MAYFAIR DIAGNOSTICS
Axial Back Pain Service

A REFERRAL GUIDE FOR PRIMARY CARE PROVIDERS

Axial back pain is one of the most common presentations in primary care. In Alberta, MRI for non-urgent back pain can take close to a year. Mayfair offers a functional imaging pathway that starts working up your patients now — using bone SPECT/CT to identify pain generators and guide targeted treatment while MRI is awaited.

WHY ANATOMY ALONE IS NOT ENOUGH

Degenerative findings on imaging are nearly universal in asymptomatic adults, making it impossible to attribute a patient's pain to a specific level from structure alone. SPECT/CT and MRI agree on the dominant pain-generating level in only about 26–43% of cases — because they measure fundamentally different things. MRI shows what is structurally abnormal; SPECT/CT shows what is metabolically active right now.

BONE SPECT/CT: FUNCTIONAL LOCALIZATION OF PAIN GENERATORS

Bone SPECT/CT fuses nuclear medicine functional imaging with CT anatomy to pinpoint structures undergoing active bone remodelling and inflammation — more likely to be the true source of pain than incidental degenerative findings.

WHAT SPECT/CT IDENTIFIES:

- Lumbar & cervical facet joint arthropathy — most common finding
- Sacroiliac joint dysfunction
- Acute vertebral compression fractures — vs. healed, chronic fractures
- Post-surgical changes — hardware stress, adjacent segment disease

PRACTICAL ADVANTAGES:

- Pinpoints which level to inject — avoiding procedures at silent levels
- Available weeks to months sooner than MRI for most patients
- Radiation dose (~5–8 mSv) comparable to or less than a standard abdominal CT

87% short-term pain relief in SPECT-positive patients injected at confirmed levels

~50% reduction in potentially unhelpful injections

65% more patients identified with facet disease compared to MRI alone

For primary care provider educational purposes. Clinical decisions should always be individualized. Statistics sourced from peer-reviewed literature: Pneumaticos et al., Radiology, 2006; Romera et al., European Spine Journal, 2025

MAYFAIR®
DIAGNOSTICS

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THE MAYFAIR BACK PAIN PATHWAY

1
Referral
Send a Mayfair Pain Therapy Requisition with your clinical question

2
Bone SPECT/CT
Identifies metabolically active, pain-generating spinal levels

3
Targeted Injection
Image-guided corticosteroid at confirmed level(s), with your approval

4
Report
Findings and outcome summary returned to you within 48 hours of scan

Following SPECT/CT, if a pain generator is confirmed, we offer image-guided intra-articular corticosteroid injection at the identified level — always with your approval. This serves as both treatment and a confirmatory diagnostic step: a good response validates the pain generator and establishes the rationale for further intervention if needed. Available targets include lumbar and cervical facet joints, sacroiliac joints, and coccyx. For patients with confirmed facetogenic pain, medial branch blocks and radiofrequency ablation (RFA) are also available.

Also available: Vertebral Compression Fracture Assessment. SPECT/CT reliably distinguishes acute (painful) from healed fractures — particularly valuable when MRI is unavailable or contraindicated, and for identifying the symptomatic level among multilevel fractures on plain films.

WHO IS APPROPRIATE TO REFER?

Consider referring patients with:

- Axial low back or neck pain >6–12 weeks despite conservative management
- Suspected lumbar or cervical facet pain: axial, worse with extension/rotation, no clear radicular pattern
- Sacroiliac joint pain: buttock-predominant, positive provocation tests
- Vertebral compression fracture: uncertainty about which level is painful or whether acute/chronic
- Post-surgical back pain after lumbar fusion or decompression
- Complex multilevel disease: difficulty identifying the dominant pain-generating level

Not appropriate for this pathway:

- Significant neurological compromise requiring urgent surgical assessment
- Red flags: suspected malignancy, infection, or cauda equina syndrome
- Predominantly discogenic or radicular pain without significant axial component
- Pregnancy (relative contraindication to nuclear medicine imaging)

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