Elbow Injuries Worker's Compensation General Guidelines
Work-Related Ulnar Neuropathy at the Elbow (UNE) Diagnosis and Treatment*

Table of Contents

I. Surgical Criteria

II. Introduction

III. Establishing Work-Relatedness

IV. Making the Diagnosis
   A. Symptoms and Signs
   B. Electrodiagnostic Testing
   C. Other Diagnostic Tests

V. Treatment
   A. Conservative Treatment
   B. Surgical Treatment

VI. Return to Work (RTW)
   A. Early Assessment
   B. Returning to Work following Surgery

*This guideline does not apply to severe or acute traumatic injury to the upper extremities
### Ulnar Neuropathy at the Elbow Surgical Criteria

**Effective Date:** January 1, 2010, updated January 22, 2015

<table>
<thead>
<tr>
<th>Conservative Treatment</th>
<th>Objective</th>
<th>Diagnostic Criteria</th>
<th>Surgical Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simple decompression</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surgery should include exploration of the ulnar nerve throughout its course around the elbow, and release of all compressive structures. Complete release may require nerve decompression at multiple sites and may also require Z-lengthening of the flexor pronator origin.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pain or dysesthesias in the ring and small fingers (4th or 5th digits) often coupled with pain in the proximal medial aspect of the elbow, forearm, and release of pressure on the ulnar nerve.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diminished sensation of the ring and little fingers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electromyographic criteria as follows (at least one of the below should apply):</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Lower or absent CMAP amplitude decrease of &gt;20% between AE and BE forearm.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Focal slowing on inching studies of the ulnar nerve across the elbow, defined as a latency difference exceeding 0.7 msec across a 2-cm segment, or 0.4 msec across a 1-cm segment.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Compound muscle action potential (CMAP) amplitude decrease of &gt;30% between AE and BE forearm.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. CMAP duration increase of &gt;40% between AE and BE forearm.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Moro's sign</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Positive Tinel's sign at the elbow</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Positive Phalen's sign</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unilateral neuropathy of the ulnar nerve</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In unusual circumstances, a patient may have appropriate symptoms and abnormal EMG without objective physical findings.

In the case of clear motor deficit, the 6 weeks conservative care is not required. In unusual circumstances, a patient may have appropriate symptoms and abnormal EMG without objective physical findings.
Work-Related Ulnar Neuropathy at the Elbow (UNE)  
Diagnosis and Treatment

II. INTRODUCTION

Ulnar nerve entrapment (UNE) occurs most commonly at the elbow due to mechanical forces that produce traction or ischemia to the ulnar nerve. A differential diagnosis for UNE includes cervical radiculopathy, brachial plexopathy and compression of the ulnar nerve at the wrist. Entrapment may also occur from soft-tissue structures such as tumors or ganglions, bony abnormalities such as cubitus valgus or bone spurs, or subluxation of the ulnar nerve over the medial epicondyle with elbow flexion. A tardy ulnar nerve palsy may be seen in association deformities of the elbow secondary to a supracondylar fracture of the humerus. This may occur when the ulnar nerve becomes entrapped by scar tissue. This may produce anterior displacement of the nerve with elbow flexion, which may then spontaneously reduce back into the ulnar nerve groove with elbow extension.

Potential sites of UNE include Osborne’s ligament at the cubital tunnel, the arcade of Struthers, the medial intermuscular septum, the medial epicondyle, the flexor-pronator aponeurosis, and rarely an accessory muscle, the anconeus epitrochlearis.

In general, work-relatedness and appropriate symptoms and objective signs must be present for Labor and Industries to accept UNE on a claim. Electrodiagnostic studies (EDS), including nerve conduction velocity studies (NCVs) and needle electromyography (EMG), should be scheduled immediately to corroborate the clinical diagnosis. If time loss extends beyond two weeks or if surgery is requested, completion of EDS is required and does not require prior authorization.
III. ESTABLISHING WORK-RELATEDNESS

Work related activities may also cause or contribute to the development of UNE. Establishing work-relatedness requires all of the following:

1. Exposure: Workplace activities that contribute to or cause UNE, and
2. Outcome: A diagnosis of UNE that meets the diagnostic criteria under Section III, and
3. Relationship: Generally accepted scientific evidence, which establishes on a more probable than not basis (greater than 50%) that the workplace activities (exposure) in an individual case contributed to the development or worsening of the condition (outcome).

Although the exact incidence and prevalence are uncertain, UNE is second only to carpal tunnel syndrome as the most common peripheral nerve entrapment. From 1995-2000, approximately 2800 claims for work-related UNE were reported to the Department of Labor and Industries (L&I)\(^4\). A quarter of these patients received surgical treatment while the remainder was treated conservatively. Time loss payments were paid to 93% of the surgery group and 61% of the conservatively treated group.

Certain work-related activities have been associated with UNE. Activities requiring repetitive or sudden elbow flexion or extension, intensive use of hand tools, or repeated trauma or pressure to the elbow\(^{5-7}\). Jobs where these activities occur may include but are not limited to the following:

- Lifting
- Working in tight places
- Digging
- Using hand saws or large power machinery
- Leaning on elbow(s) at desk or work bench
- Shoveling
- Hammering
- Operating boring and punching machines

**Several occupations have been associated with UNE. This is not an exhaustive list and is meant only as a guide in the consideration of work-relatedness.**\(^{3, 5}\)

- Carpenter
- Glass cutter
- Seamstress
- Assembly line worker
- Food industry worker
- Painter
- Musician
- Packaging worker
- Shoe and clothing industry worker

IV. MAKING THE DIAGNOSIS

A. SYMPTOMS AND SIGNS

A case definition of confirmed UNE includes appropriate symptoms, objective physical findings ("signs"), and abnormal electrodiagnostic studies. A provisional diagnosis of UNE may be made based upon appropriate symptoms and objective signs, but confirmation of the diagnosis requires abnormal EDS.

The primary symptom associated with UNE is diminished sensation or abnormal unpleasant sensation (dysesthesias) in the ring and small fingers (4th or 5th digits), often coupled with pain in the proximal medial aspect of the elbow\(^7\). Motor symptoms may include progressive weakness,
with inability to separate fingers, loss of power grip, and poor dexterity. Non-specific symptoms, (e.g., pain without sensory loss; “dropping things”) by themselves are not diagnostic of UNE. Symptoms of UNE may worsen at night. Symptom provocation has been described with Tinel’s sign (tapping over the cubital tunnel), or by sustained (sixty seconds) elbow flexion with or without manual compression of the ulnar nerve at or proximal to the cubital tunnel[8]. Alone, these findings are neither sensitive nor specific for the diagnosis of UNE.

Objective findings on physical examination should be localized to muscles supplied by the ulnar nerve (Table 1) or sensory impairment in an ulnar distribution. Motor deficits include weakness of intrinsic hand muscles, which can be demonstrated with Froment’s sign (activation of flexor pollicis longus to compensate for weak adductor pollicis). To perform this test, the patient is asked to pinch a piece of paper between the tip (not pad) of the thumb and the tip (not pad) of the index finger. The tester pulls the paper out from between the fingers, asking the patient not to let go. Weakness of the ulnar innervated adductor pollicis muscle (or positive Froment’s sign) is present if the patient cannot maintain a tip-to-tip pinch and instead resorts to a pad-to-pad pinch. In more advanced cases, intrinsic muscle atrophy becomes visibly evident (e.g. 1st dorsal interosseous). In severe cases, hand opening will reveal a characteristic “ulnar claw” posture, with hyperextension of the metacarpophalangeal joints and flexion of the interphalangeal joints[2]. (This should not be confused with the median neuropathy “benediction” sign seen with hand closing.) Ulnar sensory impairment can be demonstrated using Semmes-Weinstein monofilaments and should be localized to the ring and small finger and ulnar aspect of the hand.

There appears to be a high frequency of diagnostic imprecision for cases handled within the workers’ compensation system. In the general population, UNE typically occurs as an isolated mononeuropathy, with co-incidence of UNE and carpal tunnel syndrome being relatively uncommon. However, the experience of L&I shows that approximately 60% of UNE surgery patients had a concomitant diagnosis of carpal tunnel syndrome, usually made prior to a diagnosis of UNE[4]. Every effort should be made to objectively verify the diagnosis of UNE before considering surgery.

### Table 1. Muscles Innervated by the Ulnar Nerve

<table>
<thead>
<tr>
<th>In the forearm, via the muscular branch of the ulnar nerve</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Flexor carpi ulnaris</td>
</tr>
<tr>
<td>• Flexor digitorum profundus (medial half)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>In the hand, via the deep branch of the ulnar nerve</th>
</tr>
</thead>
<tbody>
<tr>
<td>• <strong>hypothenar muscles</strong></td>
</tr>
<tr>
<td>-Opponens digitii minimi</td>
</tr>
<tr>
<td>-Abductor digitii minimi</td>
</tr>
<tr>
<td>-Flexor digiti minimi brevis</td>
</tr>
<tr>
<td>• Adductor pollicis</td>
</tr>
<tr>
<td>• Flexor pollicis brevis deep head</td>
</tr>
<tr>
<td>• 3rd and 4th lumbrical muscles</td>
</tr>
<tr>
<td>• Dorsal interossei</td>
</tr>
<tr>
<td>• Palmar interossei</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>In the hand, via the superficial branch of the ulnar nerve</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Palmaris brevis</td>
</tr>
</tbody>
</table>
B. ELECTRODIAGNOSTIC STUDIES (EDS)

i. Nerve Conduction Velocity

Electrodiagnostic studies can help to objectively locate, confirm, and quantify the severity of ulnar nerve compression. Nerve conduction velocities (NCV) are measured across the elbow with the ulnar-innervated hand intrinsic musculature (abductor digiti minimus or first dorsal interosseus muscles) used for motor velocity determination. Parameters for accurate testing include moderate flexion of the elbow (70°-90°) and a consistent and documented distance across the elbow (at least 5-6 cm with digital storage oscilloscope or 10 cm with older electrodiagnostic equipment)\(^9\)\(^-\)\(^11\).

There must be evidence of ulnar nerve demyelination with or without axon loss to confirm a diagnosis of UNE and should include at least two of the following motor nerve conduction abnormalities:

1. Slowing of above elbow (AE) to below elbow (BE) nerve conduction velocity to less than 50 m/s in either the abductor digiti minimi (ADM) or first dorsal interosseous (FDI).

2. Focal slowing on inching studies of the ulnar nerve across the elbow, defined as a latency difference exceeding 0.7 msec across a 2-cm segment (or 0.4 msec across a 1-cm segment).

3. Compound muscle action potential (CMAP) amplitude decrease of >20% between AE and BE waveforms*

4. CMAP duration increase of >30% between AE and BE waveforms*

*For electromyographers: for findings 3 and 4, and particularly when there is an amplitude drop between wrist and BE, the presence of Martin-Gruber anastamosis must be excluded as a cause of the findings.

To exclude the presence of polyneuropathy as a cause of the abnormalities described above, evaluation of another motor nerve must be normal.

Ulnar sensory electrodiagnostic abnormalities alone are considered to be nonspecific and nonlocalizing and hence cannot alone be used to confirm a diagnosis of UNE. Amplitude of the sensory response is non-localizing and velocity is subject to errors. There is not sufficient reference data at this point to support using sensory studies to confirm the diagnosis of UNE.

One recent study\(^{12}\) found with 95% specificity, the sensitivities of across-elbow MNCV were considerably better than looking at the MNCV difference between elbow and forearm segments (80% at ADM, 77% at FDI). The sensitivity of the study may be further increased by recording from both the FDI and ADM muscles.
In all cases, and particularly in cases with borderline NCV results, control for skin temperature should be documented. In general, the above referenced values will hold for skin temperature in the range of 30-34°C. Lower temperatures will be associated with falsely slowed NCV results.

ii. Needle Electromyography

EMG studies are usually normal if the nerve conduction studies are entirely normal and there are no atypical or unexplained signs or symptoms. Isolated needle EMG findings in the setting of normal nerve conduction studies are typically not seen in UNE and could be indicative of another diagnosis. Needle EMG study is not considered sufficient to establish a diagnosis of ulnar neuropathy in the absence of nerve conduction changes. If performed, the most helpful needle EMG findings in ulnar neuropathy is abnormal rest activity in the form of fibrillation potentials and positive sharp waves in ulnar-innervated muscles in the hand and forearm, which could suggest ongoing axonal injury. However, if there are clinical findings suggesting a diagnosis other than or in addition to UNE, needle EMG may be appropriate, for example, to evaluate:

a. Possible median neuropathy, demonstrated by clinical weakness or atrophy of the thenar muscles, or abnormal median nerve conduction study.
b. Possible peripheral polyneuropathy, such as from diabetes.
c. Possible traumatic nerve injury following acute trauma to the distal upper extremity.
d. Possible radiculopathy, with neck stiffness and radiating pain.

C. OTHER DIAGNOSTIC TESTS

Some studies have demonstrated that Magnetic Resonance Imaging (MRI) neurography and ultrasound have promise in the diagnosis of UNE. However, these services will not be authorized for this condition because the clinical utility of these tests has not yet been proven. While the Committee recognizes that these tests may be useful in unusual circumstances where NCV results are normal but there are appropriate clinical symptoms, the Committee believes that at this time the use of these tests is investigational and should be used only in a research setting.

V. TREATMENT

Non-surgical therapy may be considered in cases in which a provisional diagnosis has been made (i.e. it has not been confirmed by EDS testing). Surgical treatment should be provided only in cases where the diagnosis of UNE has been confirmed by abnormal EDS, as the potential benefits of UNE surgery outweigh the risks of surgery only when the diagnosis of UNE has been confirmed by abnormal EDS.

A. CONSERVATIVE TREATMENT

Conservative treatment is reasonable for patients presenting with early or mild symptoms, e.g. intermittent dysesthesias, minimal motor findings, and normal EDS. The goals of conservative treatment are to reduce the frequency and severity of symptoms and to prevent further progression of the condition[^3, 13].
Management should include modification of activities that exacerbate symptoms, night-time splinting, or padding the elbow to prevent direct compression. Splinting has been reported to provide improvement within one month for some patients\cite{14,15}. However, there is no consensus on the duration of conservative treatment and the recommended length of time varies between one month and one year. Patients do not usually need time off from work activities prior to surgery unless they present with objective weakness in the distribution of the ulnar nerve that compromises workplace safety or limits work activities.

**B. SURGICAL TREATMENT**

Surgical treatment should be considered if:

1. The condition does not improve despite conservative treatment, and
2. The condition interferes with work or activities of daily living, and
3. The patient has met the diagnostic criteria under Section III.

Unless the patient meets criterion #3, surgery is not indicated and will not be authorized.

Surgery should include exploration of the ulnar nerve throughout its course around the elbow, and release of all compressive structures. Complete release may require nerve decompression at multiple sites and may also require Z-lengthening of the flexor pronator origin.

**VI. RETURN TO WORK (RTW)**

**A. EARLY ASSESSMENT**

Timeliness of the diagnosis can be a critical factor influencing RTW. Among workers with upper extremity disorders, 7% of workers account for 75% of the long-term disability.\cite{16} A large prospective study in the Washington State workers’ compensation system identified several important predictors of long-term disability: low expectations of return to work (RTW), no offer of a job accommodation, and high physical demands on the job.\cite{17} Identifying and attending to these risk factors when patients have not returned to work within 2-3 weeks of the initial clinical presentation may improve their chances of RTW.

Washington State workers diagnosed accurately and early were far more likely to RTW than workers whose conditions were diagnosed weeks or months later. Early coordination of care with improved timeliness and effective communication with the workplace is also likely to help prevent long-term disability. A recent quality improvement project in Washington State (COHE) has demonstrated that organized delivery of occupational health best practices similar to those listed in Table 2 can substantially prevent long-term disability.

See next page for Table 2
**Table 2. Occupational Health Quality Indicators for Ulnar Neuropathy at the Elbow (UNE)**

<table>
<thead>
<tr>
<th>Clinical care action</th>
<th>Time-frame*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Identify physical stressors from both work and non-work activities;</td>
<td>1st health care visit</td>
</tr>
<tr>
<td>2. Screen for presence of UNE</td>
<td></td>
</tr>
<tr>
<td>3. Determine work-relatedness</td>
<td></td>
</tr>
<tr>
<td>4. Recommend ergonomic improvements</td>
<td></td>
</tr>
</tbody>
</table>

Communicate with employer regarding RTW using
1. Activity Prescription Form (or comparable RTW form)
   and/or
2. Phone call to employer

| 1. Assess impediments for RTW                                                      | If > 2 weeks of time-loss occurs or if there is no clinical improvement within 6 weeks |
| 2. Request specialist consultation                                                  |                                    |

Specialist consultation

<table>
<thead>
<tr>
<th>Electrodiagnostic studies</th>
<th>If the diagnosis of UNE is being considered, schedule studies immediately. These tests are required if time-loss extends beyond 2 weeks, or if surgery is requested.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surgical decompression</td>
<td>Performed ASAP, within 4-6 weeks of determining need for surgery</td>
</tr>
</tbody>
</table>

*“Time-frame” is anchored in time from 1st provider visit related to UNE complaints.

**B. RETURNING TO WORK FOLLOWING SURGERY**

How soon a patient can return to work depends on the type of surgery performed and when rehabilitation begins. Most patients requiring a UNE release alone can return to light duty work within 3 weeks. Recommendations for rehabilitation vary.
References

Medical Treatment Guidelines

Work-Related Radial Nerve Entrapment: Diagnosis and Treatment*

Table of Contents

I. Introduction
II. Establishing Work-Relatedness
III. Making the Diagnosis
   A. Symptoms and Signs
   B. Electrodiagnostic Testing
   C. Other Diagnostic Tests
IV. Treatment
   A. Conservative Treatment
   B. Surgical Treatment
V. Return to Work (RTW)
   A. Early Assessment
   B. Returning to Work following Surgery

VI Guideline Summary

*This guideline does not apply to severe or acute traumatic injury to the upper extremities.
Work-Related Radial Nerve Entrapment: Diagnosis and Treatment

I. INTRODUCTION

Radial nerve entrapment (RNE) is uncommon in the absence of acute trauma. When it occurs in relation to work, RNE usually refers to one of two syndromes: radial tunnel syndrome (RTS) or posterior interosseous nerve syndrome (PINS)\(^1\). Although RNE may occur from compression at any point along the course of the radial nerve due to acute trauma (e.g., humerus fracture, Saturday night palsy), space-occupying lesion (e.g., lipoma, ganglion), local edema or inflammation, this guideline focuses on RTS and PINS, which are more typical for RNE arising from repetitive work activities.

RTS and PINS have been described to occur at one of five potential sites. These sites, from proximal to distal, include the fibrous bands of the radiocapitellar joint, radial recurrent vessels (the leash of Henry), the tendinous edge of the extensor carpi radialis brevis, the arcade of Frohse, and the distal edge of the supinator. Most cases of RNE have been described at the arcade of Frohse.

In general, work-relatedness and appropriate symptoms and objective signs must be present for Labor and Industries to accept RNE on a claim. Electrodiagnostic studies (EDS), including nerve conduction velocity studies (NCVs) and needle electromyography (EMG), should be scheduled immediately to confirm the clinical diagnosis. If time loss extends beyond two weeks or if surgery is requested, completion of EDS is required and does not need prior authorization.

II. ESTABLISHING WORK-RELATEDNESS

Work related activities may cause or contribute to the development of RNE. Establishing work-relatedness requires all of the following:

1. Exposure: Workplace activities that contribute to or cause RNE, and
2. Outcome: A diagnosis of RNE that meets the diagnostic criteria under Section III, and
3. Relationship: Generally accepted scientific evidence, which establishes on a more probable than not basis (greater than 50%) that the workplace activities (exposure) in an individual case contributed to the development or worsening of the condition (outcome).

\(^1\) Evidence was classified using criteria defined by the American Academy of Neurology (see references)
When the Department receives notification of an occupational disease, the Occupational Disease & Employment History form is mailed to the worker, employer or attending provider. The form should be completed and returned to the insurer as soon as possible. If the worker’s attending provider completes the form, provides a detailed history in the chart note, and gives an opinion on causality, he or she may be paid for this (use billing code 1055M). Additional billing information is available in the Attending Doctor’s Handbook.

Certain work-related activities have been associated with RNE, usually those requiring forceful and repetitive elbow extension and forearm supination, handling of loads greater than 1 kg, and firm pinching or squeezing of objects or hand tools. Jobs where these activities often occur may include but are not limited to the following:

<table>
<thead>
<tr>
<th>Construction</th>
<th>Smelting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Machine tuning</td>
<td>Assembly line inspection</td>
</tr>
<tr>
<td>Sewing</td>
<td>Packing</td>
</tr>
</tbody>
</table>

Several occupations have been described in association with RNE. This is not an exhaustive list and is meant only as a guide in the consideration of work-relatedness:

<table>
<thead>
<tr>
<th>Truck driver</th>
<th>Cement or brick layer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assembly line worker</td>
<td>Automobile brakes industry worker</td>
</tr>
<tr>
<td>Television industry worker</td>
<td>Shoes and clothing industry worker</td>
</tr>
<tr>
<td>Mechanic</td>
<td>Ice cream packer</td>
</tr>
<tr>
<td>Seamstress</td>
<td>Secretary</td>
</tr>
</tbody>
</table>

### III. MAKING THE DIAGNOSIS

#### A. SYMPTOMS AND SIGNS

A case definition of confirmed RNE includes appropriate symptoms, objective physical findings ("signs"), and abnormal electrodiagnostic studies. A provisional diagnosis of RNE may be made based upon appropriate symptoms and objective signs, but confirmation of the diagnosis requires abnormal EDS.

Symptoms associated with RNE may include weakness in radial innervated muscles and pain or aching over the proximal, lateral forearm. Patients may report an increase in pain severity with an increase in activity or during sleep. Loss of motor function is most common with PINS.

Signs on examination may include tenderness over the radial nerve distal to the lateral epicondyle. Tenderness on palpation is a useful objective finding, but cannot support the diagnosis of RNE alone. Motor findings include difficulty extending the thumb, fingers, or wrist. Motor testing should compare strength of radial innervated muscles to strength of the same muscles in the non-affected limb as well as non-radial innervated muscles of the affected limb (see Table 1). Atrophy of affected muscles may be seen in chronic or severe cases.

Provocative tests have been described to help corroborate the diagnosis of RNE. These include pressure over the radial tunnel ("radial nerve compression test"), resisted supination with the elbow extended ("resisted supination test"), and resisted extension of the middle-finger at the metacarpophalangeal joint ("middle-finger test"). These tests are based on creating maximal tension on the anatomical sites that are
involved in RNE. However, sensitivity and specificity of these tests have not been established and these tests cannot replace the objective signs discussed below.

**Table 1. Muscles Innervated by the Radial Nerve**

<table>
<thead>
<tr>
<th>In the arm, via the muscular branch of the radial nerve</th>
</tr>
</thead>
<tbody>
<tr>
<td>• <em>triceps brachii (long head, medial head, lateral head)</em></td>
</tr>
<tr>
<td>• <em>anconeous</em></td>
</tr>
<tr>
<td>• <em>brachioradialis</em></td>
</tr>
<tr>
<td>• <em>extensor carpi radialis longus</em></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>In the forearm, via the deep branch of the radial nerve</th>
</tr>
</thead>
<tbody>
<tr>
<td>• <em>extensor carpi radialis brevis</em></td>
</tr>
<tr>
<td>• <em>supinator</em></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>In the forearm, via the posterior interosseous nerve:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• <em>extensor digitorum communis</em></td>
</tr>
<tr>
<td>• <em>extensor digiti minimi</em></td>
</tr>
<tr>
<td>• <em>extensor carpi ulnaris</em></td>
</tr>
<tr>
<td>• <em>abductor pollicis longus</em></td>
</tr>
<tr>
<td>• <em>extensor pollicis brevis</em></td>
</tr>
<tr>
<td>• <em>extensor pollicis longus</em></td>
</tr>
<tr>
<td>• <em>extensor indicis proprius</em></td>
</tr>
</tbody>
</table>

Every effort should be made to objectively confirm the diagnosis of RNE before considering surgery. A differential diagnosis for RNE includes extensor tendinitis and lateral epicondylitis (which can coexist with RNE), neuralgic amyotrophy, brachial plexopathy, or cervical radiculopathy.

**B. ELECTRODIAGNOSTIC STUDIES (EDS)**

Electromyographic (EMG) abnormalities are required to objectively confirm the diagnosis of RNE. NCV abnormalities, such as radial motor or sensory conduction block across the elbow, or reduced sensory nerve action potentials, are of unproven utility, so NCV alone should not be relied upon to confirm the diagnosis. EDS confirmation requires abnormal EMG, with evidence of denervation in muscles supplied by the posterior interosseous nerve with or without denervation in other radial-innervated forearm muscles. EDS should exclude other potential causes of neuropathic symptoms, such as cervical radiculopathy, brachial plexopathy, or neuralgic amyotrophy. A worksheet to help interpret EDS results is provided in Section VI.

**C. OTHER DIAGNOSTIC TESTS**

It has been suggested that Magnetic Resonance Imaging (MRI) neurography may be helpful in the diagnosis of RNE. However, these services will not be authorized for this condition because their clinical utility has not yet been proven. While the Committee recognizes that MRI neurography may be useful in unusual circumstances where EDS results are normal in a patient with appropriate clinical symptoms, the Committee believes that at this time MRI for this purpose is investigational and should be used only in a research setting.

**IV. TREATMENT**
No randomized controlled trials or controlled clinical trials have measured the effectiveness of any treatment interventions. Non-surgical therapy may be considered for cases in which a provisional diagnosis has been made. Surgical treatment should be provided only for cases in which the diagnosis of RNE has been confirmed by abnormal EDS. Under these circumstances, the potential benefits of radial nerve decompression may outweigh the risks of surgery.

A. CONSERVATIVE TREATMENT

Conservative treatment for RNE has been described in narrative reviews, case reports, and retrospective case series. Examples include modification of activities that exacerbate symptoms, splinting to maintain forearm supination and/or wrist extension, physical therapy, and anti-inflammatory drug therapy. No specific method of conservative treatment has been proven to be most effective.

When feasible, job modifications that reduce the intensity of manual tasks may prevent progression and promote recovery from RNE. If symptoms persist despite appropriate treatment, permanent job modifications may still allow the patient to remain at work.

Patients do not usually need time off from work activities prior to surgery, unless they present with objective weakness or sensory loss in the distribution of the radial nerve that limits work activities or poses a substantial safety risk.

B. SURGICAL TREATMENT

Surgical treatment for RNE has been described in narrative reviews, case reports, and retrospective case series. Surgery should include exploration of the radial nerve throughout its course in order to decompress it by resecting any compressive and/or constrictive structures. These may include any of the five sites of compression mentioned earlier. No specific method of surgical treatment has been proven to be most effective.

Surgical treatment should only be considered if:

1. The patient has met the diagnostic criteria under Section III, and
2. The condition interferes with work or activities of daily living, and
3. The condition does not improve despite conservative treatment

Without confirmation of radial nerve entrapment by both objective clinical findings and abnormal EDS, surgery will not be authorized.

V. RETURN TO WORK (RTW)

A. EARLY ASSESSMENT

Timeliness of the diagnosis can be a critical factor influencing RTW. Among workers with upper extremity disorders, 7% of workers account for 75% of the long-term disability. A large prospective study in the Washington State workers’ compensation system identified several important predictors of long-term disability: low expectations of return to work (RTW), no offer of a job accommodation, and high physical demands on the job. Identifying and attending to these risk factors when patients have not returned to work within 2-3 weeks of the initial clinical presentation may improve their chances of RTW.

Washington State workers diagnosed accurately and early were far more likely to RTW than workers whose conditions were diagnosed weeks or months later. Early coordination of care with improved
timeliness and effective communication with the workplace is also likely to help prevent long-term disability.

A recent quality improvement project in Washington State has demonstrated that delivering medical care according to occupational health best practices similar to those listed in Table 1 can substantially prevent long-term disability. Findings can be viewed at: http://www.lni.wa.gov/ClaimsIns/Files/Providers/ohs/CoheSummaryFindings1207.pdf.

**Table 2. Occupational Health Quality Indicators for Work-Related Radial Nerve Entrapment (RNE)**

<table>
<thead>
<tr>
<th>Clinical care action</th>
<th>Time-frame*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Identify physical stressors from both work and non-work activities;</td>
<td>1st health care visit</td>
</tr>
<tr>
<td>2. Screen for presence of RNE</td>
<td></td>
</tr>
<tr>
<td>3. Determine work-relatedness</td>
<td></td>
</tr>
<tr>
<td>4. Recommend ergonomic improvements</td>
<td></td>
</tr>
<tr>
<td>Communicate with employer regarding return to work (RTW) using</td>
<td></td>
</tr>
<tr>
<td>1. Activity Prescription Form (or comparable RTW form)</td>
<td>Each visit while work restrictions exist</td>
</tr>
<tr>
<td>and/or</td>
<td></td>
</tr>
<tr>
<td>2. Phone call to employer</td>
<td></td>
</tr>
<tr>
<td>1. Assess impediments for RTW</td>
<td></td>
</tr>
<tr>
<td>2. Request specialist consultation</td>
<td>If &gt; 2 weeks of time-loss occurs or if there is no clinical improvement within 6 weeks</td>
</tr>
<tr>
<td>Specialist consultation</td>
<td></td>
</tr>
<tr>
<td>Performed ASAP, within 3 weeks of request</td>
<td></td>
</tr>
<tr>
<td>Electrodiagnostic studies</td>
<td></td>
</tr>
<tr>
<td>If the diagnosis of RNE is being considered, schedule studies immediately.</td>
<td></td>
</tr>
<tr>
<td>These tests are required if time-loss extends beyond 2 weeks, or if surgery is requested.</td>
<td></td>
</tr>
<tr>
<td>Surgical decompression</td>
<td></td>
</tr>
<tr>
<td>Performed ASAP, within 4-6 weeks of determining need for surgery</td>
<td></td>
</tr>
</tbody>
</table>

*“Time-frame” is anchored in time from 1st provider visit related to RNE complaints.

**B. RETURNING TO WORK FOLLOWING SURGERY**
VII. GUIDELINE SUMMARY

*Work-Related Radial Nerve Entrapment: radial tunnel syndrome (RTS) or posterior interosseous nerve syndrome (PINS)*

<table>
<thead>
<tr>
<th>CLINICAL FINDINGS</th>
<th>CONSERVATIVE TREATMENT</th>
<th>SURGICAL TREATMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUBJECTIVE (Symptoms)</td>
<td>OBJECTIVE (Signs)</td>
<td>DIAGNOSTIC</td>
</tr>
<tr>
<td>Weakness of wrist or fingers</td>
<td>Evidence of denervation in muscles supplied by the posterior interosseous nerve (PIN) or radial nerve distal to the brachioradialis (BR), needle electromyography (EMG) showing RTS or PINS, or abnormal findings in muscles innervated by the radial nerve proximal to the radial tunnel and PIN (BR, anconius, and triceps muscles)</td>
<td><strong>Exclusion or other potential causes of radiculopathy, brachial plexopathy, or cervical radiculopathy if present</strong></td>
</tr>
</tbody>
</table>

**Conservative Treatment**
- Physical therapy
- Modification of activities that exacerbate symptoms
- Splinting to maintain forearm supination and/or wrist extension
- Antinflammatory drug therapy

**Surgical Treatment**
- Should only be considered if:
  1. The patient has met the diagnostic criteria under Section III
  2. The condition interferes with work or activities of daily living
  3. The condition does not improve despite conservative treatment
- Exclusion of nerve entrapment by both objective clinical findings and abnormal electrodiagnostic study (EDS) or posterior interosseous nerve syndrome (PINx) without confirmation of nerve entrapment by both objective clinical findings and abnormal EDS, surgery will not be authorized.
References
Evidence was classified using criteria defined by the American Academy of Neurology†


Medical Treatment Guidelines

Work-Related Proximal Median Nerve Entrapment (PMNE) Diagnosis and Treatment

Table of Contents

I. Review Criteria
II. Introduction
III. Establishing Work-Relatedness
IV. Making the Diagnosis
   A. Symptoms and Signs
   B. Electrodiagnostic Testing
   C. Other Diagnostic Tests
V. Treatment
   A. Conservative Treatment
   B. Surgical Treatment
VI. Return to Work (RTW)
   A. Early Assessment
   B. Returning to Work Following Surgery
## Medical Treatment Guidelines

**Washington State Department of Labor and Industries**

### I. REVIEW CRITERIA FOR SURGERY

**Effective Date:** August 1, 2009, updated August 2014

**Conservative care** required for at least 6 weeks, PROXIMAL Median Nerve Entrapment (PMNE)

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Diagnosis Tests</th>
<th>Objective</th>
<th>Subjective</th>
<th>Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>PMNE</td>
<td>Electrodiagnostic studies (EDS): i.e., nerve conduction velocity (NCV) and electromyography (EMG)</td>
<td>Tenderness to palpation over dorsal forearm area</td>
<td>Referral for surgery</td>
<td>Pain in the forearm, wrist, and hand</td>
</tr>
<tr>
<td>Release</td>
<td>EDS are useful both to diagnose PMNE and to rule out other potential sites of median nerve compression, such as carpal tunnel syndrome (CTS).</td>
<td>Weakness of deep flexor muscles supplied by the median nerve (pronator teres, flexor carpi radialis, flexor digitorum superficialis, flexor digitorum profundus) as well as the muscles supplied by the anterior interosseous nerve (flexor pollicis longus).</td>
<td>Electrodiagnostic studies supportive of chronic compression neuropathy</td>
<td>Positive EMG criteria are as follows: strength and motor nerve conduction studies (NCV) may reveal decreased motor conduction velocity (NCV) and abnormal electromyography (EMG) studies.</td>
</tr>
</tbody>
</table>

**Surgical Procedure**

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Diagnosis Tests</th>
<th>Objective</th>
<th>Subjective</th>
<th>Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proximal Median Nerve Entrapment (PMNE)</td>
<td>Electrodagnostic studies (EDS): i.e., nerve conduction velocity (NCV) and electromyography (EMG)</td>
<td>Tenderness to palpation over dorsal forearm area</td>
<td>Referral for surgery</td>
<td>Pain in the forearm, wrist, and hand</td>
</tr>
<tr>
<td>Release</td>
<td>EDS are useful both to diagnose PMNE and to rule out other potential sites of median nerve compression, such as carpal tunnel syndrome (CTS).</td>
<td>Weakness of deep flexor muscles supplied by the median nerve (pronator teres, flexor carpi radialis, flexor digitorum superficialis, flexor digitorum profundus) as well as the muscles supplied by the anterior interosseous nerve (flexor pollicis longus).</td>
<td>Electrodiagnostic studies supportive of chronic compression neuropathy</td>
<td>Positive EMG criteria are as follows: strength and motor nerve conduction studies (NCV) may reveal decreased motor conduction velocity (NCV) and abnormal electromyography (EMG) studies.</td>
</tr>
</tbody>
</table>

**Conservative care** required for at least 6 weeks, PROXIMAL Median Nerve Entrapment (PMNE)

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Diagnosis Tests</th>
<th>Objective</th>
<th>Subjective</th>
<th>Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>PMNE</td>
<td>Electrodiagnostic studies (EDS): i.e., nerve conduction velocity (NCV) and electromyography (EMG)</td>
<td>Tenderness to palpation over dorsal forearm area</td>
<td>Referral for surgery</td>
<td>Pain in the forearm, wrist, and hand</td>
</tr>
<tr>
<td>Release</td>
<td>EDS are useful both to diagnose PMNE and to rule out other potential sites of median nerve compression, such as carpal tunnel syndrome (CTS).</td>
<td>Weakness of deep flexor muscles supplied by the median nerve (pronator teres, flexor carpi radialis, flexor digitorum superficialis, flexor digitorum profundus) as well as the muscles supplied by the anterior interosseous nerve (flexor pollicis longus).</td>
<td>Electrodiagnostic studies supportive of chronic compression neuropathy</td>
<td>Positive EMG criteria are as follows: strength and motor nerve conduction studies (NCV) may reveal decreased motor conduction velocity (NCV) and abnormal electromyography (EMG) studies.</td>
</tr>
</tbody>
</table>
Work-Related Proximal Median Nerve Entrapment (PMNE) Diagnosis and Treatment

II. INTRODUCTION

The subcommittee is comprised of a group of physicians of various medical specialties, including rehabilitation medicine, occupational medicine, orthopedic surgery, plastic surgery, neurosurgery, neurology, pain medicine, and electrodiagnostic medicine. The subcommittee based its recommendations on the weight of the best available clinical and scientific evidence from a systematic review of the literature. PMNE is a rare entrapment neuropathy and there are no high quality clinical or scientific studies regarding this condition. Nonetheless, the subcommittee's consensus opinion is that objective confirmation of the PMNE diagnosis is critical to making the correct diagnosis and directing appropriate treatment.

Compression near the antecubital fossa can occur as the nerve traverses any of the following anatomic structures: the ligament of Struthers/supracondylar process, the lacertus fibrosis (bicipital aponeurosis), the fascia of the pronator teres, or the fibrous arch formed by fascia of the flexor digitorum superficialis. Entrapment of the median nerve in the proximal forearm must be distinguished from more distal sites of entrapment such as at the wrist (carpal tunnel) or at the anterior interosseous nerve branch (which supplies no cutaneous sensation).

In general, both work-relatedness and appropriate symptoms and signs must be present to accept proximal median nerve entrapment on a claim. Electrodiagnostic studies (EDS), including nerve conduction velocity studies (NCVs) and needle electromyography (EMG), should be scheduled immediately to corroborate the clinical diagnosis. Completion of EDS is required if time loss extends beyond two weeks or if surgery is requested.

III. ESTABLISHING WORK-RELATEDNESS

Work related activities may cause or contribute to the development of PMNE. Establishing work-relatedness requires all of the following:
1. Exposure: Workplace activities that contribute to or cause PMNE, and
2. Outcome: A diagnosis of PMNE that meets the diagnostic criteria under Section III, and
3. Relationship: Generally accepted scientific evidence, which establishes on a more probable than not basis (greater than 50%) that the workplace activities (exposure) in an individual case contributed to the development or worsening of the condition (outcome).

Work-related PMNE is most often associated with activities requiring extensive, repetitive, forceful, or prolonged use of the elbow or forearm. Usually, one or more of the following work exposures occurs on a regular basis:

- Heavy labor
- Using vibrating hand tools
- Repetitive grasping
- Prolonged hammering
- Lifting, carrying, placing heavy objects
- Scraping dishes
- Packaging motions
- Ladling food
- Prolonged hammering
- Lifting, carrying, placing heavy objects
- Scraping dishes
- Packaging motions
- Ladling food
- Lifting, carrying, placing heavy objects
- Scraping dishes
- Packaging motions
- Ladling food

The types of jobs most mentioned in the literature or reported in L&I’s data as being associated with PMNE are listed below:

- Assembly line worker
- Cashier
- Carpenter
- Cook
- Mechanic
- Server
- Woodworker
- Barber
- Concrete worker
- Dentist
- Shoveller
- Nurse
- Clerk
- Milker

IV. MAKING THE DIAGNOSIS

A. SYMPTOMS AND SIGNS

Our case definition of confirmed PMNE includes appropriate symptoms, objective physical findings (signs), and abnormal electrodiagnostic studies. A provisional diagnosis of PMNE may be made based upon appropriate symptoms and objective signs, alone, but confirmation of the diagnosis requires abnormal EDS. Non-surgical therapy may be considered in cases in which a provisional diagnosis has been made. Surgical treatment should be provided only in cases where the diagnosis of PMNE has been confirmed by abnormal EDS, as the potential benefits of surgery outweigh the risks only when the diagnosis of PMNE has been confirmed by abnormal EDS.
The primary symptom associated with PMNE is pain in the proximal volar area of the forearm. Many patients report an increase in pain severity with an increase in activity. Other symptoms may include weakness in the forearm and the hand (such as a decrease in grip strength), cramping in the hand (writer’s cramp), and paresthesia or numbness in the first three digits.\textsuperscript{1, 3, 9-12} Nocturnal symptoms are not as common for PMNE as they are for carpal tunnel syndrome (CTS).

**Physical signs** include tenderness in the forearm over the pronator teres muscle and along the median nerve distribution. Unlike median entrapment at the carpal tunnel, if weakness is present, it should involve muscles supplied by the median nerve both above and below the wrist. Tinel’s sign (paresthesias radiating in a median nerve distribution with pressure or tapping over the median nerve in the forearm) may be present, but by itself is not specifically diagnostic of PMNE. A positive Phalen’s sign (paresthesias radiating in a median nerve distribution with sustained flexion of the wrist) or Tinel’s sign with tapping over the wrist more likely indicates CTS rather than PMNE.

Three provocative tests have been described to help corroborate the site of compression for PMNE. These provocative tests do not replace the objective signs discussed below. Sensitivity and specificity of these provocative tests have not been established. The tests are based on creating maximal tension on the anatomical sites that can contribute to PMNE:

1. The pronator teres muscle is implicated if symptoms are reproduced upon resisted pronation of the forearm in neutral position with the elbow extended.
2. The lacertus fibrosis (bicipital aponeurosis) is implicated if symptoms are reproduced upon resisted elbow flexion at 120-130 degrees flexion with the forearm in maximal supination.
3. The flexor digitorum superficialis is implicated if symptoms are reproduced upon resisted flexion of the proximal interphalangeal joint to the long finger (“middle finger flexion test”).\textsuperscript{11-13}

Every effort should be made to objectively verify the diagnosis of PMNE before considering surgery. One potentially competing diagnosis is a non-traumatic inflammatory neuritis-Parsonage-Turner Syndrome- which may produce dysfunction in a median nerve distribution that can mimic PMNE. This condition often produces more widespread abnormalities affecting multiple upper extremity nerves. Also, it is usually accompanied by proximal pain around the shoulder girdle, rather than in the forearm. This condition usually improves spontaneously in six to twelve months. This idiopathic condition would not normally be considered a work-related condition.

**B. ELECTRODIAGNOSTIC STUDIES (EDS)**

Electrodiagnostic studies (NCVs and EMG) are required to objectively confirm the diagnosis of PMNE. EDS are useful both to diagnose PMNE and to rule out other potential sites of median nerve compression, such as CTS. Unlike the distal median nerve entrapment within the carpal tunnel, NCVs in proximal median nerve entrapment are often normal.\textsuperscript{1, 2, 9} Short segment nerve conduction studies have not been demonstrated to reliably diagnose this entity. However, EMG studies may show an abnormality in the distribution of the proximal median nerve of the
forearm. The diagnosis is specifically confirmed by EMG demonstrating membrane instability (e.g., increased insertional activity, fibrillation potentials, positive sharp waves) of median innervated muscles both below and above the wrist in the forearm (unlike CTS which should only affect median innervated muscles below the wrist).  

C. OTHER DIAGNOSTIC TESTS

The scientific evidence is insufficient to support the use of magnetic resonance neurography (MRN) or MRI in the diagnosis of PMNE.  

V. TREATMENT

A. CONSERVATIVE TREATMENT

Conservative treatment for PMNE has been described only in narrative reviews, case reports, and retrospective case series. Examples include rest, modification of activities that exacerbate symptoms, splinting at wrist and elbow, physical therapy, anti-inflammatory drug therapy, and corticosteroid injections. Patients do not usually need time off from work activities prior to surgery unless they present with objective weakness or sensory loss in the distribution of the proximal median nerve that limits work activities or poses a substantial safety risk.

B. SURGICAL TREATMENT

Without confirmation of nerve compression by both objective clinical findings and abnormal EDS, surgery will not be authorized.

Surgical treatment for PMNE has been described only in narrative reviews, case reports, and retrospective case series. Surgical treatment should only be considered if the condition does not improve despite conservative treatment, or if the condition interferes with work or activities of daily living. Surgical treatment is only indicated in patients who have appropriate symptoms and one or more of the objective clinical findings described above in addition to abnormal EDS. Surgery should include exploration of the median nerve throughout its proximal course and release of all compressive structures, which may include the ligament of Struthers (if it is present), the lacertus fibrosis (bicipital aponeurosis), the fascia of the pronator teres (PT), and the fascia of the flexor digitorum superficialis (FDS). Although complete release may require nerve decompression at multiple sites, this is considered a single procedure.

In rare cases with long standing motor palsy of part or all of the median nerve, tendon transfers may be considered to hasten return to function. When a complete palsy has been present for one or more muscles for three or more months, the patient and the surgeon should consider the options for tendon transfers. In patients who have already had a decompression of the proximal median nerve six months or more previously with incomplete return of motor function, repeat EDS are recommended. If the EDS show no improvement or worse neurologic function, a re-exploration may be necessary.
Patients with PMNE rarely present with prominent sensory symptoms. For patients with a preoperative loss of sensation who do not have recovery of sensation six months or more after surgical treatment, repeat EDS are recommended. If the EDS show no improvement or worse neurologic function, a re-exploration may be necessary.

VI. RETURN TO WORK (RTW)

A. EARLY ASSESSMENT

Among workers with upper extremity disorders, 7% of workers account for 75% of the long-term disability.\(^\text{19}\) A large prospective study in the Washington State workers’ compensation system identified several important predictors of long-term disability: low expectations of return to work (RTW), no offer of a job accommodation, and high physical demands on the job.\(^\text{20}\)

Identifying and attending to these risk factors when patients have not returned to work within 2-3 weeks of the initial clinical presentation may improve their chances of RTW.

Timeliness of the diagnosis can be a critical factor influencing RTW. Washington State workers diagnosed accurately and early were far more likely to RTW than workers whose condition was diagnosed weeks or months later. Early coordination of care with improved timeliness and effective communication with the workplace is also likely to help prevent long-term disability.

A Washington State quality improvement project has demonstrated that organized delivery of occupational health best practices similar to those in Table 1 can substantially prevent long-term disability.\(^\text{21}\) See also the Centers of Occupational Health and Education: http://www.lni.wa.gov/ClaimsIns/Providers/ProjResearchComm/OHS/default.asp

Requirements for filing a claim for an occupational disease can be found in the Attending Provider’s Handbook: http://www.lni.wa.gov/FormPub/Detail.asp?DocID=1669.

See next page for Table 1
**Table 1. Occupational Health Quality Indicators for Proximal Median Nerve Entrapment**

<table>
<thead>
<tr>
<th>Clinical care action</th>
<th>Time-frame*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Identify physical stressors from both work and non-work activities;</td>
<td>1st health care visit</td>
</tr>
<tr>
<td>2. Screen for presence of PMNE</td>
<td></td>
</tr>
<tr>
<td>3. Determine work-relatedness</td>
<td></td>
</tr>
<tr>
<td>4. Recommend ergonomic improvements</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Communicate with employer regarding RTW using</td>
<td></td>
</tr>
<tr>
<td>1. Activity Prescription Form</td>
<td>Each visit while work restrictions exist</td>
</tr>
<tr>
<td>(or comparable RTW form)</td>
<td></td>
</tr>
<tr>
<td>and/or</td>
<td></td>
</tr>
<tr>
<td>2. Phone call to employer</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Assess impediments for RTW</td>
<td>If &gt; 2 weeks of time-loss occurs or if there is</td>
</tr>
<tr>
<td>2. Request specialist consultation</td>
<td>no clinical improvement within 6 weeks</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Specialist consultation</td>
<td>Performed ASAP, within 3 weeks of request</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrodiagnostic studies</td>
<td>If the diagnosis of PMNE is being considered,</td>
</tr>
<tr>
<td></td>
<td>schedule studies immediately.</td>
</tr>
<tr>
<td></td>
<td>These tests are required if time-loss extends</td>
</tr>
<tr>
<td></td>
<td>beyond 2 weeks, or if surgery is requested.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Surgical decompression</td>
<td>Performed ASAP, within 4 weeks of determining</td>
</tr>
<tr>
<td></td>
<td>need for surgery</td>
</tr>
</tbody>
</table>

*“Time-frame” is anchored in time from 1st provider visit related to PMNE complaints.*
B. RETURNING TO WORK FOLLOWING SURGERY

Most patients requiring a PMNE release alone can return to light duty work in approximately 3 weeks and regular duty work in approximately 6 weeks. A course of hand therapy may help functional recovery and is particularly important for patients requiring tendon transfers or for patients with residual weakness. These patients may return to light duty work in approximately 6-8 weeks and regular duty work in approximately 10-12 weeks.

VII. ELECTRODIAGNOSTIC WORKSHEET

PURPOSE AND INSTRUCTIONS
The purpose of this worksheet is to help medical and nursing staff interpret electrodiagnostic studies (EDS) that are done for injured workers. The worksheet should be used only when the main purpose of the study is to evaluate a patient for PMNE. It should accompany but not replace the detailed report normally submitted to the insurer. We encourage you to use the electrodiagnostic worksheet below to report EMG results, but we will accept the results on a report generated by your office system.
References


This course was developed from the public domain document: “Work-Related Ulnar Neuropathy at the Elbow (UNE) Diagnosis and Treatment” by the Industrial Insurance Medical Advisory Committee (IIMAC) and the Washington State Department of Labor & Industries.