

Evaluation of Low Back Pain in Primary Care

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Low back pain is one of the most common reasons for consultation encountered in the primary care setting. The majority of cases are due to mechanical low back pain; however, proper evaluation is needed to identify patients who have secondary causes. This can be done through a focused history and physical examination using the Look-Move-Feel Approach as a guide. Identification of red flags suggests underlying pathology. The mnemonic BACK PAINS (Bladder/bowel incontinence, Age extremes, Chronic infection, Known Malignancy, Pain worse at night, Acute trauma, IV drug/Immunosuppression, Neurologic findings, and Systemic symptoms) can be used to remember red flags of low back pain. In general, patients with non-specific low back pain often require no imaging or work-up, while those with red flags warrant diagnostic investigation and possible referral.

Key words: Low back pain

INTRODUCTION

Low back pain (LBP) is a prevalent musculoskeletal condition characterized by discomfort, muscle tension, or stiffness localized to the posterior aspect of the body.¹ The term “low back pain” is applied irrespective of the underlying etiology and may encompass a spectrum of presentations ranging from acute, self-limiting episodes to chronic, persistent pain with significant functional impairment.

LBP may manifest as a primary condition or as a secondary symptom arising from systemic disease, trauma, degenerative processes, or biomechanical dysfunction. Its clinical significance is underscored by its high global prevalence, substantial impact on quality of life, and its ranking as one of the leading causes of years lived with disability worldwide.

It is among the most frequently encountered complaints in primary care and represents a major public health concern due to its high prevalence, recurrent nature, and substantial socioeconomic burden. The lifetime prevalence of LBP is strikingly high, with more than 70% of individuals in developed countries expected to experience at least one episode during their lifetime.² Annual prevalence rates range between 15% and 45% among adults, and approximately 5% of individuals present to hospital or urgent care facilities with a new episode each year.³

Globally, LBP holds the highest prevalence among musculoskeletal disorders and is the single leading cause of disability according to the World Health Organization (WHO).⁴

Clinical Review Development

This clinical review was developed and guided by the Adapte guideline adaptation process.⁵ The medical writer's committee has decided to follow this approach as developing guidelines de novo requires substantial time and resources, and it is more practical to adapt a guideline that addresses the local need.⁶

A systematic literature search was carried out to search for available clinical practice guidelines. The scope and purpose of the article were initially determined by the authors based on available published guidelines and top cases seen in primary care. Inclusion criteria are all clinical guidelines for adult patients with back pain that contain recommendations on the evaluation and management of back pain in the primary care setting.

A total of six (6) guidelines were included in this clinical review article, which include:

- Philippine Academy of Rehabilitation Medicine 2017 Clinical Practice Guidelines on the Diagnosis and Management of Low Back Pain, 2nd edition⁷
- USA Department of Veterans Affairs and Department of Defense 2022 Clinical Practice Guideline for Diagnosis and Treatment of Low Back Pain⁸
- Canadian 2015 Guidelines Evidence-informed primary care management of low back pain⁹

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- National Institute for Health and Care Excellence (NICE) 2016 Low back pain and sciatica in over 16s: assessment and management¹⁰
- Malaysian 2016 Malaysian low back pain management guideline, Malaysian Association for the Study of Pain, first edition¹¹
- Belgian 2017 Guidelines Low back pain and radicular pain: assessment and management.¹²

This PAFP clinical review article is intended to be used by primary care physicians and family medicine specialists and provide evidence-based recommendations on the evaluation and diagnosis of adult patients presenting with back pain seen in the primary care setting.

Key Recommendations

- History taking and physical examination are recommended to identify patients with red flags or serious conditions^{7,8,9,10,12} (High quality evidence)
- Perform diagnostic triage among patients with low back pain into three categories: Non-specific low back pain, back pain with radiculopathy, and specific low back pain^{7,9,10,12} (High quality evidence)
- Routine imaging is not recommended for nonspecific low back pain^{7,9,11} (High quality evidence)
- Imaging should be done in the presence of a red flag or if serious pathology is suspected^{7,9,11} (High quality evidence)

Approach to Evaluation of Back Pain

A complete and focused medical history and physical examination are important to determine the underlying cause. A diagnostic triage is recommended by several guidelines, and this includes complete history taking, physical examination, neurologic examination, functional status, and psychosocial risk factor assessment to exclude serious spinal cord injury (red flags).¹³

The Australian Family Physician guidelines recommend the Look-Move-Feel approach in conducting physical examination of patients with low back pain.¹⁴

The Look or Inspection phase involves observing the patient from the front, back, and sides to assess for the patient's habitus, posture asymmetry, spinal curvatures, muscle bulk, and presence of gross deformities.

The Move phase involves the detection of gross limitations of movements and pain on gross movement. The six cardinal planes of motion (flexion, extension, lateral flexion bilaterally, and rotation bilaterally) are to be tested. The straight leg raise (SLR) test—also known as the Lasègue test—is a provocation maneuver, designed to mechanically stress the neural and musculoskeletal structures of the lumbosacral region by passively elevating the extended lower limb, thereby eliciting pain or neurological symptoms if pathology is present. The standard procedure involves positioning the patient supine, with the examiner passively flexing the hip while maintaining full knee extension. A positive result is typically defined as the reproduction of

radicular pain along the sciatic distribution when the limb is elevated to less than 45 degrees of hip flexion. The maneuver is often aborted at the patient's request due to symptom provocation.

Lastly, the Feel or Palpation phase is conducted, where a gentle palpatory screen is performed to gauge the degree and location of muscle spasms. Systemic palpation of the spinous processes, sacrum and buttocks to assess for underlying stiffness, tenderness, and pain reproduction. Neurologic examination is only required if the patient has radicular leg pain or if the history suggests neurological symptoms.

The goal of the history and physical examination is to identify red flags among patients with low back pain and to triage patients who need immediate treatment and referral. The presence of red flags suggests an underlying cause or serious pathology. The authors have crafted the mnemonic "BACK PAINS" that may be used to remember the red flags. Table 1 summarizes the red flags and their corresponding pathology. In general, imaging of the lumbar spine and other diagnostics should be used in the evaluation of low back pain if a specific pathology needs to be confirmed based on the history and physical examination.

Table 1. BACK PAINS Mnemonic for back pain red flags and corresponding pathology.

Red Flag	Corresponding pathology
Bladder / Bowel incontinence	Cauda equina syndrome
Age extremes (<20 or > 70)	Age <18 - Congenital abnormality Age >50 - Fracture, Malignancy
Chronic Infection Hx	Infection
Known malignancy	Cancer, Metastasis
Pain worse at night	Malignancy
Acute trauma	Fracture, Spinal Hematoma
IV drug use or Immunosuppression	Infection, Fracture
Neurologic findings (Hyperreflexia, Hyporeflexia, Saddle anesthesia)	Cauda Equina Syndrome, Acute Cord Compression
Systemic Symptoms (i.e. fever, unintentional weight loss)	Infection, Malignancy

It is recommended by several guidelines to classify patients with low back pain into three categories: 1) Non-specific low back pain, 2) back pain with radiculopathy, and 3) specific low back pain.^{7,9,10,12} By classifying patients according to these three main categories, we are able to identify possible underlying causes and have a directed approach.

To simplify this concept, consider non-specific low back pain as primary disease or mechanical low back pain, while for back pain with radiculopathy and specific low back pain, consider them as secondary disease or in other words there is an underlying or specific pathology causing the back pain.

Non-specific Low Back Pain is a group of back pains that are caused by mechanical or muscular conditions, and it is the cause of 90% low back pains.⁴ No diagnostic imaging is routinely recommended and can be managed conservatively.⁷

Table 2. Diagnostic triage for low back pain and diagnostic approach.

Classification	Clinical Features	Possible causes	Recommended Diagnostic Approach
Nonspecific LBP	Localized back pain No red flags or neurologic findings Most common (90% of low back pains)	Muscle strain Ligament sprain Mechanical low back pain	No imaging initially Clinical diagnosis Conservative management and monitor response
LBP with Radiculopathy	Back pain with dysfunction of a nerve root is associated with pain, sensory impairment, weakness, or diminished deep tendon reflexes in the nerve root distribution.	Lumbar disc herniation Nerve root compression	MRI after 6 weeks if symptoms persist or worsen Consider CT if MRI unavailable
LBP with Specific condition	Back pain with identifiable serious underlying conditions beyond typical nerve root compression Presence of red flags, neurologic deficits or structural deformity	Infections (i.e. osteomyelitis), primary or metastatic cancer, fracture, or inflammatory conditions	Immediate imaging (X-ray, MRI, or CT) Lab tests (CBC, ESR, CRP, etc.) based on the suspected cause

Summarized from: Philippine Academy of Rehabilitation Medicine (PARM). *Clinical Practice Guidelines on the Diagnosis and Management of Low Back Pain (2nd Edition)*. Philippine Academy of Rehabilitation Medicine, 2017

Back pain with Radiculopathy is usually caused by a disc herniation or nerve root compression. Neurologic examination is recommended, especially to identify radicular pain or radiculopathy, including Straight Leg Raise (SLR), assessment of strength, reflexes, and sensation. Palpation, posture assessment, and spinal ROM testing can also be done.¹³

Back Pain with Specific conditions is due to underlying pathology beyond the nerve roots and is usually associated with serious conditions, hence, with the presence of red flags.⁸ Underlying pathologies would include infections, cancer, fractures, and inflammatory conditions.

Diagnostic Assessment

There is a general consensus across guidelines that routine imaging is not recommended for low back pain unless a serious pathology is suspected or a red flag is present. Repeat imaging studies with improvement post-treatment are also generally not recommended.

In the absence of red flag symptoms, laboratory and imaging studies are not generally recommended unless without no improvement of symptoms after initial diagnosis and treatment. Imaging (Including X-rays, CT-scan, and MRI) and laboratory tests should be used if history and physical examination findings suggest a specific pathology that needs to be confirmed.⁷

A diagnostic X-ray (Lumbar APL with no oblique view) is recommended if the patient does not have improvement of symptoms or if the patient demonstrates worsening of symptoms before requesting other imaging modalities, particularly MRI and CT-Scan.⁷

For patients presenting with low back pain and radiculopathy, imaging (X-ray, CT scan, and MRI) is not generally recommended

in the first 6 weeks of treatment unless red flags or presenting with neurologic deficits requiring surgical intervention.⁷ MRI or CT is strongly recommended after 6 weeks of duration if neurologic symptoms worsen. The use of MRI is recommended as an appropriate non-invasive test to confirm lumbar disc herniation.⁷ The table below summarizes the recommendations by the Philippine Academy of Rehabilitation Medicine on different diagnostic tests and their respective indications.

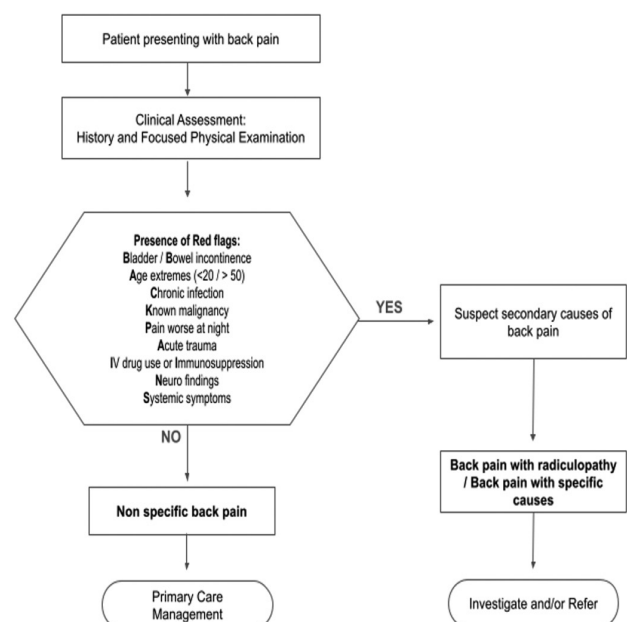


Figure 1. Algorithm in evaluation of backpain in primary care.

Table 3. Diagnostic tests recommended by PARM for low back pain due to specific conditions⁷

Imaging Test	Indication
Lumbar X-rays (AP & Lateral)	Acute low back pain with red flag symptoms Subacute pain not improving Chronic low back pain
Standing Lateral Spine X-ray	Best for detecting degenerative lumbar spondylolisthesis (non-invasive)
Flexion-Extension X-rays	Evaluation of symptomatic spondylolisthesis Surgery or trauma is a concern
Whole Spine X-ray (CTLSV)	For suspected or diagnosed scoliosis
MRI	Spinal stenosis, isthmic or degenerative spondylolisthesis with paresthesia To rule out other causes of chronic low back pain Not recommended before 3 months unless treatment has already been optimized
CT scan	For evaluating spinal stenosis and spondylolisthesis
Laboratory Tests (blood tests, urine tests and serologic markers for acute phase reactants)	If clinical signs suggest infection, autoimmune disease, or arthritis

Reference: Philippine Academy of Rehabilitation Medicine (PARM). *Clinical Practice Guidelines on the Diagnosis and Management of Low Back Pain (2nd Edition)*. Philippine Academy of Rehabilitation Medicine, 2017.

CONCLUSION

Low back pain is a common complaint encountered in the primary care setting. A focused history and physical examination can be conducted using the Look-Move-Feel approach with the goal of identifying serious underlying pathology. Low back pain can be triaged into three categories: nonspecific low back pain, low back pain with radiculopathy, and back pain with a specific cause. The “BACKPAINS” mnemonic for red flags of low back pain is a useful mnemonic to help identify which patients need immediate treatment or additional workup.

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