He Kaupare. He Manaaki.
He Whakaora.
prevention. care. recovery.

NZOA
New Zealand Orthopaedic Association

NZCMM
The New Zealand College of Musculoskeletal Medicine

Enabling rapid decisions on ACC cover and entitlements

Consideration factors for: Facet joint injury

Publication date: July 2024 Review date: July 2026

This information has been developed by the New Zealand College of Musculoskeletal Medicine (NZCMM), the New Zealand Orthopaedic Association (NZOA) and the Royal Australian and New Zealand College of Radiologists (RANZCR) working together with ACC's Health Partnerships. It outlines factors ACC staff consider when making decisions on cover and entitlement requests. These factors are based on a review of published research evidence and expert opinion.

Enabling rapid decisions for ACC clients

It's important that we make funding decisions for our clients as efficiently as possible, especially when, for some, treatment provided at an appropriate time is likely to lead to a better outcome.

ACC funding of treatment (such as elective surgery and interventional pain management) is considered on a case-by-case basis. When we make a decision, it is based on information provided in the Assessment Report and Treatment Plan (ARTP), contemporaneous clinical information, and imaging (including reports) provided, along with information we already hold.

In all cases where ACC funding for cover and/or treatment is sought, the treating clinician should explain the causal link between the condition they are treating and the injury that ACC has covered. Wherever possible, the treating clinician should set the appropriate patient expectation based on their understanding of the clinical information.

ACC assessment of funding requests

ACC is required to ensure that its funding decisions comply with its legislation. Establishing a causal link between a condition to be treated and an ACC-covered injury is critical to this assessment.

The funding application must be related to an accepted ACC claim for that body site. In the absence of such a covered claim ACC will not progress the application.

For access to treatments and support there must be evidence of a personal injury caused by accident. The client's reported or experienced symptoms do not in themselves meet the definition of a personal injury. For ACC to cover an injury the clinical evidence must support the likelihood that a physical injury exists and is causing the symptoms.

It should be noted that a temporal attribution of symptoms to an injury is not sufficient evidence of a causal link between an accident and an injury. Where the conclusion using these consideration factors is that a causal link is unlikely to be established, the treating clinician should set these expectations with their patient and advise ACC.

How to apply the consideration factors

The document is intended to provide a number of factors to be considered in combination when providing advice on causation. The factors are not to be considered in isolation; rather the overall balance of factors that are more supportive and less supportive of a causal link should be considered.

The assessment of causation requires a good understanding of the identified pathology and careful consideration of the mechanism of injury, clinical history (including consideration of the multi factorial causes of pain) and clinical findings.

The time frame between the accident event and clinical findings should also be considered.

Facet joint pathology

The literature describes a range of potential causes for facet pathology. Pathology may or may not be accident related. Most commonly, this pathology is attributed to or associated with trauma, degenerative/wear change, increasing age, and/or loading/activities causing repetitive microtrauma.

With increasing age, asymptomatic changes in the spine develop and MRI appearances may occur, including disc desiccation, annular fissure, spondylophyte formation, osteophyte formation and facet joint degeneration. These changes are within the normal spectrum of ageing (Brinjikji et al, 2015).

It must be recognised that the presence of pathology does not necessarily assist in determining causation and that pathology can be present without symptoms.

Where symptoms are present in the absence of radiological changes, this does not exclude the possibility of an injury caused by accident. However, in this circumstance where the treating clinician considers that a facet joint injury is the most likely diagnosis, the consideration factors will be applied.

Definitions relevant to facet joint injury can be found in ***Appendix A***.

Facet joint injury

TABLE 1 – FACTORS TO CONSIDER IN DECISIONS ON CAUSATION OF FACET JOINT INJURY IN THE SPINE

IMPORTANT: The factors are not to be considered in isolation, rather the overall balance of factors that are more supportive or less supportive of a causal link must be considered. For example, the absence of traumatic injury on imaging does not exclude the possibility that an injury to the facet joint has occurred.

	Factors MORE SUPPORTIVE of a causal link	Factors LESS SUPPORTIVE of a causal link
Cover	There is an ACC-covered spinal injury in the relevant spinal region. Signs and symptoms attributable to a specific or adjacent facet joint injury (and side where relevant) documented in the contemporaneous clinical notes. Note: Pain referral patterns may provide additional information about involved facet joint(s) (***Appendix B***).	ACC cover has not been given for a spinal injury in the relevant spinal region. Absence of signs and symptoms attributable to an injury about the facet joint documented in the contemporaneous clinical notes. Note: Pain referral patterns may provide additional information about involved facet joint(s) (***Appendix B***).
Previous history	No previous history of persistent symptoms about the relevant facet joint/spinal region and no clinical evidence suggestive of pre-existing facet joint pathology.	Documented clinical evidence of persistent pre-existing spine symptoms about the facet joint/spinal region and clinical evidence suggestive of pre-existing facet joint pathology.
Mechanism of injury	Accident recognised to cause facet joint injury. Examples include (but are not limited to): • Motor vehicle accidents • Acceleration/deceleration events involving significant energy and force to cause tissue damage to the facet joint and adjacent tissue (e.g. a heavy fall, or collision during sport) • Significant, end range flexion, extension and/or torsional force applied to the lumbar spine • Significant axial force applied through the spine (e.g. a blow to the top ofthe head involving significant energy and force, or a heavy fall onto the buttocks involving significant energy and force).	Absence of accident recognised to cause facet joint injury.

Continued...

	Factors MORE SUPPORTIVE of a causal link	Factors LESS SUPPORTIVE of a causal link
Current history	Immediate pain and documented functional impairment/disability consistent with the symptomatic facet joint. Additional more supportive features may include: • No history mismatch between the history recorded in the ARTP and the contemporaneous medical records. Note: Multi-trauma may cause distracting injuries leading to delayed appreciation of potential facet joint injury.	No history of pain and no documented functional impairment/disability consistent with the symptomatic facet joint, immediately after the accident. Additional less supportive features may include: • Ability to continue participating in activities which load the relevant spinal segment in a way that would be expected to produce symptoms • Unexplained mismatch between the history recorded in the ARTP and the contemporaneous medical records.
Initial presentation	First documented clinical presentation to healthcare provider <1 month after the accident. Clinical assessment findings consistent with the symptomatic motion segment.	First documented clinical presentation >1 month without an adequate explanation for this delay. Clinical assessment findings not consistent with the symptomatic facet joint.
Co-morbidities		Evidence of underlying pre-existing conditions that could better account for the presentation, e.g. infection, ankylosing spondylosis, synovitis or osteoarthritis and/or inflammatory arthritis.
General imaging features (Note: wherever possible, investigation of a significant facet joint injury should include plain film radiographs and MRI as a minimum.)	Evidence of traumatic injury to the facet joint on imaging. For example: • Facet joint subluxation or dislocation • Facet joint subchondral fracture • Facet joint articular pillar fracture. The absence of pre-existing degeneration in the relevant facet joint. Note: • The background prevalence of asymptomatic degenerative change in the facet joints increases with age but does not preclude the possibility of an injury occurring.	The absence of a traumatic injury to the facet joint on imaging. The presence of pre-existing degeneration in the relevant facet joint. Note: • Degenerative change in the facet joint is typically observed and pre-empted by concurrent disc degeneration at the same motion segment.
MRI	Subchondral bone oedema of the facet joint in the absence of any other possible causes.	
	Presence of synovial joint effusion of the facet joint in the absence of any other possible causes.	Absence of synovial joint effusion at the relevant facet joint.
Nuclear medicine	The presence of increased uptake of the facet joint on high resolution CT SPECT or CT PET in the absence of any other possible causes	The absence of increased uptake on high resolution CT SPECT or CT PET in the relevant facet joint.

Diagnostic medial branch blocks

Diagnostic medial branch nerve blocks involve the injection of small volumes of local anaesthetic on the medial branches of the dorsal rami of spinal nerves under fluoroscopy to see whether one or more of the related facet joints are responsible for a patient's pain.

The ACC Purchasing Guidance Advisory Group (ACC, 2016) recommended that double-blind comparative medial branch blocks should be used in the investigation of facet joint pain.

The double-blind comparative protocol is as follows:

- Two separate blocks are to be administered and compared using anaesthetics of different durations of action.
- Each block consists of two injections, as each facet joint is innervated by two distinct medial branches of the dorsal rami.
- Commonly the two anaesthetics used are lignocaine, relatively short lasting, and bupivacaine, longer lasting. The reduction in pain should be sustained for one to three hours with a short-acting anaesthetic (e.g. lignocaine) or two to five hours with a long-acting anaesthetic (e.g. bupivacaine). These durations are indicative and some variance in length of pain relief between individuals is to be expected.
- To reduce observer bias, neither the patient, the physician administering the blocks, nor the person assessing the patient's response to the block should know the order of administration of the two anaesthetics (double blind).
- This procedure should be followed by an independent outcome assessment.

A threshold of at least 80% pain relief and the ability to perform previously painful activities should be the minimum criteria for a positive diagnosis. Ideally, the visual analogue scale (VAS) score should reduce to a maximum of 1/10 (10/100) following the block.

Rigorous patient selection criteria should be applied to reduce the likelihood of false positive diagnoses.

Four additional good practice points relating to patient selection are included:

- Diagnostic medial branch blocks should only be used for chronic back or neck pain (i.e. of at least three months' duration).
- In patients with widespread pain, it may be more difficult to isolate a specific segmental injury and careful consideration should be given to complex interventional approaches including diagnostic medial branch blocks and radiofrequency neurotomy.
- Patients should have a typical VAS pain score of ≥40/100 prior to consideration for diagnostic medial branch blocks. A minimum of 20/100 is required at the time of the diagnostic test.
- Psychosocial risk factors should be considered prior to diagnostic medial branch blocks.

Radiofrequency neurotomy

Following a successful diagnostic medial branch block process, the treating clinician may progress to radiofrequency neurotomy (ablation of the nerve). Radiofrequency neurotomy may need to be repeated periodically due to recurrence of pain secondary to nerve regeneration.

The average duration of symptom relief from radiofrequency neurotomy is 15 months, but there is a wide range of outcomes, and 25% of patients will have relief for more than two and a half years.

It is integral that a psychosocial-biomedical assessment is the foundation of decision-making on whether radiofrequency neurotomy is an appropriate intervention, particularly for repeated procedures and ongoing treatment of pain stemming from facet joint injury.

Acknowledgements

This consensus document has been developed in collaboration between NZCMM, NZOA, RANZCR and ACC.

References

ACC Knowledge Management Team. Diagnostic blocks of the cervical and lumbar medial branches: Cover and Entitlement Note. ACC, 2016.

Brinjikji W, Luetmer PH, Comstock B, Bresnahan BW, Chen LE, Deyo RA, Halabi S, Turner JA, Avins AL, James K, Wald JT, Kallmes DF, Jarvik JG. Systematic literature review of imaging features of spinal degeneration in asymptomatic populations. *American Journal of Neuroradiology*.2015;36(4):811–6.

Cooper G, Bailey B, Bogduk N. Cervical zygapophysial joint pain maps. *Pain Medicine*. 2007;8(4):344–53.

Fardon D, Williams A, Dohring E, Murtagh F, Rothman S, Sze G. Lumbar disc nomenclature: version 2.0: Recommendations of the combined task forces of the North American Spine Society, the American Society of Spine Radiology and the American Society of Neuroradiology. *The Spine Journal*. 2014;14(11):2525–45.

Bibliography

Bogduk N. On cervical zygapophysial joint pain after whiplash. *Spine*. 2011;36:S194-99

Bogduk N. Degenerative joint disease of the spine. *Radiologic Clinics of North America*. 2012;50:613–28.

Bogduk N. (Ed.). *Practice guidelines for spinal diagnostic and treatment procedures* (2nd ed.). International Spine Intervention Society, 2013.

Bogduk N, Yoganandan N. Biomechanics of the cervical spine Part 3: Minorinjuries. *Clinical Biomechanics*. 2001;16:267–75.

Pathria M, Sartoris DJ, Resnick D. Osteoarthritis of the facet joints: Accuracy of oblique radiographic assessment. *Radiology*. 1987;164:227–30.

Weishaupt W, Zanetti M, Boos N, Hodler J. MR imaging and CT in osteoarthritis of the lumbar facet joints. *Skeletal Radiology*. 1999;28:215–9.

APPENDIX A

Definitions

In determining consideration factors for the spine, a standardised approach to nomenclature is required (Fardon et al, 2014). Additional definitions specific to causation of facet joint injury are:

Facet joint (also known as the zygapophyseal or apophyseal joint) – a synovial joint between the superior articular process of one vertebra and the inferior articular process of the vertebra directly above it. There are two facet joints in each spinal motion segment. The facet joints are situated between the pedicle and lamina of the same vertebra and form the articular pillars that act to provide structural stability to the vertebral column.

Together with the disc, the bilateral facet joints transfer loads and guide and constrain motions in the spine due to their geometry and mechanical function.

The articular facet on the superior process of the vertebra below articulates with the articular facet on the inferior articular process of the vertebra above.

The superior facet of the inferior vertebra is rather flat in the cervical and thoracic regions and more convex in the lumbar region. The opposing inferior facet of the superior vertebra is concave and forms an arch with its apex pointing towards the vertebral body.

A motion segment – a functional unit of the spine, comprising the vertebral body above and below, the disc, the facet joints, and the connecting soft tissues. It is most often

Region – the spinal column is grouped into five regions based on morphology – cervical, thoracic, lumbar, sacral and coccygeal. Three regions have facet joints –cervical, thoracic and lumbar. Facets joints have different orientations depending on the region. The intervertebral disc and interspinous articulations contribute to motion at each segment.

Sprain/strain – eflects the spectrum of muscle and connective tissue injury. In general, low grade sprains are not typically evident on soft tissue imaging and will usually settle within a short period of time (within six to eight weeks). Moderate to high grade sprains are more likely to be evident on soft tissue imaging and typically take longer to resolve (six to eight weeks plus). All grades of facet joint sprain are not typically appreciated on imaging. Therefore, normal imaging does not preclude the presence of an injury.

Whiplash associated disorders (WAD) – is the term given for the collection ofsymptoms affecting the neck that are triggered by an accident with an accelerationdeceleration mechanism. The Quebec Task Force (QTF) identifies five grades of WAD.

Grade 0: no neck pain, stiffness, or any physical signs are noticed

Grade 1: neck complaints of pain, stiffness or tenderness only but no physical signs are noted by the examining physician.

Grade 2: neck complaints and the examining physician finds decreased range of motion and point tenderness in the neck.

Grade 3: neck complaints plus neurological signs such as decreased deep tendon reflexes, weakness and sensory deficits.

Grade 4: neck complaints and fracture or dislocation, or injury to the spinal cord.

APPENDIX B

Frequency of symptoms stemming from facet joint injury (adapted from Cooper et al, 2007)