropriate specialist

Radiculopathy suspected

If no progressive or major motor weakness, manage patient in general practice

Neither serious spinal pathology nor radiculopathy suspected – patient diagnosed as having nonspecific low back pain

Manage patient in general practice

- Provide patient with:
 - reassurance of likely favourable prognosis
 - encouragement to stay active and continue normal daily activities and work, despite pain
 - simple analgesia, pharmacological (paracetamol and/or NSAIDs; immediate-release opioids if inadequate response to simple pain medication) and/or nonpharmacological (heat packs and wraps)
- Address patient’s workplace issues if relevant
- Elicit and address any erroneous beliefs the patient has about back pain
- Assess patient’s level of psychological distress
- Imaging is not required

Review patient after one to two weeks if necessary

Recovery (low-level residual pain may persist)

Recurrences may occur – increased physical activity and education may help in prevention

Persistent pain

- Consider:
- modified-release opioids
 - exercise program
 - referral

Recalcitrant pain

- Consider:
- further investigations
 - referral to multidisciplinary rehabilitation clinic

Back-related leg pain diagnosed as radiculopathy

- Consider:
- use of glucocorticoids (epidural or oral)
 - referral

* See Table 1 (page 20) for a list of red flags for serious spinal pathology.

beliefs should alert the GP to an increased likelihood of poor outcome. Addressing these factors early is likely to be important and may justify earlier follow up and active treatment.

Pain control

Medications

The goal of analgesic administration in the treatment of nonspecific low back pain is to reduce, rather than abolish, pain in order to facilitate continued activity. A step up approach to medication use is recommended, as outlined in the *Therapeutic Guidelines: Rheumatology*.¹⁶ Paracetamol is the safest first choice, but consumption of the safest maximum dose on a time-contingent basis rather than on an ad-hoc or as required basis should be recommended. Specific dosage recommendations such as these are important given evidence suggesting patients routinely underdose themselves, potentially leading to inadequate pain control.¹⁷

NSAIDs are an alternative to paracetamol but can also be combined with paracetamol. However, their potential benefits need to be considered in relation to their potential harms, particularly in high-risk patients. They should be prescribed for short periods of time (e.g. up to three weeks), and patients should be monitored for adverse effects.

If analgesia remains insufficient to allow normal functioning, immediate-release opioids in an appropriate dose for a short period may be considered.¹⁶ It should be noted that although administering stronger analgesics is intuitively reasonable, there is conflicting evidence as to whether this results in improved clinical outcomes. Any recommendations should take the risk profile and likelihood of side effects of these drugs into account, and patients should be monitored accordingly.

Other options

Nonpharmacological analgesic options in the treatment of nonspecific low back

pain include the use of heat packs and wraps, for which some evidence of effectiveness exists.¹⁸ Heat packs and wraps are low cost and have few reported side effects, and they also enable patients to take responsibility for their pain relief.

MANAGING RECURRENCES

It should be noted that recurrences following an initial episode of low back pain are common.⁷ There is little research to recommend strategies that reduce the risk of recurrence, but patients should be alerted to its likelihood. Patients can be advised to follow the same activity and medication recommendations in the event of a recurrence. This will reinforce the idea of self-management and may obviate the need for consultation for future episodes.

Many patients will have some degree of low-level residual pain that persists over months. These symptoms are not necessarily indicative of serious pathology and do not usually interfere with normal function.¹⁹

MANAGING PERSISTENT PAIN

Management of patients with nonspecific low back pain who have severe pain persisting beyond two to three weeks should include reinforcement of the advice and reassurance provided previously.

Pharmacological treatment options

If the patient is still regularly taking an immediate-release opioid, switching to an equivalent dose of a modified-release opioid preparation may be considered, again for a pre-specified time period (e.g. up to 12 weeks).¹⁶

International guidelines are inconsistent on recommendations regarding antidepressants and muscle relaxants.²⁰ Some recommend antidepressants only where there is depressive comorbidity, others suggest that they can be used as an analgesic; however, the most recent Cochrane review on the subject does not recommend their use for low back pain.²¹ Trial

evidence suggests that muscle relaxants are more effective than placebos for short-term relief from low back pain but the incidence of drowsiness, dizziness and other side effects is high.²²

Physical therapy options

There are numerous physical therapy options available for patients with persisting low back pain, but only structured exercise programs and spinal manipulative therapy are supported by sufficient evidence to warrant inclusion in most guidelines.²⁰ Allied health professionals typically deliver these physical therapies over a six to 12-week course.

Of these physical therapies, exercise programs should be the first choice of treatment. Although therapeutic effectiveness may be equivalent to interventions such as spinal manipulative therapy, exercise provides additional benefits over more passive therapies. Exercise reinforces the principle that patients should be physically active and also encourages patients to take an active role in management of their health. There is some evidence to suggest that regular exercise may have a role in prevention of recurrences.²³ Additionally, increasing physical activity has been shown to confer numerous benefits beyond that for low back pain, for example for cardiovascular and mental health.

Importantly, simple advice 'to do some exercise' is probably ineffective. Exercise programs should be supervised, high dose and individually prescribed, and should include stretching and strengthening components. Beyond these general principles, however, there is little evidence to support the superiority of one exercise type over another.²⁴ This being the case, clinician expertise and patient preference may guide program selection.

Ongoing contact with a professional is likely to be necessary to maintain motivation and adherence.²⁴ A range of allied health care professionals, including physiotherapists, osteopaths and chiropractors, are able to provide care to patients with

low back pain. However, these professions are not all alike in their focus on encouragement of physical activity and self-management, and unfortunately this focus also does not necessarily concentrate along professional lines as individuals within each profession differ in their views. Communication and building relationships with allied health care professionals in your area may be worthwhile to find some that you can depend on to administer evidence-based care.

Treatments with no or limited evidence of efficacy

Numerous treatments commonly used in the treatment of low back pain are not supported by evidence and are not recommended. They include antidepressant medications, radiofrequency denervation, injections and traction.^{21,25-27}

Other treatment options that are currently backed by limited evidence are also not recommended. These include acupuncture, lumbar supports, massage and transcutaneous electrical nerve stimulation.²⁷⁻³⁰

MANAGING RECALCITRANT LOW BACK PAIN

If sufficient improvement in persistent nonspecific low back pain has not occurred despite a trial of best practice management as outlined above, further options can be considered. These include further investigations and referral to a multidisciplinary rehabilitation clinic (these may be referred to as pain clinics, depending on the setting).

Persistent, debilitating low back pain is often accompanied by problems of physical, psychological and social origin. These patients are unlikely to respond to a simple unimodal course of a physical therapy. Although the causal associations are not well understood, it is likely that effective management of these patients requires consideration of all of these factors.

There is evidence to support the effectiveness of multidisciplinary rehabilitation

programs in this population of patients with long-term, severe symptoms.³¹ These programs usually involve intensive treatment, including structured exercise, education and instruction in self-management, functional training and tailored psychological management, and are delivered by various health professionals (e.g. physical therapists, rehabilitation specialists, psychologists, occupational physicians and occupational therapists).

An important feature of a successful multidisciplinary program appears to be the volume of therapy provided; successful programs generally involve at least 100 hours of therapy.³¹ Programs should have a clear and defined focus on improving and sustaining the functional capabilities of patients.

MANAGING BACK-RELATED LEG PAIN

Low back pain accompanied by referred pain into one or both legs is usually associated with more significant loss of function.³² In many instances, referred pain does not indicate radiculopathy, and the treatment recommendations are the same as those for nonspecific low back pain.

For those patients diagnosed with radiculopathy (typically, leg pain is more severe than back pain, there is unilateral pain that radiates below the knee, there is a positive straight-leg raise test, and other neurological signs are present), the prognosis is generally less favourable than for those with nonspecific low back pain.⁴ Although specific mechanisms are not completely understood, it is likely pain stems from inflammation surrounding and/or compression of the nerve roots in the lumbar segments, usually due to herniation of the intervertebral disc.⁴

Similar to the treatment recommendations for nonspecific low back pain, management in patients with radiculopathy includes education regarding the condition, advice to stay active and simple analgesic medications. There is also no need for routine imaging at the initial

presentation. Translumbal, transsacral or transforaminal (or ‘nerve root’) epidural glucocorticoid injections may provide modest short-term (three to six weeks’) pain relief, although evidence is somewhat inconsistent.^{33,34} A two to three-week trial of oral glucocorticoid may be another treatment option but the efficacy of this has not been established.¹⁶

PATIENT REVIEW

Persistent lack of improvement in the face of appropriate management warrants patient review by the primary care clinician or referral to a colleague more experienced in low back pain management. Unfortunately a common pattern seen in patients with persistent low back pain is that the same physical treatments have been administered repeatedly for months or years with little sustained effect. In these cases, discussion with the treating clinician about alternative management options or referral elsewhere may be appropriate.

ROLE OF IMAGING

Imaging should be restricted to those patients with low back pain in whom there is a strong suspicion of serious spinal pathology or surgical referral is being considered for persisting radicular features (Table 2).³

Imaging (plain radiographs, CT scans, MRI) of patients with nonspecific low back pain in the first instance has not been shown to improve clinical management and may even lead to poorer clinical outcomes. There is a poor correlation between clinical features and imaging findings, and abnormal findings are common in people without back pain and increase with age. For example, a study of MRI in people without back pain over the age of 60 years found that 21% had spinal stenosis, 36% had a herniated disc and 90% had a bulging or degenerated disc.³⁵

Referral for imaging is associated with increased costs and inconvenience and with exposure to unnecessary radiation, is unlikely to improve patient satisfaction

and may reinforce negative beliefs regarding anatomic injury.^{3,36} National guidelines from around the world uniformly recommend that imaging not be performed for patients with nonspecific low back pain of short duration unless there are 'red flags'.^{3,16,37,38}

Results of investigations such as electromyography, pathology or nerve conduction studies similarly show little correlation with reported symptoms.

ROLE OF SURGERY

There is a limited role for surgery in treating patients with low back pain. Decompression surgery may be effective for improving leg pain in patients with spinal stenosis but the value of discectomy, disc replacement and fusion for nonspecific low back pain is unclear at best. In all cases, a trial of nonsurgical management prior to surgical opinion is appropriate. For patients with radiculopathy, although surgery can provide short-term pain relief, long-term outcomes may be comparable to conservative management.

PREVENTION OF LOW BACK PAIN

Effective prevention of low back pain is not well understood. This applies to both primary and secondary prevention. There is some evidence to support the influence of increasing physical exercise and improving education levels, specifically the understanding of low back pain as a biopsychosocial condition.³⁹ Education should also promote a shift in beliefs regarding the consequences of low back pain, particularly with respect to work absence, fear of physical activity and implications for continuing daily activities.⁴⁰

CONCLUSION

Low back pain is a prevalent and costly health condition and is the most common musculoskeletal reason for seeking primary care. Serious conditions relating to low back pain present extremely rarely in general practice and investigations for these are recommended only if red flags

are present. The prognosis for patients with short-term symptoms of nonspecific low back pain is good, and initial management involves advice to maintain physical activity, reassurance and the provision of simple analgesia. If symptoms persist, stronger medication and physical therapies can be recommended. Multi-disciplinary rehabilitation clinics provide an option for patients with severe, disabling symptoms of long duration. Clinicians should avoid providing pathoanatomical labels, and there is no place for routine imaging or pathology tests in patients with nonspecific low back pain. **MI**

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References are included in the pdf version of this article available at www.medicinetoday.com.au.

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