Enabling rapid decisions on cover and entitlements for wrist and hand injuries

Conditions: First carpometacarpal joint arthritis, TFCC tears, Wrist ganglia, de Quervain tenosynovitis, Carpal Tunnel Syndrome, Trigger finger, Ulnocarpal abutment, Ulnar styloid triquetral abutment, SNAC and SLAC wrist

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This information has been developed by ACC's Clinical Services working together with the New Zealand Society for Surgery of the Hand (NZSSH). It outlines factors ACC staff consider when making decisions on cover and entitlement requests. These factors have been developed in collaboration with orthopaedic and plastic surgeons and are based on expert consensus.

Enabling rapid decisions for ACC clients

It's important that we make decisions for our clients as quickly as possible, especially when, for some, getting surgery sooner is likely to lead to a better outcome.

ACC funding of entitlements is considered on a case-by-case basis. When we make a decision, it's based on information provided in the Assessment Report and Treatment Plan (ARTP), contemporaneous clinical information and imaging reports provided, along with information we already hold.

ACC assessment of cover and entitlement funding requests

ACC is required to ensure that its decisions comply with its legislation. The need to establish a causal link between a condition to be addressed and an accepted ACC covered injury is critical to this assessment.

Applications for entitlement (e.g. surgery request) 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.

It should be noted that a temporal attribution of symptoms to an injury is not sufficient evidence of causation.

ACC can provide cover and entitlements for work-related gradual process conditions. When work exposure is being considered as the cause of the injury, patients can be encouraged to apply for cover under the work-related gradual process disease or infection (WRGPDI) criteria. The cover threshold for WRGPDI is different to cover for injuries caused by single event (or series of events) accidents. Therefore, the treating clinician should set appropriate expectations for the patient, especially when the background prevalence of their condition is known to be high.

Consideration factors

ACC and the NZOA have developed a set of general consideration factors for surgery funding requests. This can be found on *acc.co.nz*, and is applicable across all types of surgery.

This document focuses specifically on ten wrist and hand conditions:

- *First carpometacarpal (CMC) joint arthritis*
- *Triangular fibrocartilage complex (TFCC) tears*
- *Wrist ganglia*
- *De Quervain tenosynovitis*
- *Carpal tunnel syndrome (CTS)*
- *Trigger finger*
- *Ulnocarpal abutment*
- *Ulnar styloid triquetral abutment*
- *Scaphoid non-union advanced collapse (SNAC) wrist*
- *Scapholunate advanced collapse (SLAC) wrist*

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.

First carpometacarpal (CMC) joint arthritis

Table 1: Factors to consider in decisions on First CMC joint arthritis

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.

Factors MORE SUPPORTIVE of a causal link	
Demographic	<40 years of age.
History and mechanism of accident	Significant injury to the base of the thumb.
Imaging and diagnostics	a. Fracture dislocation/subluxation of the CMC joint with malunion that then leads to progressive arthritis. Note: Typically, secondary osteoarthritic changes occur over many years (at least 2 years). b. Absence of comparable primary osteoarthritis in the contralateral CMC joint (if images available). c. Previous MRI shows soft tissue disruption (beak ligament injury) with no osteoarthritic changes at the time of initial assessment.
Historical operative findings (if applicable)	Operative records confirm no osteoarthritis at the time of surgery.

Factors LESS SUPPORTIVE of a causal link	
Demographic	>40 years of age. Note: The prevalence of idiopathic/gradual process 1st CMC joint arthritis increases with age.
History and mechanism of accident	Absence of significant injury to the base of the thumb.
Imaging and diagnostics	a. The arthritis must have been caused by the injury. Any confirmed arthritic changes seen in the joint at the time of injury may exclude ACC funding to treat 1st CMC joint arthritis on the basis that it is pre-existing. b. The presence of beak ligament abnormality or CMC joint subluxation in association with CMC arthritis is a common finding and should not be interpreted as having a traumatic origin. c. Comparable primary osteoarthritis in the contralateral CMC joint (if images available). Note: Latency of imaging is relevant (i.e. the time elapsed between the injury and imaging may explain interval change).
Historical operative findings (if applicable)	Operative records confirm osteoarthritis at the time of surgery. Latency of operative record is relevant (i.e. the time elapsed between the injury and operation may explain the development of osteoarthritic changes).

Triangular fibrocartilage complex (TFCC) tears (Appendix 1)

The TFCC includes the triangular fibrocartilage (TFC) and the associated ligaments. Consider alongside ulnocarpal abutment where appropriate.

Table 2: Factors to consider in decisions on TFCC

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.

Factors MORE SUPPORTIVE of a causal link		Factors LESS SUPPORTIVE of a causal link	
History and mechanism of accident	History of significant wrist injury. The mechanism of accident should include a significant axial compressive load with an unexpected element of forearm rotation or an uncontrolled high energy rotational event.	**History and mechanism of accident**	No history of significant wrist injury and the mechanism doesn't include significant axial compressive load with an unexpected element of forearm rotation or an uncontrolled high energy rotational event.
Clinical examination findings	The contemporaneous clinical record should include clear documentation of ulnar-sided pain, swelling and loss of function. In some cases, ulnar-sided wrist pain may increase within the first 2-3 weeks.	**Clinical examination findings**	The contemporaneous clinical record contains no ulnar-sided wrist signs or symptoms.
X-rays:			
Imaging and diagnostics	a. X-rays are typically unremarkable. Additional supporting features may include: • Distal ulnar styloid fracture. • Distal radial impaction fractures. b. Refer to ulnocarpal abutment where appropriate.	**Imaging and diagnostics**	a. Positive ulnar variance Note: This finding does not exclude the possibility of: i. A central traumatic TFC tear (given that the TFC disc is thinner centrally), and/or ii. Traumatic cartilage flap injuries to the lunate and triquetrum. b. Refer to ulnocarpal abutment where appropriate.

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MRI:

a. Oedema and swelling on the foveal side with evidence of a peripheral tear (or a complex TFC tear with peripheral involvement on the foveal side).

b. A central TFC tear with extension into the ligaments of the distal radioulnar joint (DRUJ).

c. TFCC tears in association with ulnar styloid fractures (including basal) are always considered traumatic. Significant changes on MRI may also be associated with DRUJ instability.

d. History of ulnar styloid fracture with associated subchondral oedema or cysts.

a. A normal MRI scan.

Note: This may not exclude a small TFC perforation or a dorsal peripheral rim tear (where the tear may be right up against the sigmoid notch). In arthrographic MRI studies, radial tears of the central TFC are more likely to be visible.

b. Comparable changes in the contralateral side (if images available).

c. A central TFC tear/perforation with:

   i. Chondral changes in the lunate or ulna head including wear and fissuring.

   ii. Presence of subchondral oedema in the ulna, lunate or triquetrum.

   iii. Positive ulnar variance.

   iv. Subchondral cysts in the ulna, lunate or triquetrum.

Note: Latency of imaging is relevant (i.e. the time passed between the injury and imaging may explain interval change).

Wrist ganglia

The aetiology of dorsal wrist ganglia is unclear. The hypothesis that a primary accident injury (such as a dorsal scapholunate ligament tear) causes a secondary ganglion is debated.

Table 3: Factors to consider in decisions on wrist ganglia

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.

Factors MORE SUPPORTIVE of a causal link	
History and mechanism of accident	Development of ganglia at the site of previous surgery addressing a covered physical injury.

Factors LESS SUPPORTIVE of a causal link	
History and mechanism of accident	The presence of a ganglion in that location at the time of the surgery.

De Quervain tenosynovitis

The background prevalence and incidence of this condition increase with age.

The literature suggests that there may be an association between certain job types and the development of de Quervain tenosynovitis.

Table 4: Factors to consider in decisions on de Quervain tenosynovitis

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.

Factors MORE SUPPORTIVE of a causal link		Factors LESS SUPPORTIVE of a causal link	
History and mechanism of accident	a. History of a significant direct trauma to the first dorsal compartment that must include: • Penetrating injury, and/or • A fracture involving the floor of that compartment, and/or; • Post radial styloid or distal radial metaphyseal fracture, and/or; • A significant direct blow over the 1st extensor compartment with contemporaneous clinical documentation of a significant soft tissue injury (e.g. bleeding and haematoma formation).	**History and mechanism of accident**	a. No history of significant direct trauma to the first dorsal compartment. b. If the onset of symptoms is more than 6 weeks after the accident it is almost certainly a non-traumatic condition. c. Pre-existing history of de Quervain pathology (on either side) preceding current event. d. Diabetes and inflammatory arthropathy. e. First CMC joint arthritis. f. Development of de Quervain symptoms during late pregnancy and/or during the post-partum period.

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	Note: de Quervain tenosynovitis may present in association with: • Prolonged wrist immobilisation in long-term dressings (up to 10 days). • Six weeks post removal of cast. • History of immediate pain with attempted insertion of IV cannula or taking of blood over the area of the first compartment. Persistent pain and swelling with clinical diagnosis of de Quervain pathology (or documentation of persistent pain in this area) within a short time (within the recovery period of the initial injury) of the incident. • Localised infection involving the first dorsal compartment. • Complex Regional Pain Syndrome (CRPS). • Burns involving the 1st dorsal compartment.
Clinical examination findings	The contemporaneous clinical record reports the development of swelling, pain and loss of function of that compartment confirmed within a short time (no more than 2 weeks) of that accident.

Clinical examination findings	The contemporaneous clinical record reports no swelling, pain and loss of function of that compartment confirmed within a short time (no more than 2 weeks) of that accident.

Carpal tunnel syndrome (CTS)

CTS is one of the compressive neuropathies that has a significant asymptomatic background prevalence, and this must be considered in each case where a person develops symptoms of CTS.

The diagnosis of CTS is made on a clinical basis. However, bilateral nerve conduction studies (NCS) are required if there is any doubt regarding the diagnosis and as indicated by the treating specialist.

Table 5: Factors to consider in decisions on CTS

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.

Factors MORE SUPPORTIVE of a causal link		Factors LESS SUPPORTIVE of a causal link	
History and mechanism of accident	a. History of: • Acute wrist/carpal fracture or dislocation (and within 6 weeks after the period of immobilisation). • Significant soft tissue injury requiring acute immobilisation and developing symptoms within 6 weeks since injury. Note: Symptomatic CTS can be associated with post-traumatic wrist arthritis.	**History and mechanism of accident**	a. No history of: • Acute wrist/carpal fracture or dislocation and within 6 weeks after the period of immobilisation. • Significant soft tissue injury requiring acute immobilisation and developing symptoms within 6 weeks. b. And/or history of: • Previously documented CTS in the involved hand. • Previously documented idiopathic CTS in the contra-lateral hand. • Obesity, diabetes, osteoarthritis, rheumatoid and other inflammatory arthropathies, hypothyroidism and gout (these are recognised as independent risk factors for the development of CTS, but do not exclude the diagnosis of trauma-related CTS).

Trigger finger

Triggering occurs at the fingers and thumbs; however, the pathology is almost always more proximal at the level of the A1 pulley of the hand (at the level of the metacarpal neck (distal palmar crease).

If the cause of the triggering is distal to the A1 pulley, then trauma is more likely to have a role.

The background prevalence and incidence of this condition increase with age.

The literature suggests that there may be an association between certain job types (including use of vibration tools) and the development of trigger finger.

Table 6: Factors to consider in decisions on Trigger finger

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.

Factors MORE SUPPORTIVE of a causal link		Factors LESS SUPPORTIVE of a causal link	
History and mechanism of accident	a. History of trauma to finger that must include: • Laceration and/or penetrating injury to the relevant tendon or its sheath, and/or • Clear evidence of a fracture or dislocation at the site or joint, and/or; • Partial flexor tendon rupture or laceration.	**History and mechanism of accident**	a. No history of trauma to the finger. b. History of previous or concurrent idiopathic triggering of this or other fingers. c. Patient demographics – the prevalence of idiopathic/gradual process trigger finger increases with age. d. Paediatric trigger thumb. e. Diabetes does not exclude trauma-related triggering, but idiopathic triggering is the more likely cause in diabetic patients. f. The presence of an inflammatory arthropathy.

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	These could be associated with the development of swelling and then stiffness of the relevant finger followed by clinically documented triggering within a short time frame (2-3 weeks). b. In rare cases, may present following: • The removal of a brace or cast that has been putting pressure on the A1 pulley. This can happen within a few weeks of the cast being removed (no more than 6 weeks after the period of immobilisation). • Localised infection involving the A1 pulley. • Complex Regional Pain Syndrome (CRPS). • Burns over the relevant A1 pulley.
Clinical examination findings	The contemporaneous clinical record reports the development of swelling and then stiffness of the relevant finger followed by clinically documented triggering within a short time frame (2-3 weeks).

Clinical examination findings	The contemporaneous clinical record reports no swelling, pain and loss of function of that compartment confirmed within a short time frame (no more than 2 weeks) of that accident.

Ulnocarpal abutment

Consider alongside TFCC Criteria where appropriate.

Table 7: Factors to consider in decisions on Ulnocarpal abutment

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.

Factors MORE SUPPORTIVE of a causal link		Factors LESS SUPPORTIVE of a causal link	
History and mechanism of accident	a. History of previous distal radial fracture, radial shaft fracture, radial head fracture or excision of the radial head that is shown to have resulted in radial shortening and resultant positive ulnar variance. b. In skeletally mature adults a fracture of the distal radius is the most common cause. In skeletally immature children, an injury to the growth plate with subsequent growth plate arrest can cause this condition. c. Refer to TFCC Criteria where appropriate.	**History and mechanism of accident**	a. Refer to TFCC Criteria where appropriate.
Imaging and diagnostics	a. X-rays confirm positive ulnar variance with associated shortening of the radius due to malunion/radial collapse or if associated with radial head excision. b. If a fracture/dislocation occurs through the midshaft or proximal radius the subsequent shortening relative to the ulna must be clearly documented. c. Refer to TFCC Criteria where appropriate.	**Imaging and diagnostics**	a. Refer to TFCC Criteria where appropriate.

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Ulnar styloid triquetral abutment

Table 8: Factors to consider in decisions on Ulnar styloid triquetral abutment

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.

Factors MORE SUPPORTIVE of a causal link	
History and mechanism of accident	This condition occurs most commonly as a consequence of distal radius fractures where the injury also causes an ulnar styloid fracture. Ulnar styloid fractures are often not considered or diagnosed in the acute setting.
Imaging and diagnostics	a. X-rays show marked overgrowth of the ulnar styloid that is not present on the contralateral side, with a history of a wrist fracture/trauma when skeletally immature, or b. X-rays show a large distal bony ossicle associated with the tip of the ulnar styloid, and history of a previous fracture involving the ulnar styloid. c. Adequate/appropriate imaging confirms abutment. Note: In all these cases, the treating clinician should provide the rationale, and an independent assessment of bilateral images is mandatory to exclude bilateral overgrowth.

Factors LESS SUPPORTIVE of a causal link	
History and mechanism of accident	No factors identified
Imaging and diagnostics	No factors identified.

Scaphoid non-union advanced collapse (SNAC) wrist and scapholunate advanced collapse (SLAC) wrist

Cases where the initial presentation is with SLAC/SNAC wrist at the time of first presentation, and with no previous diagnosis of scapholunate rupture or scaphoid fracture, will require causation to be established for the historical injury that in turn has led to the SLAC/SNAC wrist.

SNAC wrists are always considered to be traumatic in origin. These can only occur as a consequence associated with non-union of scaphoid fractures.

The natural history of scapholunate ligament disruption is the development of a characteristic pattern of post-traumatic arthritis called SLAC wrist. SLAC wrist can occur in patients where previous scapholunate repair or reconstruction has been performed.

Table 9: Factors to consider in decisions on SNAC wrist and SLAC wrist

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.

Factors MORE SUPPORTIVE of a causal link	
History and mechanism of accident	a. A previous ACC claim that involves the wrist with a history consistent with an accident that is likely to result in the SLAC/SNAC wrist. b. A previous ACC claim with a history of significant multi-trauma in the past with documentation that the wrist/hand was involved. Note: If there is no previous ACC claim but there is a history of significant injury with mechanism and date of injury known that would be consistent with the development of scapholunate ligament injury or scaphoid fracture, then a retrospective ACC claim could be lodged and the case considered on its merits with consideration of the contemporaneous clinical information.

Factors LESS SUPPORTIVE of a causal link	
History and mechanism of accident	a. SLAC wrist can develop as a slow wear/stretching out of the scapholunate and the pattern of change shifts with age: • There is gradual failure in an older patient with isolated severe triscaphe arthritis (scaphoid, trapezium and trapezoid joint) with subsequent scapholunate dissociation. • The same process occurs in an older patient with isolated radiocarpal and midcarpal arthritis. • Scapholunate disruptions occur gradually in an older patient with a history of inflammatory arthritis. • The degree of arthritis seen at the time of imaging does not match the documented injury timeline. Note that this timeline will vary depending on the severity of the injury and the latency of presentation/imaging. • Arthritis starting on the ulnar side of the wrist.

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Appendix 1 – Triangular Fibro Cartilage Complex (TFCC) injuries

Background

The TFCC is an ulnar wrist structure composed of a triangular fibrocartilaginous disc (TFC) and its stabilising ligaments. This complex structure serves to stabilise the distal radioulnar joint (DRUJ) and to separate the radiocarpal joint (wrist joint proper) from the DRUJ. The normal anatomy of the radiocarpal joint and DRUJ and of the TFCC shows a considerable variation among healthy individuals. The relative length of the ulna in relation to the radius is described as the ulnar variance and is positive if the ulna is longer than the radius, neutral if of equal length, and negative if the ulna is shorter than the radius. The range of normal ulnar variance is from +2.3mm to -4.2mm with an average of -0.9mm. The thickness of the TFC is influenced by the ulnar variance, in that the TFC is thicker in ulnar negative individuals. This explains why patients with negative ulnar variance are less likely to develop degenerative or traumatic tears of the central TFC.

The background prevalence of asymptomatic TFC pathology is well described and increases with age.

The most recognised classification of TFCC lesions is the Palmer classification. Class 1 tears are traumatic tears of the TFCC and associated fractures. Class 2 tears are degenerative tears with associated chondral and bony changes in the proximal pole of the lunate and the ulnar head as well as in the interosseous lunotriquetral ligament.

There are areas of overlap between the characteristics of the TFCC classes and other areas that clearly differentiate the classes.

The central perforation of the TFC that is described in Class 1A traumatic tears is identical to the TFCC perforation in Class 2C in degenerative tears.

Early stages of chondromalacia may not be easily detected in routine imaging; however, bony changes in communicating surfaces of the proximal lunate and ulnar head (kissing lesion) support the degenerative cause of the tear. Isolated involvement of the ulnar-sided proximal pole of the lunate with chondral damage and cystic changes is also seen in ulnocarpal abutment.

An isolated peripheral TFC tear on the other hand is typically considered of traumatic origin.

Table 10: Palmer classification of triangular fibrocartilage complex lesions (1)

Class1: Traumatic	A: General perforation
	B: Ulnar avulsion
	• With styloid fracture
	• Without styloid fracture
	C: Distal avulsion (from carpus)
	D: Radial avulsion
	• With sigmoid notch fracture
	• Without sigmoid notch fracture
Class 2: Degenerative (Ulnar Impaction Syndrome)	A: TFCC wear
	B: TFCC wear
	• Plus lunate or ulnar head chondromalacia
	C: TFCC perforation
	• Plus lunate or ulnar head chondromalacia
	D: TFCC perforation
	• Plus lunate or ulnar head chondromalacia
	• Plus lunotriquetral ligament perforation
	E: TFCC perforation
	• Plus lunate or ulnar head chondromalacia
	• Plus lunotriquetral ligament perforation
	• Plus ulnocarpal arthritis

[1] Wolfe, S., et al. (2017). *Green's Operative Hand Surgery*. Philadelphia, PA, Elsevier.

Differentiating degenerative from traumatic tears

Traumatic tears

History

There is a history of a significant acute overload. *"Traumatic tears result from an acute rotational injury to the forearm, a combined axial load and distraction injury to the ulnar border of the forearm, or a fall on the pronated outstretched hand."* (2)

Symptoms are similar to those associated with degenerative tears and there may also be mechanical symptoms if there is associated distal radial ulnar joint (DRUJ) instability (joint clicking and clunking).

Examination

Range of motion (ROM) may be reduced, often with pain at the extremes of extension and rotation. DRUJ instability may be seen in traumatic tears. Palpable or audible clicking from an unstable TFC tear may be associated with pain. Translation of the ulnar head in the sigmoid notch may cause pain. Ulnocarpal loading causes pain and this may be worse at the extremes of forearm rotation.

Imaging

X-rays may reveal DRUJ subluxation or dislocation but more often are normal. There may be an avulsion fragment of the ulnar insertion of the TFCC or an ulnar styloid fracture.

The presence of positive ulnar variance does not automatically infer that a TFC tear is degenerative in nature. The central TFC is thinner when associated with positive ulnar variance, and is more susceptible to single event trauma.

MRI may reveal a tear as classified above. A central tear may or may not be traumatic, as discussed earlier. Any peripheral TFC tear associated with DRUJ ligament injury implies a traumatic origin.

Degenerative tears

History

More common with increasing age. Chronic excessive overload may be associated with occupational factors. This condition is less commonly seen in patients with ulnar negative variance. The onset of symptoms is gradual but there may be a history of trauma.

Traumatically caused deformities to the radius or ulna, e.g. as in previous fractures or growth plate injuries, may cause delayed post-traumatic tears that appear like degenerative tears (including ulnocarpal impaction).

Symptoms are ulnar-sided wrist pain especially under load. Rest pain may develop with progression to arthritis.

Examination

ROM is often preserved. Localised tenderness over the TFCC and ulnocarpal articulation. The DRUJ is stable. The lunotriquetral ballotment may be painful. Ulnar-deviated circumduction under load is painful.

Imaging

Typical X-ray findings of ulnocarpal impaction are lytic/cystic lesions in the proximal pole of the lunate and ulnar head. Positive ulnar variance is common. MRI reveals a central perforation and may report associated chondromalacia. Isolated changes in the ulnar side of the lunate are an early sign of chondromalacia. Central perforations of the TFC in association with chondromalacia in the lunate and/or ulnar head are more supportive of ulnocarpal impaction.

Complex tears, i.e. central tears with peripheral extensions, in association with ulnocarpal impaction will generally require further clinical assessment if the suggestion is that these tears are caused by a single episode of trauma.

[2] Wolfe, S., et al. (2017). *Green's Operative Hand Surgery*. Philadelphia, PA, Elsevier.

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