

MEDICAL PROTOCOLS: INTRODUCTION

STATE OF CONNECTICUT WORKERS' COMPENSATION COMMISSION — EFFECTIVE: 1-1-1996
 REVISIONS/UPDATES: 7-1-2012; 7-1-2013; 4-1-2014; 4-1-2015; 8-15-2015; 11-1-2015; 2-15-2016; 3-27-2017



CONTENTS	BACKGROUND	NEW	EFFECTIVE DATES	FUTURE UPDATES	ACKNOWLEDGMENTS
<p>I. INTRODUCTION</p> <ul style="list-style-type: none"> ▪ Background ▪ New ▪ Effective Dates ▪ Future Updates ▪ Acknowledgments 	<p>Workers' Compensation Medical Protocols first became effective on January 1, 1996 as a result of legislative changes to Section 31-280 of the Workers' Compensation Act.</p> <p>The Workers' Compensation Commission (WCC) uses these Medical Protocols to evaluate whether a particular treatment is reasonable and appropriate based on the diagnosis of a worker's injury or illness.</p>	<p>In consultation with practitioners, insurers, and the Medical Advisory Panel, new Medical Protocols for Psychological Pain Assessment and Treatment became effective in 2016 to assist practitioners in effective pain management for injuries occurring within the workers' compensation arena.</p> <p>Revisions to various Medical Protocols reflect the latest changes in the medical field regarding new procedures, treatments, and diagnostic tests:</p> <ul style="list-style-type: none"> ▪ Protocols for treatment of injuries to the cervical spine and lumbar spine were revised in 2012 and updated in 2013 and in 2015. ▪ Protocols for treatment of injuries to the knee were revised in 2015. ▪ Protocols for treatment of injuries to the hand, wrist, and elbow were revised in 2015. ▪ Protocols for treatment of injuries to the shoulder were revised in 2014. 	<ul style="list-style-type: none"> ▪ March 27, 2017: Opioid Management – <i>revised</i> ▪ February 15, 2016: Psychological Pain Assessment and Treatment – <i>created</i> ▪ November 1, 2015: Cervical Spine Lumbar Spine – <i>update</i> ▪ August 15, 2015: Knee – <i>revision</i> ▪ April 1, 2015: Hand, Wrist, and Elbow – <i>revision</i> ▪ April 1, 2014: Shoulder – <i>revision</i> ▪ July 1, 2013: Cervical Spine Lumbar Spine – <i>update</i> ▪ July 1, 2012: Cervical Spine Lumbar Spine – <i>revision</i> ▪ July 1, 2012: Opioid Management – <i>created</i> 	<p>The Workers' Compensation Medical Protocols will continually be revised and updated, as appropriate.</p> <p>The WCC advises practitioners, insurers, and other concerned parties to periodically check for announcements of revisions and updates on the WCC website:</p> <p style="text-align: center;">wcc.state.ct.us</p> <p>The WCC – with practitioners, insurers, and the Medical Advisory Panel – is currently revising the Workers' Compensation Medical Protocols for the treatment of injuries to the foot and ankle, and these will be published upon completion.</p>	<p>The WCC thanks the medical professionals who have spent – and continue to spend – many hours working with us to bring the most appropriate treatment, and the highest standard of care, to injured workers in Connecticut.</p>
<p>II. MEDICAL PROTOCOLS: Psychological Pain Assessment and Treatment</p> <ul style="list-style-type: none"> ▪ 6 pages 					
<p>III. MEDICAL PROTOCOLS: Opioids (management of)</p> <ul style="list-style-type: none"> ▪ 5 pages 					
<p>IV. MEDICAL PROTOCOLS: Cervical Spine (neck)</p> <ul style="list-style-type: none"> ▪ 9 pages 					
<p>V. MEDICAL PROTOCOLS: Lumbar Spine (back)</p> <ul style="list-style-type: none"> ▪ 9 pages 					
<p>VI. MEDICAL PROTOCOLS: Shoulder</p> <ul style="list-style-type: none"> ▪ 4 pages 					
<p>VII. MEDICAL PROTOCOLS: Hand (hand, wrist, elbow)</p> <ul style="list-style-type: none"> ▪ 22 pages 					
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PSYCHOLOGICAL PAIN ASSESSMENT & TREATMENT – PAGE 1 of 6

INTRODUCTION

INTRODUCTION

Pain is a complex phenomenon. Many factors contribute to and modify pain.

It is generally accepted that pain generators include both somatic and psychic elements. These factors are further modified by complex social variables.

What is generally referred to as "pain" by most laypersons is a subjective experience. As such, "pain" is a psychological experience and product of complex biopsychosocial phenomena.

Consequently, the diagnosis of the causes of "pain" and associated treatment of "pain" is an enormously challenging endeavor often complicated by insistent demand for relief. Neither biological / medical, psychological, nor environmental / social strategies may suffice.

It is clear from the literature that the highest rates of diagnostic and treatment efficacy are represented by integrated biopsychosocial and interdisciplinary models and delivery systems.

Psychological approaches to diagnosis and treatment appear to many to be a "black box." However, even casual scrutiny reveals similar uncertainties, ambiguities, and knowledge limitations in biological / medical methods.

Psychological / neuropsychological procedures for assessment and treatment of emotional, behavioral, and motivational aspects of pain continue to evolve in accuracy and efficacy.

Inclusion of these methods in an integrated approach to pain management is increasingly and widely recognized as essential.

PROTECTED HEALTH INFORMATION

Protected Health Information in the psychological domain enjoys a higher level of HIPAA protection than general medical information.

All health care providers responsible for collection, storage and dissemination of Psychological Protected Health Information have a legitimate and formal obligation to support these standards.

Providers must familiarize themselves with the operational details of these obligations and implement them rigorously in their clinical settings.

Generally, this is accomplished by the identification and segregation of Psychological Protected Health Information with distinct procedures and documents for authorization of information release.

RECOMMENDED TIMELINES

As with all the recommendations the timelines are to be taken as guidelines and not mandates.

It is recommended that the greatest flexibility and discretion be given to providers' application of the diagnostic criteria in the earliest care time frame of INTAKE TO 4 WEEKS.

The vast majority of patients in the workers' compensation system flow through the system of care without complication.

The recommended baseline demographic data is meant to be collected as early as possible to enhance focus on those patients for whom any complication, or question of potential complication, may arise.

The timing of initial collection and documentation of these demographics will vary according to the type of treatment venue and the associated baseline population characteristics.

Optimal timing in any given clinical setting will be responsive to the earliest possible thresholds for potential treatment complications.

FORENSIC CAVEATS

Advanced diagnostic procedures and technologies allow for objective measurement and documentation of symptom over- and under-reporting, dissimulation of psychopathology, and malingered neurocognitive impairment.

It is neither cost-effective nor conducive to clinical care to prematurely implement forensic assessment.

It is similarly ineffective to delay forensic assessment despite repeated and ongoing indications of diagnostic / claim invalidity.

When properly designed and implemented the entire continuum of psychodiagnostic data collection contributes to a stepwise incremental evaluation of symptom validity.

The formal administration of a detailed and objective forensic assessment simply represents the final phase of this systematic analysis and, as such, is integrated into the entire continuum of care.



PSYCHOLOGICAL PAIN ASSESSMENT & TREATMENT – PAGE 2 of 6

INTAKE TO 4 WEEKS (with consideration of date of injury)

DIAGNOSTIC CRITERIA

Demographic screening to identify:

- any previous psychological diagnosis / treatment, including:
 - psychiatric hospitalization
 - outpatient psychotherapy / counseling
 - psychopharmacological treatment (e.g., antidepressants, anxiolytics, etc.)
- diagnosis and / or treatment of any drug or alcohol abuse or dependence – e.g., life interference such as:
 - relationships
 - work
 - DWI
 - detoxification
 - inpatient / outpatient rehabilitation
 - 12-step participation
- prior treatment for work-related pain
- prior workers' compensation claim with pain-related lost time

Physician discretion based on anomalies of case presentation or course . . .

AND / OR

. . . positive response to any one of 4 questions obtained by any provider (above)

DIAGNOSTIC STUDIES

Recommended:

- monitor medical progress
- refer for psychodiagnostic interview:
 - positive responders on demographic screen
 - individuals based on physician discretion

TREATMENT

Recommended:

- medical monitoring
and / or
- implementation of psychodiagnostic interview-generated recommendations

GOALS OF TREATMENT

Medical regimen compliance with:

- expected decreased VAS ratings
- functional improvement



PSYCHOLOGICAL PAIN ASSESSMENT & TREATMENT – PAGE 3 of 6

1-3 MONTHS

DIAGNOSTIC CRITERIA

Physician determination of:

- lack of expected improvement
- atypical presentation
- treatment noncompliance

DIAGNOSTIC STUDIES

Psychodiagnostic interview:

- by qualified psychological / psychiatric provider
- with administration of standardized screening tools, such as:
 - ODI
 - BDI

TREATMENT

Recommended, per examination results:

- continued medical management
- enhanced monitoring
- rehabilitative psychotherapy
- compliance contingency management regimens
- emotional-behavioral contraindications to medical management – e.g.:
 - primary / secondary gain
 - polypharmacy
 - interventional procedures including:
 - injections
 - blocks
 - surgery

GOALS OF TREATMENT

Support medical treatment goals with:

- enhanced medical regimen compliance
- pain reduction
- functional improvement



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GREATER THAN 3 MONTHS

DIAGNOSTIC CRITERIA

- continued failure of expected medical improvement
- onset of new symptoms
- unexpected symptom variability
- compromised treatment compliance

DIAGNOSTIC STUDIES

Recommended:

- formal psychological examination:
 - by qualified psychological provider
 - expanding diagnostic interview
 - administration of self-report inventories
- personality inventories, with:
 - response bias scales (e.g., MMPI-2RF, PAI, MCMI, etc.)
 - additional self-report inventories directed at medical and pain patients (e.g., MBMD, BHI-2, etc.)

TREATMENT

Recommended, per examination results:

- continued medical management
- enhanced monitoring
- rehabilitative psychotherapy
- compliance contingency management regimens
- emotional-behavioral contraindications to medical management – e.g.:
 - primary / secondary gain
 - polypharmacy
 - interventional procedures including:
 - injections
 - blocks
 - surgery

GOALS OF TREATMENT

Support medical treatment goals with:

- enhanced medical regimen compliance
- pain reduction
- functional improvement



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GREATER THAN 6 MONTHS

DIAGNOSTIC CRITERIA

- continued failure to demonstrate functional improvement
- lack of response to pharmacological strategies
- lack of response to interventional strategies
- marked noncompliance
- marked litigiousness
- failed drug screen
- repeated loss of medications
- other compromises of medication contracting
- positive findings on PMP

DIAGNOSTIC STUDIES

- Recommended:
- forensic examination:
 - by qualified psychological / neuropsychological provider
 - include:
 - systematic analysis of ability suppression
 - systematic analysis of response bias
 - formalized battery of screening measures
 - forced choice measures
 - self-report inventories with validity scales (IME?)

TREATMENT

- Recommended, per examination results:
- continued medical management
 - enhanced monitoring
 - rehabilitative psychotherapy
 - compliance contingency management regimens
 - emotional-behavioral contraindications to medical management – e.g.:
 - primary / secondary gain
 - polypharmacy
 - interventional procedures including:
 - injections
 - blocks
 - surgery

GOALS OF TREATMENT

- Support medical treatment goals with:
- enhanced medical regimen compliance
 - functional improvement
- Cessation of care, on the basis of:
- documented unreasonableness
 - unnecessary evaluation
 - unnecessary treatment



PSYCHOLOGICAL PAIN ASSESSMENT & TREATMENT – PAGE 6 of 6

PROCEDURE BASE CRITERIA

DIAGNOSTIC CRITERIA

- surgical interventions for pain reduction (in the absence of neurological compromise)
- interventional pain management procedures, including:
 - trials
 - permanent placement of implanted devices

DIAGNOSTIC STUDIES

- Recommended:
- formal psychological examination:
 - by qualified psychological provider
 - expanding diagnostic interview
 - administration of self-report inventories
 - personality inventories, with:
 - response bias scales (e.g., MMPI-2RF, PAI, MCMI, etc.)
 - additional self-report inventories directed at medical and pain patients (e.g., MBMD, BHI-2, etc.)

TREATMENT

- Recommended, per examination results:
- continued medical management
 - enhanced monitoring
 - rehabilitative psychotherapy
 - compliance contingency management regimens
 - emotional-behavioral contraindications to medical management – e.g.:
 - primary / secondary gain
 - polypharmacy
 - interventional procedures including:
 - injections
 - blocks
 - surgery

GOALS OF TREATMENT

- Support medical treatment goals with:
- enhanced medical regimen compliance
 - pain reduction
 - functional improvement



OPIOID MANAGEMENT OF THE INJURED PATIENT

OVERVIEW

Proper opioid management is essential for the safe and efficient care of injured patients. The WCC recognizes that some injured patients may require opioids for the management of their acute and chronic pain. It is not the intention of the WCC to restrict the proper medical use of this class of medications, however responsible prescribing is mandatory. Additionally, studies have shown that injured workers placed on high dose opioids early in the post-injury period may experience a slower recovery, more difficulty with returning to work, more difficulty with weaning, and more frequently end up on long term opioids.

During the first two weeks post injury, low dose, short acting opioids may be appropriate for those with more severe injuries. Even during the acute phase it is preferred that the injured worker avoid opioid medications when possible. During the remaining portion of the acute and subacute period, attempts should be made to wean and discontinue opioid medications as appropriate (i.e., as symptoms improve) and as soon as possible. Dose escalation during these periods should be avoided, as the injury should be stabilized and healing. Medications that are deemed to be inappropriate for the vast majority of injured patients include immediate release, ultra-short acting sublingual and nasal opioid preparations. Long acting opioids are not recommended in the acute and sub-acute phases of treatment. In addition, following major surgical interventions, as acute postoperative pain resolves attempts should be made to wean medications as soon as possible, again avoiding dose escalation beyond the acute post-operative period.

Opioids are not meant to completely eliminate pain, but to ease symptoms and improve function (i.e., improvement of work capacity, ADLs, sleep and sexual function). Any continuation of medications beyond the first two week period must include proper documentation of improvement in pain level (VAS or other screening tool) and improvement in function or work capacity. At each visit history should be obtained to ensure medications are providing the desired pain reducing effect and looking specifically for side effects such as over sedation, cognitive impairment, or inappropriate medication usage. Any patient maintained beyond a four week period on chronic medications should have appropriate compliance monitoring documented. This should occur through history, screening questionnaires, prescription monitoring programs queries, urine drug tests (up to 2x / yr. for a stable, low risk patient and more frequently as indicated for high risk patients), and/or pill counts, as deemed appropriate by the physician. Patients continuing on opioids longer than 4 weeks should be managed under a narcotic agreement as recommended by the Federation of State Medical Boards. Medical necessity should be documented as to the need for all opioid prescriptions in terms of measured improvement in pain, function or work capacity.

If an injured patient requires opioid maintenance longer than 12 weeks, evaluation / consultation and treatment by a physician with appropriate specialty training in pain management should be considered. Documentation of medical necessity, including gains in pain, function or work capacity, is mandatory for prescribing beyond what is described within these guidelines.

The total daily dose of opioids should not be increased or maintained above 90mg oral MED (Morphine Equivalent Dose), unless the patient demonstrates measured improvement in function, pain and/or work capacity. A second opinion from an expert in pain management is recommended, if contemplating raising/maintaining the dose above 90 MED.

Before prescribing opioids for chronic pain, potential comorbidities should be evaluated. These include opioid addiction, drug or alcohol problems and depression. A baseline urine test for drugs of abuse and assessment of function and pain should be performed prior to institution of opioids for chronic pain.

GUIDELINES FOR PRESCRIBING

Connecticut law limits initial prescriptions to a 7-day supply for adults; exceptions are allowed for patients with chronic pain or acute pain that will last beyond 7 days with appropriate chart documentation.

Associated risks of addiction and overdose must be explained to the patient before prescribing controlled substances for the first time.

State law requires the PDMP be checked prior to the first prescription.

Single prescriber
Single pharmacy
Opioid agreement

Caution should be used with:

- combination therapy
- sedative-hypnotics
- benzodiazepines
- barbiturates
- muscle relaxants

Routine assessment of pain and function, if there is no improvement

Weaning of opioid

General:

- Whenever a prescribing practitioner prescribes controlled substances for the continuous or prolonged treatment of any patient, such prescriber, or such prescriber's authorized agent who is also a licensed health care professional, shall review, not less than once every ninety (90) days, the patient's records in the Connecticut Prescription Monitoring and Reporting System (CPMRS) at www.ctpmp.com

Post-Op:

- Prior to any surgery that will require more than a 72-hour supply of any controlled substance (Schedule II-V), the prescribing practitioner or such practitioner's authorized agent who is also a licensed health care professional shall review the patient's records in the Connecticut Prescription Monitoring and Reporting System (CPMRS) at www.ctpmp.com

REASONS TO DISCONTINUE OPIOIDS OR REFER FOR ADDICTION MANAGEMENT

No measured improvement in function and / or pain,

or

Opioid therapy produces significant adverse effects,

or

Patient exhibits drug-seeking behaviors or diversions such as:

- selling prescription drugs
- forging prescriptions
- stealing or borrowing drugs
- frequently losing prescriptions
- aggressive demand for opioids
- injecting oral / topical opioids
- unsanctioned use of opioids
- unsanctioned dose escalation
- concurrent use of illicit drugs
- failing a drug screen
- getting opioids from multiple prescribers
- recurring emergency department visits for chronic pain management

If there is no measured improvement in pain, function, ADLs or work capacity after three (3) months of opioid medication, the prescribing physician must justify the continued use of opioids and should consider weaning of the opioid.

Opioids may allow the patient to return to work safely and more expeditiously and therefore may be indicated; nevertheless, attempts to wean these medications and avoidance of dose escalation should be the goal of treatment.

This document is meant as a guideline for the practitioner and should not supplant proper medical judgment.

SAMPLE OPIOID EQUIVALENCY TABLE

OPIOID	MED
Codeine	0.15
Fentanyl Transdermal	2.4
Hydrocodone	1
Hydromorphone	4
Methadone up to 20mg	4
Methadone 21-40mg	8
Methadone 41-60mg	10
Methadone >60mg	12
Morphine	1
Oxycodone	1.5
Oxymorphone	3



NECK PAIN HISTORY AND PHYSICAL EXAMINATION

HISTORY OF PRESENT ILLNESS	MEDICATIONS	ALLERGIES	PAST MEDICAL / SURGICAL HISTORY	SOCIAL HISTORY	REVIEW OF SYSTEMS	PHYSICAL EXAMINATION
<p>Description of Injury:</p> <ul style="list-style-type: none"> details of events before, during, and immediately after the alleged injury mechanism of injury identification of body parts involved location of the pain, characteristics of the pain, and distribution of the pain symptoms frequency and duration of symptoms alleviating / exacerbating factors <p>Any limitations in functional activities should be noted.</p> <p>The history should include the presence and distribution of any upper extremity numbness, paresthesias, or weakness and a description as to whether or not it is precipitated or worsened by coughing or sneezing.</p> <p>Any changes in gait, bowel, bladder or sexual function should be identified as they may indicate a more severe spinal injury. The presence of a serious or progressive neurological deficit demands immediate attention and appropriate triage.</p> <p>The possibility of neck pain from other non-traumatic sources should be investigated by asking questions about fever, rash, swelling, unexplained weight loss, morning stiffness etc.</p> <p>A visual analog pain scale should be used and monitored at each visit. The patient should be asked their current rating, average over the last week and range from low to high.</p> <p>Note any history of emotional and/or psychological response to the current injury.</p>	<p>History should include:</p> <ul style="list-style-type: none"> previous medications taken for this neck injury a list of all current medications, including dose and frequency any significant side effects from previous medications 	<p>Medication allergies should be verified at every visit.</p>	<p>Identify any previous occupational and non-occupational injuries to the same area.</p> <p>Determine if the patient has any history of non-traumatic neck problems such as arthritis, cancer, surgery, etc.</p> <p>Document any prior neck treatment, chronic or recurrent symptoms, response to previous treatment, and any functional limitations or previous restrictions in work capacity.</p> <p>Demographic screening to identify:</p> <ul style="list-style-type: none"> any previous psychological diagnosis/treatment including psychiatric hospitalization, outpatient psychotherapy/counseling, or psychopharmacological treatment (e.g antidepressants, anxiolytics, etc.) diagnosis and/or treatment of any drug or alcohol abuse or dependence (e.g. life interference such as relationships, work, DWI, detoxifications, inpatient/outpatient rehabilitation or 12-step participation) prior treatment for work-related pain prior workers' compensation claim with pain-related lost time 	<p>Identify:</p> <ul style="list-style-type: none"> smoking alcohol use other drug use vocational activities recreational activities 	<p>Identify systemic disease symptoms:</p> <ul style="list-style-type: none"> cardiac endocrine gastrointestinal hematological infectious neurologic neoplastic renal rheumatologic other 	<p>Physical examination:</p> <ul style="list-style-type: none"> vital signs weight general appearance, including posture any pain behaviors <p>Signs of symptom amplification should be noted.</p> <p>Visual inspection of neck</p> <p>Palpation of cervical spine including:</p> <ul style="list-style-type: none"> midline trapezius paraspinal and posterior elements shoulders <p>Make a note of:</p> <ul style="list-style-type: none"> range of motion quality of motion exacerbating or alleviating motions of neck and shoulders presence of muscle spasm nerve tension compression deep tendon reflexes any pathological reflexes <p>Sensory and motor examination of the upper and lower extremities with specific description of abnormalities</p> <p>Assessment of transfers and gait</p> <p>In cases where the mechanism of injury, history, or clinical presentation suggests a possible severe injury, additional evaluation is indicated.</p> <p>A detailed neurological examination for possible spinal cord injury should include:</p> <ul style="list-style-type: none"> sharp and light touch, deep pressure, temperature, and proprioceptive sensory function anal sphincter tone and / or perianal sensation



ACUTE AXIAL NECK INJURY (LESS THAN 4 WEEKS)

DIAGNOSTIC CRITERIA	DIAGNOSTIC STUDIES	TREATMENT	GOALS OF TREATMENT	IF GOALS NOT MET
<p>On initial visit:</p> <ul style="list-style-type: none"> ▪ complete history ▪ physical examination ▪ pain diagram <p>Height and weight (BMI)</p> <p>On each visit document:</p> <ul style="list-style-type: none"> ▪ primary diagnosis ▪ precise location and character of pain ▪ VAS pain level ▪ exam pertinent to injured body part ▪ functional capacity ▪ appraisal of ADLs and functional activity <p>Work capacity and status</p>	<p>Recommended:</p> <ul style="list-style-type: none"> ▪ no X-Rays, unless indicated by amount of trauma or based on documented medical suspicion ▪ MRI or CT myelogram for progressive neurological deficit 	<p>Recommended:</p> <ul style="list-style-type: none"> ▪ Chiropractic or Physical Therapy: <ul style="list-style-type: none"> – encourage increased activity ASAP – education – active treatment strengthening and aerobic, as tolerated – passive modalities up to 2 weeks (hot pack / cold pack, ultrasound, electrical stimulation) ▪ Up to 12 visits <ul style="list-style-type: none"> – document functional and VAS improvement to continue after 8 visits <p>Medications:</p> <ul style="list-style-type: none"> ▪ NSAIDs ▪ acetaminophen ▪ muscle relaxants ▪ opioid – see Opioid Protocol <p>Injections:</p> <ul style="list-style-type: none"> ▪ see IPM Protocol <p>Follow-up:</p> <ul style="list-style-type: none"> ▪ 1 week, if work modified ▪ 4 weeks, if no work modification <p>Not recommended:</p> <ul style="list-style-type: none"> ▪ bed rest 	<p>Recommend RTW:</p> <ul style="list-style-type: none"> ▪ sedentary..... 0-3 days ▪ light-med..... 7-17 days ▪ heavy..... 14-35 days <p>Contingent on assessment of functional capacity</p>	<p>Document:</p> <ul style="list-style-type: none"> ▪ compliance ▪ no shows / cancellations ▪ effort: clinic ▪ effort: home <p>Consider oral steroids for severe pain.</p>



SUBACUTE AXIAL NECK INJURY (1-3 MONTHS)

DIAGNOSTIC CRITERIA	DIAGNOSTIC STUDIES	TREATMENT	GOALS OF TREATMENT	IF GOALS NOT MET
<p>On initial visit:</p> <ul style="list-style-type: none"> ▪ complete history ▪ physical examination ▪ pain diagram <p>Height and weight (BMI)</p> <p>On each visit document:</p> <ul style="list-style-type: none"> ▪ primary diagnosis ▪ precise location and character of pain ▪ VAS pain level ▪ current meds ▪ exam pertinent to injured body part ▪ functional capacity ▪ appraisal of ADLs and functional activity <p>Work capacity and status</p> <p>Appraise compliance</p> <p>Consider specialty referral, if not improving</p>	<p>Recommended:</p> <ul style="list-style-type: none"> ▪ X-Ray, especially if previous injury or surgery ▪ MRI after 6 weeks, if clinically indicated <p>Not Recommended:</p> <ul style="list-style-type: none"> ▪ CT Scan ▪ Discogram 	<p>Chiropractic or Physical Therapy:</p> <ul style="list-style-type: none"> ▪ no isolated passive modalities (hot pack / cold pack, ultrasound, electrical stimulation) ▪ exercise ▪ strengthening ▪ core ▪ aerobic ▪ assess and document progress ▪ up to 12 additional visits based on measured improvement in VAS, function and work capacity <p>Assess BMI and smoking and counsel appropriately</p> <p>Medications:</p> <ul style="list-style-type: none"> ▪ NSAIDs ▪ acetaminophen ▪ opioid – see opioid protocol ▪ antidepressants ▪ muscle relaxants <p>Injections:</p> <ul style="list-style-type: none"> ▪ see IPM Protocol <p>Limited Indication:</p> <ul style="list-style-type: none"> ▪ anticonvulsants 	<p>Recommend RTW:</p> <ul style="list-style-type: none"> ▪ sedentary..... 0-3 days ▪ light-med..... 7-17 days ▪ heavy..... 14-35 days <p>Contingent on assessment of functional capacity</p>	<p>Consider alternative cause</p> <p>Consider psychological factors</p> <ul style="list-style-type: none"> ▪ see Psychological Guideline <p>Administer standard psych assessment tool such as ODI</p>



CHRONIC AXIAL NECK INJURY (GREATER THAN 3 MONTHS)

DIAGNOSTIC CRITERIA	DIAGNOSTIC STUDIES	TREATMENT	GOALS OF TREATMENT	IF GOALS NOT MET
<p>On initial visit:</p> <ul style="list-style-type: none"> ▪ complete history ▪ physical exam ▪ pain diagram <p>Height and weight (BMI)</p> <p>On each visit document:</p> <ul style="list-style-type: none"> ▪ primary diagnosis ▪ precise location and character of pain ▪ VAS pain level ▪ current meds ▪ exam pertinent to injured body part ▪ functional capacity ▪ appraisal of ADLs and functional activity <p>Work capacity and status</p> <p>Appraise compliance</p> <p>Consider specialty referral, if not improving</p>	<p>Recommended:</p> <ul style="list-style-type: none"> ▪ X-Rays ▪ consider F&E X-Rays <p>MRI, if not already done</p> <p>Consider CT Scan to evaluate bony anatomy</p> <p>Consider SPECT Scan to evaluate for pseudoarthrosis from previous surgery or alternative causes of neck pain</p>	<p>Recommended:</p> <ul style="list-style-type: none"> ▪ Chiropractic or Physical Therapy ▪ no passive modalities, unless acute flare-up (hot pack / cold pack, ultrasound, electrical stimulation) ▪ exercise, strengthening, core, aerobic <ul style="list-style-type: none"> – assess and document measured improvement in VAS, functional and work capacity to continue treatment ▪ TENS (not isolated Rx), only if compliant with other modalities and not improving ▪ assess BMI and smoking and counsel appropriately ▪ weight reduction for BMI > 30 <p>Medications:</p> <ul style="list-style-type: none"> ▪ NSAIDs ▪ acetaminophen ▪ opioid – see Opioid Protocol ▪ antidepressants ▪ muscle relaxants <p>Injections:</p> <ul style="list-style-type: none"> ▪ see IPM Guideline <p>Not Recommended:</p> <ul style="list-style-type: none"> ▪ bed rest ▪ anticonvulsants 	<p>Recommend RTW:</p> <ul style="list-style-type: none"> ▪ sedentary..... 0-3 days ▪ light-med..... 7-17 days ▪ heavy..... 14-35 days <p>Contingent on assessment of functional capacity</p>	<p>Consider alternative cause</p> <p>Consider psychological factors</p> <ul style="list-style-type: none"> ▪ see Psychological Guideline <p>Administer standard psych assessment tool such as ODI</p> <p>Consider time limited behavioral cognitive therapy</p> <p>Functional capacity evaluation / vocational rehab</p> <p>Change of job</p> <p>Surgery may be considered for appropriate cases</p> <ul style="list-style-type: none"> ▪ see Surgery page



ACUTE CERVICAL RADICULOPATHY (LESS THAN 4 WEEKS)

DIAGNOSTIC CRITERIA	DIAGNOSTIC STUDIES	TREATMENT	GOALS OF TREATMENT	IF GOALS NOT MET
<p>On initial visit:</p> <ul style="list-style-type: none"> ▪ complete history ▪ physical exam ▪ pain diagram <p>Height and weight (BMI)</p> <p>On each visit document:</p> <ul style="list-style-type: none"> ▪ primary diagnosis ▪ precise location and character of pain ▪ accurate description of weakness, sensory and reflex abnormalities ▪ root tension signs ▪ VAS pain level and / or leg on each visit ▪ functional capacity ▪ appraisal of ADLs and functional activity <p>Work capacity and status</p>	<p>Recommended:</p> <ul style="list-style-type: none"> ▪ no X-Rays (unless indicated by amount of trauma or based on documented medical suspicion) ▪ MRI or CT myelogram for progressive neurological deficit <p>Not Recommended:</p> <ul style="list-style-type: none"> ▪ CT Scan (unless indicated by degree of trauma) ▪ Discogram 	<p>Recommended:</p> <ul style="list-style-type: none"> ▪ Chiropractic or Physical Therapy: <ul style="list-style-type: none"> – encourage increased activity ASAP – education – active treatment strengthening and aerobic, as tolerated – passive modalities up to 2 weeks (hot pack / cold pack, ultrasound, electrical stimulation) – traction ▪ Up to 12 visits <ul style="list-style-type: none"> – document functional and VAS improvement to continue after 8 visits <p>Medications:</p> <ul style="list-style-type: none"> ▪ NSAIDs ▪ steroids, if severe ▪ muscle relaxants – 2 weeks ▪ opioid – see Opioid Protocol ▪ anticonvulsants ▪ antidepressants ▪ acetaminophen <p>Injections:</p> <ul style="list-style-type: none"> ▪ see Injection Guideline <p>Follow-up:</p> <ul style="list-style-type: none"> ▪ within 2 weeks <p>Not Recommended:</p> <ul style="list-style-type: none"> ▪ bed rest 	<p>Recommend RTW:</p> <ul style="list-style-type: none"> ▪ sedentary..... 0-3 days ▪ light-med..... 7-17 days ▪ heavy..... 14-35 days <p>Contingent on assessment of functional capacity</p>	<p>Document:</p> <ul style="list-style-type: none"> ▪ compliance ▪ no shows / cancellations ▪ effort: clinic ▪ effort: home



SUBACUTE CERVICAL RADICULOPATHY (1-3 MONTHS)

DIAGNOSTIC CRITERIA	DIAGNOSTIC STUDIES	TREATMENT	GOALS OF TREATMENT	IF GOALS NOT MET
<p>On initial visit:</p> <ul style="list-style-type: none"> ▪ complete history ▪ physical exam ▪ pain diagram <p>Height and weight (BMI)</p> <p>On each visit document:</p> <ul style="list-style-type: none"> ▪ primary diagnosis ▪ precise location and character of pain ▪ accurate description of weakness, sensory and reflex abnormalities ▪ root tension signs ▪ VAS Pain level and / or leg on each visit ▪ functional capacity ▪ appraisal of ADLs and functional activity <p>Current meds</p> <p>Work capacity and status</p> <p>Appraise compliance</p> <p>Consider specialty referral, if not improving</p>	<p>Recommended:</p> <ul style="list-style-type: none"> ▪ X-Ray (especially if previous injury or surgery) ▪ MRI ▪ consider CT Scan to evaluate bony anatomy for foraminal stenosis ▪ EMG (needle) with neurological signs and symptoms and equivocal MRI or CT findings <p>Not Recommended:</p> <ul style="list-style-type: none"> ▪ Discogram 	<p>Recommended:</p> <ul style="list-style-type: none"> ▪ Chiropractic or Physical Therapy: <ul style="list-style-type: none"> – no isolated passive modalities (hot pack / cold pack, ultrasound, electrical stimulation) – exercise, strengthening, core, aerobic (assess and document progress) – additional visits based on measured improvement in VAS, functional and work capacity – assess BMI and smoking and counsel appropriately <p>Medications:</p> <ul style="list-style-type: none"> ▪ NSAIDS ▪ antidepressants ▪ anticonvulsants ▪ acetaminophen ▪ opioid – see Opioid Protocol <p>Injections:</p> <ul style="list-style-type: none"> ▪ see IPM Guideline <p>Follow-up:</p> <ul style="list-style-type: none"> ▪ within 3 weeks <p>Not Recommended:</p> <ul style="list-style-type: none"> ▪ bed rest 	<p>Recommend RTW:</p> <ul style="list-style-type: none"> ▪ sedentary..... 0-3 days ▪ light-med..... 7-17 days ▪ heavy..... 14-35 days <p>Contingent on assessment of functional capacity</p>	<p>Document compliance</p> <p>Consider psychological factors</p> <ul style="list-style-type: none"> ▪ see Psychological Guideline <p>Administer standard psych assessment tool (such as ODI)</p> <p>Consider surgery for compressive radiculopathy</p>



CHRONIC CERVICAL RADICULOPATHY (GREATER THAN 3 MONTHS)

DIAGNOSTIC CRITERIA	DIAGNOSTIC STUDIES	TREATMENT	GOALS OF TREATMENT	IF GOALS NOT MET
<p>On initial visit:</p> <ul style="list-style-type: none"> ▪ complete history ▪ physical exam ▪ pain diagram <p>Height and weight (BMI)</p> <p>On each visit document:</p> <ul style="list-style-type: none"> ▪ primary diagnosis ▪ precise location and character of pain ▪ accurate description of weakness, sensory and reflex abnormalities ▪ root tension signs ▪ VAS pain level and / or leg on each visit ▪ functional capacity ▪ appraisal of ADLs and functional activity <p>Current meds</p> <p>Work capacity and status</p> <p>Appraise compliance</p> <p>Consider specialty referral, if not improving</p>	<p>Recommended:</p> <ul style="list-style-type: none"> ▪ X-Ray (especially if previous injury or surgery) ▪ MRI <p>Consider CT Scan to evaluate bony anatomy for foraminal stenosis</p> <p>EMG (needle) with neurological signs and symptoms and equivocal MRI or CT findings</p>	<p>Recommended:</p> <ul style="list-style-type: none"> ▪ Chiropractic or Physical Therapy: <ul style="list-style-type: none"> – no passive modalities, unless acute flare-up (hot pack / cold pack, ultrasound, electrical stimulation) – exercise, strengthening, core, aerobic (assess and document progress) – assess BMI and smoking and counsel appropriately – weight reduction for BMI > 30 <p>Medications:</p> <ul style="list-style-type: none"> ▪ NSAIDs ▪ antidepressants ▪ anticonvulsants ▪ acetaminophen ▪ opioid – see Opioid Protocol <p>Injections:</p> <ul style="list-style-type: none"> ▪ see IPM Guideline <p>Surgery:</p> <ul style="list-style-type: none"> ▪ if documented compression <p>Not Recommended:</p> <ul style="list-style-type: none"> ▪ bed rest 	<p>Recommend RTW:</p> <ul style="list-style-type: none"> ▪ sedentary..... 0-3 days ▪ light-med..... 7-17 days ▪ heavy..... 14-35 days <p>Contingent on assessment of functional capacity</p>	<p>EMG to document neurological status</p> <p>Consider psychological factors</p> <ul style="list-style-type: none"> ▪ see Psychological Guideline <p>Administer standard psych assessment tool (such as ODI)</p> <p>Consider time-limited behavioral cognitive therapy</p> <p>Functional capacity evaluation / vocational rehab</p> <p>Functional restoration program</p> <p>Spinal cord stimulation:</p> <ul style="list-style-type: none"> ▪ neurological pain > 6 months ▪ adequate psychological evaluation prior to SCS trial ▪ see psychological guideline



ROOT DECOMPRESSION (NECK)

DIAGNOSIS

- radiculopathy due to compression
 - symptoms in the distribution of a nerve root caused by compression of a herniated disc or altered bony anatomy

INDICATIONS

- failure to improve with appropriate chiropractic or physical treatment, including traction, documented compliance
- time: 4-6 weeks minimum, unless progressive neurological deficit
- medications: steroids, NSAIDs

RADIOGRAPHIC INDICATIONS

- lateral disc herniation
- lateral recess stenosis

SURGERY

- administer standard tool, ODI before and after surgery to document outcome
- hemilaminectomy with or without discectomy
- laminectomy for stenosis with myelopathy, normal cervical lordosis

POST-OPERATIVE RECOVERY

- Chiropractic or PT rehabilitation for strength and aerobic capacity
- return to work:
 - temporary total disability up to 4 weeks
 - return to light or modified duty 4-8 weeks
 - return to full duty after 8 weeks

MMI

- 6 months
- impairment based on objective standard (per CT WC Statute)

FUSION (NECK)

DIAGNOSIS

- severe degeneration with foraminal stenosis
- recurrent disc herniation
- instability (<3.5mm or 11 degrees)
- myelopathy
- pseudoarthrosis from previous fusion

INDICATIONS

- failure to improve with at least 3 months of conservative care, including traction, documented compliance
- no long-acting opioids
- no smoking — smoking is an absolute contraindication for fusion
- warning: signs of symptom amplification, narcotics, long time out of work, failed psychological screening

RADIOGRAPHIC INDICATIONS

- X-Rays (including obliques to assess foraminal stenosis)
- flexion extension views for instability
- MRI to assess adjacent levels
- CT or SPECT to assess pseudoarthrosis
- Discography for appropriate clinical indications

SURGERY

- administer standard tool, ODI before and after surgery to document outcome
- consider psychological screening prior to fusion surgery
- one or two levels only
- autograft or allograft with internal fixation

POST-OPERATIVE RECOVERY

- Chiropractic or PT rehabilitation for strength and aerobic capacity
- return to work:
 - temporary total disability up to 4 weeks
 - return to full duty after 8 weeks

MMI

- 12 months
- impairment based on objective standard (per CT WC Statute)



INTERVENTIONAL PAIN MANAGEMENT: BASIC GUIDELINES FOR AXIAL NECK PAIN

- Medical necessity for all injections must be documented with a clear description of the diagnosis and rationale for the injection.
 - Injured workers should be re-evaluated @ 2 weeks following any intervention to assess change in pain level, change in function (and hence work status), and to determine next steps in the treatment course if medically indicated. IPM treatments ('blocks') are generally not a treatment performed in isolation; it is important to look at the underlying cause and include functional based exercise programs along with injections.
 - Frequently cervical injuries are simply myofascial strains that can be relieved with PT and stretching. Trigger point injections may be used to facilitate and speed the recovery process if the injured worker is not progressing with conservative management alone or if it is felt that early intervention will speed return to normal work activities.
 - All spinal injections must be performed with radiologic guidance, typically fluoroscopy is utilized. CT guided pain management injections should only be performed for specific indications and medical necessity must be documented. Ultrasound is a form of radiologic guidance being used for many different pain injections but cannot be recommended for spinal injections at this time.
 - All spinal injections should be accompanied with a report of both the diagnostic and therapeutic response. An injection that does not provide relief still provides diagnostic information as to what is not the cause of the pain. A lack of response to a particular intervention still provides useful information and that should be duly noted in the records. This will prevent further unnecessary injections for pain generating structures that have been found to not be the cause of pain.
 - For injured workers who fail to respond to treatment, alternative diagnoses should be considered. If the worker fails to respond to treatment that appears to be appropriate for the condition, evaluation of other barriers to improvement such as psychological issues should be considered.
 - Cervical facet blocks are indicated for the diagnosis and treatment of neck pain with or without pseudoradicular symptoms for pain that is suspected of arising from the facet joints. A history and physical examination should document the clinician's rationale for this suspected diagnosis. Definitive diagnosis requires documenting the patient's response to a diagnostic injection.
 - Therapeutic facet blocks will only be considered as proper management when they provide at least 70% relief of the cervical symptoms and at least 3 months of pain relief and will be limited to a maximum of 3 sets of therapeutic facet injections/year. All facet injections should include steroid (unless otherwise contraindicated)
- in hopes of providing long term therapeutic effect and to improve the diagnostic specificity of these injections. Patients obtaining only short term relief (less than 3 months) should be considered for more long lasting solutions, such as RF ablation. Some patients can be managed with intermittent therapeutic facet injections.
- Repeat therapeutic injections/procedures are only indicated for those individuals who document sustained improvement in both pain and function, including improved ADL's and functional capacities for at least three months.
 - In addition, if the patient has significant bilateral pain, bilateral injections should be performed with the diagnostic injection so the clinician can better and more fully assess the etiology of the pain. Residual pain from joints that are not treated will confuse the diagnostic information that is obtained from a diagnostic block.
 - Radiofrequency ablation (Facet rhizotomy) may be considered for patients who achieve short-term relief with at least 70% reduction of target symptoms along with improved function and ROM with a diagnostic injection (Note-facet blocks are not expected to result in improvement of radicular symptoms). Radiofrequency ablation requires that the patient has had a facet medial branch mapping procedure; intra-articular injections are not diagnostic for determining the need for RF. Rhizotomy cannot be performed more frequently than once every 6 months.
 - If there is a question about the etiology of recurrent pain, re-evaluation and repeat diagnostic workup should be considered prior to repeat injections.
 - Epidural steroid injections may be indicated for axial neck pain that is felt to be radicular or discogenic in origin and for which there is a specific possible spinal cause. A diagnosis of discogenic pain is often a diagnosis of exclusion and other causes of neck pain should be evaluated before considering ESI's for treatment of axial pain. Epidural steroid injections may not be performed without an MRI documenting the specific location and extent of spinal pathology, for both safety and accuracy reasons. The routine performance of three epidural steroid injections is not appropriate and results in unnecessary treatment. After each injection, the response should be documented both for pain and functional improvement; if a repeat injection is required medical necessity should be documented even if a series of injections has been approved.
 - Pain can arise out of multiple structures and therefore can be multifactorial in origin, nevertheless it is not expected that every single injured worker with a cervical injury will require every single different type of injection, and in fact such practice is not recommended and is strongly discouraged.

INTERVENTIONAL PAIN MANAGEMENT: THERAPIES FOR CERVICAL RADICULOPATHY

- Epidural Steroid Injections (ESI) are indicated for the treatment of a radiculopathy/ radiculitis with symptoms of pain in a radicular distribution, which can be associated with numbness, tingling, and/or weakness in that nerve root distribution. A lack of response should lead the clinician to reconsider the diagnosis or look for alternative treatment options. Medical necessity for all injections must be documented with a clear description of the symptoms, physical findings, diagnosis and rationale for the injection.
- Injured workers should be re-evaluated @ 2 weeks following any intervention to assess change in pain level, change in function (and hence work status), and to determine next steps in the treatment course if medically indicated. IPM treatments ('blocks') are generally not a treatment performed in isolation; it is important to look at the underlying cause and include functional based exercise programs along with injections.
- All spinal injections should be accompanied with a report of both the diagnostic and therapeutic response. An injection that does not provide relief still provides diagnostic information as to what is not the cause of the pain. This will prevent further unnecessary injections for structures that have been found not to be the cause of pain.
- Earlier intervention with an ESI may help to speed recovery and promote progress in PT and therefore should be considered in the management of an acute radiculopathy that is not responding to conservative management.
- Epidural steroid injections may not be performed without an MRI documenting the specific location and extent of spinal pathology and should be correlated with neurologic findings.
- Delivery of medication to the location of nerve irritation is the key to success. Injections require radiologic guidance for accuracy and safety. All spinal injections must be performed with radiologic guidance, typically fluoroscopy. CT guided pain management injections should only be performed for specific indications and medical necessity must be documented. Ultrasound is not recommended for spinal injections at this time.
- There are several different approaches to the epidural space but delivery of medication as close as possible to the target location is helpful to optimize outcomes. The choice between interlaminar, transforaminal, and catheter guided approaches will be left to the clinician but the risks and benefits of the various approaches should be carefully considered when deciding technique.
- The routine performance of three epidural steroid injections is not appropriate and results in unnecessary treatment. After each injection, the response should be documented both for pain and functional improvement; if a repeat injection is required medical necessity must be documented.
- Injured Workers who do not respond with sustained benefit should be considered for definitive decompression of the involved nerve root(s).



LOW BACK PAIN HISTORY AND PHYSICAL EXAMINATION

HISTORY OF PRESENT ILLNESS	MEDICATIONS	ALLERGIES	PAST MEDICAL / SURGICAL HISTORY	SOCIAL HISTORY	REVIEW OF SYSTEMS	PHYSICAL EXAMINATION
<p>Description of Injury:</p> <ul style="list-style-type: none"> ▪ details of events before, during, and immediately after the alleged injury ▪ mechanism of injury ▪ identification of body parts involved ▪ location of the pain, characteristics of the pain, and distribution of the pain symptoms ▪ frequency and duration of symptoms ▪ alleviating / exacerbating factors <p>Any limitations in functional activities should be noted.</p> <p>The history should include the presence and distribution of any lower extremity numbness, paresthesias, or weakness and a description as to whether or not it is precipitated or worsened by coughing or sneezing.</p> <p>Any changes in bowel, bladder, or sexual function should be identified, as they may indicate a more severe spinal injury. The presence of a serious or progressive neurological deficit demands immediate attention and appropriate triage.</p> <p>The possibility of low back pain from other non-traumatic sources should be investigated by asking questions about fever, rash, swelling, unexplained weight loss, morning stiffness, etc.</p> <p>A visual analog pain scale should be used and monitored at each visit. The patient should be asked their current rating, average over the last week and range from low to high.</p> <p>Note any history of emotional and/or psychological response to the current injury.</p>	<p>History should include:</p> <ul style="list-style-type: none"> ▪ previous medications taken for this back injury ▪ a list of all current medications, including dose and frequency ▪ any significant side effects from previous medications 	<p>Medication allergies should be verified at every visit.</p>	<p>Identify any previous occupational and non-occupational injuries to the same area.</p> <p>Determine if the patient has any history of non-traumatic back problems such as arthritis, cancer, surgery, etc.</p> <p>Document any prior back treatment, chronic or recurrent symptoms, response to previous treatment, and any functional limitations or previous restrictions in work capacity.</p> <p>Demographic screening to identify:</p> <ul style="list-style-type: none"> ▪ any previous psychological diagnosis/treatment including psychiatric hospitalization, outpatient psychotherapy/counseling, or psychopharmacological treatment (e.g antidepressants, anxiolytics, etc.) ▪ diagnosis and/or treatment of any drug or alcohol abuse or dependence (e.g. life interference such as relationships, work, DWI, detoxifications, inpatient/outpatient rehabilitation or 12-step participation) ▪ prior treatment for work-related pain ▪ prior workers' compensation claim with pain-related lost time 	<p>Identify:</p> <ul style="list-style-type: none"> ▪ smoking ▪ alcohol use ▪ other drug use ▪ vocational activities ▪ recreational activities 	<p>Identify systemic disease symptoms:</p> <ul style="list-style-type: none"> ▪ cardiac ▪ endocrine ▪ gastrointestinal ▪ hematological ▪ infectious ▪ neurologic ▪ neoplastic ▪ renal ▪ rheumatologic ▪ other 	<p>Physical examination:</p> <ul style="list-style-type: none"> ▪ vital signs ▪ height ▪ weight ▪ general appearance, including posture ▪ any pain behaviors <p>Signs of symptom amplification should be noted.</p> <p>Visual inspection of back</p> <p>Palpation of lumbar spine including:</p> <ul style="list-style-type: none"> ▪ midline ▪ sacroiliac regions ▪ gluteal regions ▪ paraspinal and posterior elements ▪ hips <p>Make a note of:</p> <ul style="list-style-type: none"> ▪ range of motion ▪ quality of motion ▪ presence of muscle spasm ▪ exacerbating or alleviating motions ▪ deep tendon reflexes ▪ nerve tension testing, both single leg and crossed leg <p>Sacroiliac and piriformis testing should be considered.</p> <p>Sensory and motor examination of the lower extremities with specific description of abnormalities.</p> <p>Assessment of transfers and gait</p> <p>In cases where the mechanism of injury, history, or clinical presentation suggests a possible severe injury, additional evaluation is indicated.</p> <p>A detailed neurological examination for possible spinal cord injury should include:</p> <ul style="list-style-type: none"> ▪ sharp and light touch, deep pressure, temperature, and proprioceptive sensory function ▪ anal sphincter tone and / or perianal sensation



ACUTE AXIAL BACK INJURY (LESS THAN 4 WEEKS)

DIAGNOSTIC CRITERIA	DIAGNOSTIC STUDIES	TREATMENT	GOALS OF TREATMENT	IF GOALS NOT MET
<p>On initial visit:</p> <ul style="list-style-type: none"> ▪ complete history ▪ physical examination ▪ pain diagram <p>Height and weight (BMI)</p> <p>On each visit document:</p> <ul style="list-style-type: none"> ▪ primary diagnosis ▪ precise location and character of pain ▪ VAS pain level ▪ exam pertinent to injured body part ▪ functional capacity ▪ appraisal of ADLs and functional activity <p>Work capacity and status</p>	<p>Recommended:</p> <ul style="list-style-type: none"> ▪ no X-Rays (unless indicated by amount of trauma or based on documented medical suspicion) ▪ MRI or CT myelogram for progressive neurological deficit 	<p>Recommended:</p> <ul style="list-style-type: none"> ▪ Chiropractic or Physical Therapy: <ul style="list-style-type: none"> – encourage increased activity ASAP – education – active treatment strengthening and aerobic, as tolerated – passive modalities up to 2 weeks (hot pack / cold pack, ultrasound, electrical stimulation) ▪ Up to 12 visits <ul style="list-style-type: none"> – document functional and VAS improvement to continue after 8 visits <p>Medications:</p> <ul style="list-style-type: none"> ▪ NSAIDs ▪ acetaminophen ▪ muscle relaxants ▪ opioid – see Opioid Protocol <p>Injections:</p> <ul style="list-style-type: none"> ▪ see IPM Protocol <p>Follow-up:</p> <ul style="list-style-type: none"> ▪ 1 week, if work modified ▪ 4 weeks, if no work modification <p>Not recommended:</p> <ul style="list-style-type: none"> ▪ bed rest 	<p>Recommend RTW:</p> <ul style="list-style-type: none"> ▪ sedentary..... 0-3 days ▪ light-med..... 7-17 days ▪ heavy..... 14-35 days <p>Contingent on assessment of functional capacity</p>	<p>Document:</p> <ul style="list-style-type: none"> ▪ compliance ▪ no shows / cancellations ▪ effort: clinic ▪ effort: home <p>Consider oral steroids for severe pain</p>



SUBACUTE AXIAL BACK INJURY (1-3 MONTHS)

DIAGNOSTIC CRITERIA	DIAGNOSTIC STUDIES	TREATMENT	GOALS OF TREATMENT	IF GOALS NOT MET
<p>On initial visit:</p> <ul style="list-style-type: none"> ▪ complete history ▪ physical examination ▪ pain diagram <p>Height and weight (BMI)</p> <p>On each visit document:</p> <ul style="list-style-type: none"> ▪ primary diagnosis ▪ precise location and character of pain ▪ VAS pain level ▪ current meds ▪ exam pertinent to injured body part ▪ functional capacity ▪ appraisal of ADLs and functional activity <p>Work capacity and status</p> <p>Appraise compliance</p> <p>Consider specialty referral, if not improving</p>	<p>Recommended:</p> <ul style="list-style-type: none"> ▪ X-Ray, especially if previous injury or surgery ▪ MRI after 6 weeks, if clinically indicated <p>Not Recommended:</p> <ul style="list-style-type: none"> ▪ CT Scan ▪ Discogram 	<p>Recommended</p> <ul style="list-style-type: none"> ▪ Chiropractic or Physical Therapy: <ul style="list-style-type: none"> – no isolated passive modalities (hot pack / cold pack, ultrasound, electrical stimulation) – exercise – strengthening – core – aerobic – assess and document progress – up to 12 additional visits based on measured improvement in VAS, function and work capacity <p>Assess BMI and smoking and counsel appropriately</p> <p>Medications:</p> <ul style="list-style-type: none"> ▪ NSAIDs ▪ acetaminophen ▪ opioid – see Opioid Protocol ▪ antidepressants ▪ muscle relaxants <p>Injections:</p> <ul style="list-style-type: none"> ▪ see IPM Protocol <p>Limited Indication:</p> <ul style="list-style-type: none"> ▪ anticonvulsants 	<p>Recommend RTW:</p> <ul style="list-style-type: none"> ▪ sedentary..... 0-3 days ▪ light-med..... 7-17 days ▪ heavy..... 14-35 days <p>Contingent on assessment of functional capacity</p>	<p>Consider alternative cause</p> <p>Consider psychological factors</p> <ul style="list-style-type: none"> ▪ see Psychological Guideline <p>Administer standard psych assessment tool such as ODI</p>



CHRONIC AXIAL BACK INJURY (GREATER THAN 3 MONTHS)

DIAGNOSTIC CRITERIA	DIAGNOSTIC STUDIES	TREATMENT	GOALS OF TREATMENT	IF GOALS NOT MET
<p>On initial visit:</p> <ul style="list-style-type: none"> ▪ complete history ▪ physical exam ▪ pain diagram <p>Height and weight (BMI)</p> <p>On each visit document:</p> <ul style="list-style-type: none"> ▪ primary diagnosis ▪ precise location and character of pain ▪ VAS pain level ▪ current Meds ▪ exam pertinent to injured body part ▪ functional capacity ▪ appraisal of ADLs and functional activity <p>Work capacity and status</p> <p>Appraise compliance</p> <p>Consider specialty referral, if not improving</p>	<p>Recommended:</p> <ul style="list-style-type: none"> ▪ X-Rays <ul style="list-style-type: none"> – consider F&E x-rays ▪ MRI, if not already done ▪ Consider CT to evaluate bony anatomy (e.g., spondylolithesis) ▪ Consider SPECT scan to evaluate for pseudoarthrosis from previous surgery alternative causes of back pain 	<p>Recommended:</p> <ul style="list-style-type: none"> ▪ Chiropractic or Physical Therapy: <ul style="list-style-type: none"> – no passive modalities, unless acute flare-up (hot pack / cold pack, ultrasound, electrical stimulation) – exercise, strengthening, core, aerobic – assess and document measured improvement in VAS, functional and work capacity to continue treatment – TENS (not isolated Rx), only if compliant with other modalities and not improving – assess BMI and smoking and counsel appropriately – weight reduction for BMI > 30 <p>Medications:</p> <ul style="list-style-type: none"> ▪ NSAIDs ▪ acetaminophen ▪ opioid – see Opioid Protocol ▪ antidepressants <p>Injections:</p> <ul style="list-style-type: none"> ▪ see IPM Guideline <p>Not Recommended:</p> <ul style="list-style-type: none"> ▪ bed rest ▪ muscle relaxants 	<p>Recommend RTW:</p> <ul style="list-style-type: none"> ▪ sedentary..... 0-3 days ▪ light-med..... 7-17 days ▪ heavy..... 14-35 days <p>Contingent on assessment of functional capacity</p>	<p>Consider alternative cause</p> <p>Consider psychological factors</p> <ul style="list-style-type: none"> ▪ see Psychological Guideline <p>Administer standard psych assessment tool such as ODI</p> <p>Consider time limited behavioral cognitive therapy</p> <p>Functional capacity evaluation / vocational rehab</p> <p>Change of job</p> <p>Surgery may be considered for appropriate cases</p> <ul style="list-style-type: none"> ▪ see Surgery page



ACUTE LUMBAR RADICULOPATHY (LESS THAN 4 WEEKS)

DIAGNOSTIC CRITERIA	DIAGNOSTIC STUDIES	TREATMENT	GOALS OF TREATMENT	IF GOALS NOT MET
<p>On initial visit:</p> <ul style="list-style-type: none"> ▪ complete history ▪ physical exam ▪ pain diagram <p>Height and weight (BMI)</p> <p>On each visit document:</p> <ul style="list-style-type: none"> ▪ primary diagnosis ▪ precise location and character of pain ▪ accurate description of weakness, sensory and reflex abnormalities ▪ root tension signs ▪ VAS pain level and / or leg on each visit ▪ functional capacity ▪ appraisal of ADLs and functional activity <p>Work capacity and status</p>	<p>Recommended:</p> <ul style="list-style-type: none"> ▪ no X-Rays (unless indicated by amount of trauma or based on documented medical suspicion) ▪ MRI or CT myelogram for progressive neurological deficit <p>Not Recommended:</p> <ul style="list-style-type: none"> ▪ Discogram 	<p>Recommended:</p> <ul style="list-style-type: none"> ▪ Chiropractic or Physical Therapy: <ul style="list-style-type: none"> – encourage increased activity ASAP – education – active treatment strengthening and aerobic, as tolerated – passive modalities up to 2 weeks (hot pack / cold pack, ultrasound, electrical stimulation) – traction ▪ Up to 12 visits <ul style="list-style-type: none"> – document functional and VAS improvement to continue after 8 visits <p>Medications:</p> <ul style="list-style-type: none"> ▪ NSAIDs ▪ acetaminophen ▪ muscle relaxants – 2 weeks ▪ opioids – see Opioid Protocol ▪ anticonvulsants ▪ antidepressants ▪ oral steroids <p>Injections:</p> <ul style="list-style-type: none"> ▪ see Injection Guideline <p>Follow-up:</p> <ul style="list-style-type: none"> ▪ 2 weeks <p>Not Recommended:</p> <ul style="list-style-type: none"> ▪ bed rest 	<p>Recommend RTW:</p> <ul style="list-style-type: none"> ▪ sedentary..... 0-3 days ▪ light-med..... 7-17 days ▪ heavy..... 14-35 days <p>Contingent on assessment of functional capacity</p>	<p>Document:</p> <ul style="list-style-type: none"> ▪ compliance ▪ no shows / cancellations ▪ effort: clinic ▪ effort: home <p>Consider oral steroids for severe pain</p>



SUBACUTE LUMBAR RADICULOPATHY (1-3 MONTHS)

DIAGNOSTIC CRITERIA	DIAGNOSTIC STUDIES	TREATMENT	GOALS OF TREATMENT	IF GOALS NOT MET
<p>On initial visit:</p> <ul style="list-style-type: none"> ▪ complete history ▪ physical exam ▪ pain diagram <p>Height and weight (BMI)</p> <p>On each visit document:</p> <ul style="list-style-type: none"> ▪ primary diagnosis ▪ precise location and character of pain ▪ accurate description of weakness, sensory and reflex abnormalities ▪ root tension signs ▪ VAS pain level and / or leg on each visit ▪ functional capacity ▪ appraisal of ADLs and functional activity <p>Current meds</p> <p>Work capacity and status</p> <p>Appraise compliance</p> <p>Consider specialty referral, if not improving</p>	<p>Recommended:</p> <ul style="list-style-type: none"> ▪ X-Ray (especially if previous injury or surgery) ▪ MRI ▪ Consider CT Scan to evaluate bony anatomy for foraminal stenosis ▪ EMG (needle) with neurological signs and symptoms and equivocal MRI or CT findings <p>Not Recommended:</p> <ul style="list-style-type: none"> ▪ Discogram 	<p>Recommended:</p> <ul style="list-style-type: none"> ▪ Chiropractic or Physical Therapy: <ul style="list-style-type: none"> – no isolated passive modalities (hot pack / cold pack, ultrasound, electrical stimulation) – exercise, strengthening, core, aerobic (assess and document progress) – additional visits based on measured improvement in VAS, functional and work capacity – assess BMI and smoking and counsel appropriately <p>Medications:</p> <ul style="list-style-type: none"> ▪ NSAIDS ▪ acetaminophen ▪ opioid – see Opioid Protocol ▪ antidepressants ▪ anticonvulsants <p>Injections:</p> <ul style="list-style-type: none"> ▪ see IPM Guideline <p>Follow-up:</p> <ul style="list-style-type: none"> ▪ within 3 weeks <p>Not Recommended:</p> <ul style="list-style-type: none"> ▪ bed rest 	<p>Recommend RTW:</p> <ul style="list-style-type: none"> ▪ sedentary..... 0-3 days ▪ light-med..... 7-17 days ▪ heavy..... 14-35 days <p>Contingent on assessment of functional capacity</p>	<p>Document compliance</p> <p>Consider psychological factors</p> <ul style="list-style-type: none"> ▪ see Psychological Guideline <p>Administer standard psych assessment tool (such as ODI)</p> <p>Consider surgery for compressive radiculopathy</p>



CHRONIC LUMBAR RADICULOPATHY (GREATER THAN 3 MONTHS)

DIAGNOSTIC CRITERIA	DIAGNOSTIC STUDIES	TREATMENT	GOALS OF TREATMENT	IF GOALS NOT MET
<p>On initial visit:</p> <ul style="list-style-type: none"> ▪ complete history ▪ physical exam ▪ pain diagram <p>Height and weight (BMI)</p> <p>On each visit document:</p> <ul style="list-style-type: none"> ▪ primary diagnosis ▪ precise location and character of pain ▪ accurate description of weakness, sensory and reflex abnormalities ▪ root tension signs ▪ VAS pain level and / or leg on each visit ▪ functional capacity ▪ appraisal of ADLs and functional activity <p>Current meds</p> <p>Work capacity and status</p> <p>Appraise compliance</p> <p>Consider specialty referral, if not improving</p>	<p>Recommended:</p> <ul style="list-style-type: none"> ▪ X-Ray (especially if previous injury or surgery) ▪ MRI <p>Consider CT Scan to evaluate bony anatomy (e.g., spondylolithesis)</p> <p>EMG (needle) with neurological signs and symptoms and equivocal MRI or CT findings</p>	<p>Recommended:</p> <ul style="list-style-type: none"> ▪ Chiropractic or Physical Therapy: <ul style="list-style-type: none"> – no passive modalities, unless acute flare-up (hot pack / cold pack, ultrasound, electrical stimulation) – exercise, strengthening, core, aerobic (assess and document progress) – additional visits based on measured improvement in VAS, functional and work capacity – assess BMI and smoking and counsel appropriately – weight reduction for BMI > 30 <p>Medications:</p> <ul style="list-style-type: none"> ▪ NSAIDS ▪ acetaminophen ▪ opioid – see Opioid Protocol ▪ antidepressants ▪ anticonvulsants <p>Injections:</p> <ul style="list-style-type: none"> ▪ see IPM Guideline <p>Surgery:</p> <ul style="list-style-type: none"> ▪ if documented compression <p>Not Recommended:</p> <ul style="list-style-type: none"> ▪ bed rest 	<p>Recommend RTW:</p> <ul style="list-style-type: none"> ▪ sedentary..... 0-3 days ▪ light-med..... 7-17 days ▪ heavy..... 14-35 days <p>Contingent on assessment of functional capacity</p>	<p>EMG to document neurological status</p> <p>Consider psychological factors</p> <ul style="list-style-type: none"> ▪ see Psychological Guideline <p>Administer standard psych assessment tool (such as ODI)</p> <p>Consider time-limited behavioral cognitive therapy</p> <p>Functional capacity evaluation / vocational rehab</p> <p>Functional restoration program</p> <p>Spinal cord stimulation:</p> <ul style="list-style-type: none"> ▪ neurological pain > 6 months ▪ adequate psychological evaluation prior to SCS trial ▪ see psychological guideline



ROOT DECOMPRESSION (BACK)

DIAGNOSIS

- radiculopathy due to compression
 - symptoms in the distribution of a nerve root caused by compression of a herniated disc or altered bony anatomy

INDICATIONS

- failure to improve with appropriate chiropractic or physical treatment for aerobic and strength with documented compliance
- time: 4-6 weeks minimum (unless progressive neurological deficit)
- medications: steroids, NSAIDs and transforaminal injection

RADIOGRAPHIC INDICATIONS

- lateral disc herniation
- lateral recess stenosis
- spinal stenosis

SURGERY

- administer standard tool (ODI) before and after surgery to document outcome
- hemilaminectomy, discectomy, laminectomy, laminectomy for stenosis

POST-OPERATIVE RECOVERY

- Chiropractic or PT rehabilitation for strength and aerobic capacity
- return to work:
 - temporary total disability up to 4 weeks
 - return to light or modified duty 4-8 weeks
 - return to full duty after 8 weeks

MMI

- 6 months
- impairment based on objective standard (per CT WC Statute)

FUSION (BACK)

DIAGNOSIS

- spondylolytic spondylololthesis
- degenerative spondylololthesis
- recurrent disc herniation
- removal of facet for decompression
- instability (>4mm or 10 degrees)
- pseudoarthrosis from previous fusion

INDICATIONS

- failure to improve with at least 3 months of conservative care, documented compliance
- no long acting opioids
- smoking is an absolute contraindication to fusion surgery
- BMI >30 significantly increases the risks, complications and/or poor outcomes and should be objectively assessed prior to consideration of fusion.
- warning: signs of symptom amplification, narcotics, long time out of work, failed psychological screening

RADIOGRAPHIC INDICATIONS

- X-Rays (including obliques for spondylololthesis)
- flexion extension views for instability
- MRI to assess adjacent levels
- Discography for appropriate clinical indications
- CT or SPECT to assess pseudoarthrosis

SURGERY

- administer standard tool, ODI before and after surgery to document outcome
- consider psychological screening prior to fusion surgery
- one or two levels only
- posterolateral fusion (PLF)
- PSF + Pedicle screws
- TLIF
- ALIF + PSF + Pedicle Screws

POST-OPERATIVE RECOVERY

- Chiropractic or PT rehabilitation for strength and aerobic capacity
- return to work
 - temporary total disability up to 16 weeks.
 - return to light or modified duty depending on demand level

MMI

- 12 months
- impairment based on objective standard (per CT WC Statute)



INTERVENTIONAL PAIN MANAGEMENT: BASIC GUIDELINES FOR LOW BACK PAIN

- Medical necessity for all injections must be documented with a clear description of the diagnosis and rationale for the injection.
- Injured workers should be re-evaluated @ 2 weeks following any intervention to assess change in pain level, change in function (and hence work status), and to determine next steps in the treatment course if medically indicated. IPM treatments ("blocks") are generally not a treatment performed in isolation; it is important to look at the underlying cause and include functional based exercise programs along with injections.
- All spinal injections must be performed with radiologic guidance, typically fluoroscopy is utilized. CT guided pain management injections should only be performed for specific indications and medical necessity must be documented. Ultrasound is a form of radiologic guidance being used for many different pain injections but cannot be recommended for spinal injections at this time.
- All spinal injections should be accompanied with a report of both the diagnostic and therapeutic response. An injection that does not provide relief still provides diagnostic information as to what is not the cause of the pain. A lack of response to a particular intervention still provides useful information and that should be duly noted in the records. This will prevent further unnecessary injections for pain generating structures that have been found to not be the cause of pain.
- For injured workers who fail to respond to treatment, alternative diagnoses should be considered. If the worker fails to respond to treatment that appears to be appropriate for the condition, evaluation of other barriers to improvement such as psychological issues should be considered.
- Facet blocks are indicated for the diagnosis and treatment of axial low back pain with or without pseudoradicular symptoms for pain that is suspected of arising from the facet joints. A history and physical examination should document the clinician's rationale for this suspected diagnosis. Definitive diagnosis requires documenting the patient's response to a diagnostic injection. Therapeutic facet blocks will only be considered as proper management when they provide at least 70% relief of the axial back symptoms and at least 3 months of pain relief and will be limited to a maximum of 3 sets of therapeutic facet injections/year. Patients obtaining only short term relief (less than 3 months) should be considered for more long lasting solutions, such as RF ablation.
- Sacroiliac joint injections are appropriate for suspected sacroiliac joint pain. This should be specifically confirmed by history and physical examination and the clinician must document medical necessity. A diagnostic sacroiliac block can be used to confirm this diagnosis. A negative response indicates this is not the cause of the pain. Therapeutic sacroiliac joint injections will only be considered as proper management when they provide at least 3 months of pain relief and will be limited to a maximum of 3 injections/year.
- All facet and sacroiliac joint injections should include steroid (unless otherwise contraindicated) in hopes of providing long term therapeutic effect and to improve the diagnostic specificity of these injections. It should be recognized that patients who have short term relief with these injections may benefit from rhizotomy to achieve longer term pain relief. Some patients can be managed with intermittent therapeutic facet and/or sacroiliac joint injections in hopes of providing long term therapeutic effect and to improve the diagnostic specificity of these injections. Patients obtaining only short term relief (less than 3 months) should be considered for more long lasting solutions, such as RF ablation. Some patients can be managed with intermittent therapeutic facet injections.
- Repeat therapeutic injections/procedures are only indicated for those individuals who document sustained improvement in both pain and function, including improved ADL's and work capacities for at least three months.
- In addition, if the patient has significant bilateral pain, bilateral injections should be performed with the diagnostic injection so the clinician can better and more fully assess the etiology of the pain. Residual pain from joints that are not treated will confuse the diagnostic information that is obtained from a diagnostic block.
- Radiofrequency ablation (Facet and sacroiliac rhizotomy) may be considered for patients who achieve at least 70% reduction of target symptoms along with improved function and ROM with a diagnostic injection (Note- facet and sacroiliac joint blocks are not expected to result in improvement of radicular symptoms). Radiofrequency ablation requires that the patient has had a facet medial branch mapping procedure; intra-articular injections are not diagnostic for determining the need for RF. Rhizotomy cannot be performed more frequently than once every 6 months.
- If there is a question about the etiology of recurrent pain, re-evaluation and repeat diagnostic workup should be considered prior to repeat injections.
- Epidural steroid injections are indicated for back pain that is felt to be radicular or discogenic in origin and for which there is a specific possible spinal cause. There are situations where epidural steroid injections may help with axial low back pain, such as a central disc herniation, spinal stenosis, and/or other discogenic pain problems. A diagnosis of discogenic back pain is often a diagnosis of exclusion and other causes of back pain should be evaluated before considering ESI's for treatment of axial back pain. Epidural steroid injections may not be performed without an MRI documenting the specific location and extent of spinal pathology. The routine performance of three epidural steroid injections is not appropriate and results in unnecessary treatment. After each injection, the response should be documented both for pain and functional improvement; if a repeat injection is required medical necessity should be documented even if a series of injections has been approved.
- Pain can arise out of multiple structures and therefore can be multifactorial in origin, nevertheless it is not expected that every single injured worker with back pain will require every single different type of injection, and in fact such practice is not recommended and is strongly discouraged.

INTERVENTIONAL PAIN MANAGEMENT: THERAPIES FOR LUMBAR RADICULOPATHY

- Epidural Steroid Injections (ESI) are indicated for the treatment of a radiculopathy/ radiculitis with symptoms of pain in a radicular distribution, which can be associated with numbness, tingling, and/or weakness in that nerve root distribution. A lack of response should lead the clinician to reconsider the diagnosis or look for alternative treatment options. Medical necessity for all injections must be documented with a clear description of the symptoms, physical findings, diagnosis and rationale for the injection.
- Injured workers should be re-evaluated @ 2 weeks following any intervention to assess change in pain level, change in function (and hence work status), and to determine next steps in the treatment course if medically indicated. IPM treatments ("blocks") are generally not a treatment performed in isolation; it is important to look at the underlying cause and include functional based exercise programs along with injections.
- All spinal injections should be accompanied with a report of both the diagnostic and therapeutic response. An injection that does not provide relief still provides diagnostic information as to what is not the cause of the pain. This will prevent further unnecessary injections for structures that have been found not to be the cause of pain.
- Earlier intervention with an ESI may help to speed recovery and promote progress in PT and therefore should be considered in the management of an acute radiculopathy that is not responding to conservative management.
- Epidural steroid injections may not be performed without an MRI documenting the specific location and extent of spinal pathology and should be correlated with neurologic findings.
- Delivery of medication to the location of nerve irritation is the key to success. Injections require radiologic guidance for accuracy and safety. All spinal injections must be performed with radiologic guidance, typically fluoroscopy. CT guided pain management injections should only be performed for specific indications and medical necessity must be documented. Ultrasound is not recommended for spinal injections at this time.
- There are several different approaches to the epidural space but delivery of medication as close as possible to the target location is helpful to optimize outcomes. The choice between interlaminar, transforaminal, and catheter guided approaches will be left to the clinician but the risks and benefits of the various approaches should be carefully considered when deciding technique.
- The routine performance of three epidural steroid injections is not appropriate and results in unnecessary treatment. After each injection, the response should be documented both for pain and functional improvement; if a repeat injection is required medical necessity must be documented.
- Injured Workers who do not respond with sustained benefit should be considered for definitive decompression of the involved nerve root(s).



SHOULDER PAIN HISTORY AND PHYSICAL EXAMINATION

HISTORY OF PRESENT ILLNESS	MEDICATIONS	ALLERGIES	PAST MEDICAL / SURGICAL HISTORY	SOCIAL HISTORY	REVIEW OF SYSTEMS	PHYSICAL EXAMINATION
<p>Description of injury:</p> <ul style="list-style-type: none"> ▪ details of events before, during, and immediately after the alleged injury, including the mechanism of injury <p>Identification of body parts involved:</p> <ul style="list-style-type: none"> ▪ location of pain ▪ characteristics of the pain ▪ distribution of the pain symptoms ▪ frequency and duration of symptoms ▪ alleviating / exacerbating factors <p>Any limitations in functional activities should be noted.</p> <p>The history should include the presence and distribution of any numbness, paresthesias, or weakness.</p> <p>A visual analog pain scale should be used and monitored at each visit. The patient should be asked their current rating, average over the last week, and range from low to high.</p> <p>Note any history of emotional and / or psychological response to the current injury.</p>	<p>History should include previous medications taken for this injury and a list of all current medications including dose and frequency.</p> <p>Any significant side effects from previous medications should be noted.</p>	<p>Medication allergies should be verified at every visit.</p>	<p>Identify any previous occupational and non-occupational injuries to the same area.</p> <p>Determine if the patient has any history of non-traumatic shoulder problems such as arthritis, diabetes mellitus, cancer, surgery etc.</p> <p>Document any prior shoulder treatment, chronic or recurrent symptoms, response to previous treatment, and any functional limitations or previous restrictions in work capacity.</p>	<p>Identify:</p> <ul style="list-style-type: none"> ▪ smoking ▪ alcohol use ▪ other drug use ▪ vocational activities ▪ recreational activities ▪ secondary gain/histrionics ▪ psychological profile 	<p>Identify systemic disease symptoms:</p> <ul style="list-style-type: none"> ▪ cardiac ▪ endocrine ▪ gastrointestinal ▪ hematological ▪ infectious ▪ neurologic ▪ neoplastic ▪ renal ▪ rheumatologic ▪ other 	<p>Vital signs:</p> <ul style="list-style-type: none"> ▪ height ▪ weight ▪ general appearance, including posture ▪ any pain behaviors <p>Signs of symptom amplification should be noted.</p> <p>Visual inspection of shoulder:</p> <ul style="list-style-type: none"> ▪ range of motion ▪ stability anterior, inferior, posterior ▪ muscle atrophy and definition ▪ skin examination, i.e., temperature, scars, discoloration ▪ neurologic exam motor and sensory with reflexes ▪ strength testing (supraspinatus thumbs down test, external rotation, speed's test, Yergason's, Hawkins', O'Brien test, etc.) ▪ vascular exam pulses and capillary refill (rule out thoracic outlet) ▪ AC joint or acromioclavicular joint pain ▪ subacromial vs. glenohumeral pathology ▪ rule out cardiac, i.e., myocardial infarction or failure ▪ rule out pulmonary etiology, i.e., carcinoma, or embolus, pleurisy ▪ cervical etiologies (thorough cervical exam) ▪ autoimmune diseases (rheumatoid, lupus, ankylosing spondylitis, etc.) ▪ Lyme Disease vs. infectious process ▪ neoplasm primary vs. metastatic (benign vs. malignant) ▪ post traumatic (previous fracture) ▪ congenital ▪ metabolic gout, pseudogout, diabetes mellitus ▪ birth trauma (nerve palsy) ▪ neurologic causes ▪ iatrogenic (post-surgical) ▪ malingering, adhesive capsulitis / frozen shoulder ▪ psychologic or psychiatric phenomenon (depression, anxiety, hysteria, emotional disorders, behavioural disorders, and motivational) <p>In cases where the mechanism of injury, history, or clinical presentation suggests a possible severe injury, additional evaluation is indicated.</p>



ACUTE TRAUMATIC OR OVERUSE/REPETITIVE SHOULDER INJURY (LESS THAN 4 WEEKS)

DIAGNOSTIC CRITERIA	DIAGNOSTIC STUDIES	TREATMENT	GOALS OF TREATMENT	IF GOALS NOT MET
<p>On initial visit:</p> <ul style="list-style-type: none"> ▪ complete history ▪ physical examination ▪ pain diagram <p>Height and weight (BMI)</p> <p>On each visit document:</p> <ul style="list-style-type: none"> ▪ primary diagnosis ▪ precise location and character of pain ▪ VAS pain level ▪ exam pertinent to injured body part ▪ functional capacity ▪ appraisal of ADLs and functional activity <p>Work capacity and status</p>	<p>Recommended:</p> <ul style="list-style-type: none"> ▪ X-Rays, if indicated by amount of trauma or based on documented medical suspicion <p>No MRI</p> <p>No CT Scan</p>	<p>Recommended:</p> <ul style="list-style-type: none"> ▪ ice / heat ▪ rest / immobilization ▪ physical therapy / rehabilitation <ul style="list-style-type: none"> – 4 to 6 weeks ▪ chiropractic care <ul style="list-style-type: none"> – maximum 12 weeks <p>Medications:</p> <ul style="list-style-type: none"> ▪ nonsteroidal anti-inflammatory drugs ▪ analgesics ▪ antispasmodics ▪ psychotropics <p>Injections / Blocks:</p> <ul style="list-style-type: none"> ▪ steroids with documentation of result and duration including medicines and dosage <p>Surgery may be indicated for some acute tears of rotator cuff, labrum, capsule, biceps or displaced fractures (see surgery guidelines on page 3).</p> <p>Non-Consensus Modalities:</p> <ul style="list-style-type: none"> ▪ PRP (platelet rich injections) ▪ acupuncture ▪ hyaluronic acid injections ▪ stem cell preparations 	<p>Recommend Return To Work:</p> <ul style="list-style-type: none"> ▪ Non-Surgical: <ul style="list-style-type: none"> – generally light duty within 3 to 4 weeks – full duty within 6 to 8 weeks for most cases <p>Contingent on assessment of functional capacity</p>	<p>Document:</p> <ul style="list-style-type: none"> ▪ compliance ▪ no shows / cancellations ▪ effort: clinic ▪ effort: home <p>Refer to orthopedic specialist after 2 weeks with primary care or occupational center with no positive result or benefit in symptoms with regard to clinical exam and history.</p>



SUBACUTE SHOULDER INJURY (1-3 MONTHS)

DIAGNOSTIC CRITERIA	DIAGNOSTIC STUDIES	TREATMENT	GOALS OF TREATMENT	IF GOALS NOT MET
<p>On initial visit:</p> <ul style="list-style-type: none"> ▪ complete history ▪ physical examination ▪ pain diagram <p>Height and weight (BMI)</p> <p>On each visit document:</p> <ul style="list-style-type: none"> ▪ primary diagnosis ▪ precise location and character of pain ▪ VAS pain level ▪ current meds ▪ exam pertinent to injured body part ▪ functional capacity ▪ appraisal of ADLs and functional activity <p>Work capacity and status</p> <p>Appraise compliance</p> <p>Consider specialty referral, if not improving</p>	<p>Recommended, if clinically indicated:</p> <ul style="list-style-type: none"> ▪ X-Ray neck and shoulder ▪ MRI with and without gadolinium ▪ CT Scan ▪ Ultrasound ▪ bone scan ▪ nuclear testing ▪ white blood cell tagged, indium scans ▪ neuro conductive, i.e., EMG testing 	<p>Chiropractic</p> <ul style="list-style-type: none"> ▪ maximum 12 weeks <p>Physical Therapy</p> <ul style="list-style-type: none"> ▪ maximum 6 weeks <p>Medications:</p> <ul style="list-style-type: none"> ▪ nonsteroidal anti-inflammatory drugs ▪ antispasmodics ▪ analgesics ▪ psychotropics <p>Injections / Blocks:</p> <ul style="list-style-type: none"> ▪ steroids with documentation of result and duration <p>Open Surgery or Arthroscopic Surgery</p> <ul style="list-style-type: none"> ▪ surgical correlates (positive) <ul style="list-style-type: none"> – young age – dominant extremity – acute event (i.e., less than 3 months duration) – acute symptomatology ▪ surgical correlates (negative) <ul style="list-style-type: none"> – smoking – poor physiology – diabetic / immunosuppression – previous surgery – obesity / deconditioned – workers' compensation causality – cervical disease – porcine xenograft – multiple physician or caregivers' involvement – chronicity (i.e., more than 3 months of symptoms since injury) – retraction or atrophy of cuff or shoulder musculature ▪ consensus opinion: <ul style="list-style-type: none"> – asymptomatic full or partial rotator cuff tears are NOT surgical candidates <p>Rehabilitation Protocol (post-surgical):</p> <ul style="list-style-type: none"> ▪ 2 to 3 times per week for 4 to 6 weeks (extendable) ▪ re-evaluate every 4 to 6 weeks by clinical and treating physician ▪ physical therapy for three month maximum, accumulative in nature with the exception of special circumstances <p>Non-Consensus Modalities:</p> <ul style="list-style-type: none"> ▪ PRP (platelet rich injections) ▪ hyaluronic acid injections ▪ acupuncture ▪ stem cell preparations 	<p>Recommend RTW:</p> <ul style="list-style-type: none"> ▪ Non-Surgical: <ul style="list-style-type: none"> – generally light duty within 3 to 4 weeks – full duty within 6 to 8 weeks for most cases ▪ Surgical: <ul style="list-style-type: none"> – light duty within 4 to 6 weeks for most surgical interventions – full duty within 8 to 12 weeks for most surgical interventions – potentially longer for rotator cuff repairs especially for manual laborers – contingent on assessment of functional capacity predicated on the treaters' judgment with second opinion when appropriate 	<p>Consider alternative cause</p> <p>Consider psychological factors</p> <ul style="list-style-type: none"> ▪ see psychological guideline <p>Second Opinion:</p> <ul style="list-style-type: none"> ▪ after 3 to 6 months of non-surgical or conservative treatment without benefit ▪ after 6 to 12 months post-surgical with poor result <p>At any time during treatment, the patient should be given the option for second opinion if there is an apparent physician-patient problem.</p>



CHRONIC SHOULDER INJURY (GREATER THAN 3 MONTHS)

DIAGNOSTIC CRITERIA	DIAGNOSTIC STUDIES	TREATMENT	GOALS OF TREATMENT	IF GOALS NOT MET
<p>On initial visit:</p> <ul style="list-style-type: none"> ▪ complete history ▪ physical examination ▪ pain diagram <p>Height and weight (BMI)</p> <p>On each visit document:</p> <ul style="list-style-type: none"> ▪ primary diagnosis ▪ precise location and character of pain ▪ VAS pain level ▪ current meds ▪ exam pertinent to injured body part ▪ functional capacity ▪ appraisal of ADLs and functional activity <p>Work capacity and status</p> <p>Appraise compliance</p> <p>Consider specialty referral, if not improving</p>	<p>Recommended, if clinically indicated:</p> <ul style="list-style-type: none"> ▪ X-Ray neck and shoulder ▪ MRI with and without gadolinium ▪ CT Scan ▪ Ultrasound ▪ bone scan ▪ nuclear testing ▪ white blood cell tagged, indium scans ▪ neuro conductive, i.e., EMG testing 	<p>Chiropractic</p> <ul style="list-style-type: none"> ▪ maximum 12 weeks <p>Physical Therapy</p> <ul style="list-style-type: none"> ▪ maximum 6 weeks <p>Medications:</p> <ul style="list-style-type: none"> ▪ nonsteroidal anti-inflammatory drugs ▪ antispasmodics ▪ analgesics ▪ psychotropics <p>Injections / Blocks:</p> <ul style="list-style-type: none"> ▪ steroids with documentation of result and duration <p>Open Surgery or Arthroscopic Surgery</p> <ul style="list-style-type: none"> ▪ surgical correlates (positive) <ul style="list-style-type: none"> – young age – dominant extremity – acute event (i.e., less than 3 months duration) – acute symptomatology ▪ surgical correlates (negative) <ul style="list-style-type: none"> – smoking – poor physiology – diabetic / immunosuppression – previous surgery – obesity / deconditioned – workers' compensation causality – cervical disease – porcine xenograft – multiple physician or caregivers' involvement – chronicity (i.e., more than 3 months of symptoms since injury) – retraction or atrophy of cuff or shoulder musculature ▪ consensus opinion: <ul style="list-style-type: none"> – asymptomatic full or partial rotator cuff tears are NOT surgical candidates <p>Rehabilitation Protocol (post-surgical):</p> <ul style="list-style-type: none"> ▪ 2 to 3 times per week for 4 to 6 weeks (extendable) ▪ re-evaluate every 4 to 6 weeks by clinical and treating physician ▪ physical therapy for three month maximum, accumulative in nature with the exception of special circumstances <p>Non-Consensus Modalities:</p> <ul style="list-style-type: none"> ▪ PRP (platelet rich injections) ▪ hyaluronic acid injections ▪ acupuncture ▪ stem cell preparations 	<p>Recommend RTW:</p> <ul style="list-style-type: none"> ▪ Non-Surgical: <ul style="list-style-type: none"> – generally light duty within 3 to 4 weeks – full duty within 6 to 8 weeks for most cases ▪ Surgical: <ul style="list-style-type: none"> – light duty within 4 to 6 weeks for most surgical interventions – full duty within 8 to 12 weeks for most surgical interventions – potentially longer for rotator cuff repairs especially for manual laborers – contingent on assessment of functional capacity predicated on the treater's judgment with second opinion when appropriate 	<p>Consider alternative cause</p> <p>Consider psychological factors</p> <ul style="list-style-type: none"> ▪ see psychological guideline <p>Second Opinion:</p> <ul style="list-style-type: none"> ▪ after 3 to 6 months of non-surgical or conservative treatment without benefit ▪ after 6 to 12 months post-surgical with poor result <p>At any time during treatment, the patient should be given the option for second opinion if there is an apparent physician-patient problem.</p>



HAND/WRIST/ELBOW TREATMENT GUIDELINES

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SOFT TISSUE INJURIES: TENDINOPATHIES/TENDONITIS/SPRAINS OF THE HAND, WRIST, AND ELBOW

OVERVIEW

Tendon injuries are some of the most common injuries sustained in the workplace. These injuries include acute sprains and strains, in addition to more chronic inflammatory/degenerative conditions of tendon. Ligament sprains, degeneration, and tearing are similar with both acute and chronic injury patterns.

Treatment of common "tendonitis" has long been directed at the presumptive inflammation. This terminology implies that pain arises from inflammation, while data has shown little of this is actually present. Current studies are underway to further understand the pathophysiology of tendon-associated pain.

Occasionally, acute strain (tendon) or sprain (ligament) may be well documented based on specific injury. These injuries will typically follow a common pathway of initial inflammation, followed by healing phase, and can often be treated by supportive means. More chronic injury will often present with peritendinous fibrosis or retinacular thickening, as seen in stenosing tenosynovitis or de Quervain's tenosynovitis.

EVALUATION

Workers need to be evaluated within the context of their occupation.

These injuries may occur with a specific acute injury or in the process of more chronic overuse of the tendon, with the pathophysiology as noted above. Tendon function would be expected to correlate with the described injury pattern.

The evaluator should be able to identify the specific structure contributing to the pain complaint, and direct management specific to that tendon or ligament.

TREATMENT

Treatment for tendon injuries is directed at the type of injury, and in many cases the tendon or ligament involved.

While common management – including rest and anti-inflammatory medications – remain standard practice, it should be noted that there is limited information as to the efficacy of these treatments. Many acute injuries will subside well with this standard approach; some more chronic tendinopathies may not.

Furthermore, different tendons clearly respond differently to different treatments (e.g. corticosteroid injections have a documented "cure" rate for stenosing tenosynovitis and yet, more recently, have been shown to only have temporary palliative effects in lateral epicondylitis).



SPRAIN/STRAIN OF THE HAND, WRIST, AND FOREARM

INITIAL EVALUATION

Complete History

Physical Exam

Specifics:

- location of pain
- mechanism of injury
- work / hobby / sports Hx
- ROM
- instability
- Crepitus
- VAS / functional ability

Follow-Up:

- interval history
- pertinent exam
- VAS / functional ability

DIAGNOSTIC STUDIES

As indicated:

- X-Ray
- MRI
- Ultrasound

TREATMENT

Splint / Brace

NSAIDs

Therapy:

- CHT
- OT

Consider steroid injection(s).

Follow-Up:

- 1-2 weeks, if work modified
- 4 weeks, if work *not* modified

RECOVERY

Most soft tissue injuries are stable within 10-14 days.

Frequently indicated after casting or surgery, as hand is susceptible to significant loss of motion:

- CHT
- OT

WORK CAPACITY

Totally Disabled..... 0-2 weeks

With Restrictions 2-4 weeks

Without Restrictions 4-12 weeks

MMI..... 6-12 months



WRIST TENDINOPATHY (e.g., de QUERVAIN'S, DORSAL AND VOLAR WRIST TENOSYNOVITIS)

INITIAL EVALUATION

Complete History

Physical Exam

Specifics:

- acute / chronic
- mechanism of injury
- location of pain
- work / hobby / sports Hx
- ROM
- VAS / functional ability

Provocative tests:

- Finkelstein Test
 - specific for de Quervain's Tenosynovitis

DIAGNOSTIC STUDIES

As indicated:

- X-Ray
- MRI

TREATMENT

Initial:

- splinting
- medications
- steroid injection(s)
- therapy
 - CHT
 - OT
- activity modification

If no improvement after 2 weeks, recommend referral to a specialist.

Continued non-surgical treatment or surgical treatment may be appropriate.

RECOVERY

After surgery:

- 1-2 weeks
 - sutures out
 - splinting, as needed, for comfort
- 2-4 weeks
 - progress to gentle active ROM
 - consider therapy
- 4-6 weeks
 - continue with active ROM exercises
 - begin gentle resistive exercises
- 6+ weeks
 - progress to normal activity

WORK CAPACITY

Totally Disabled..... 0-2 weeks

With Restrictions 2-6 weeks

Without Restrictions 6-12 weeks

MMI..... 6-12 months



STENOSING TENOSYNOVITIS (TRIGGER FINGER/THUMB)

INITIAL EVALUATION

Complete History

Physical Exam

Specifics:

- acute / chronic
- which digit(s)
- locking
- location of pain
- mechanism of Injury
- work / hobby / sports Hx
- ROM
- Diabetes Hx
- VAS / functional ability

DIAGNOSTIC STUDIES

X-Ray may be indicated

Other studies occasionally necessary:

- MRI
- Ultrasound

TREATMENT

NSAIDs

Steroid Injection(s)

Therapy:

- CHT
- OT

Activity Modification

If no improvement within 2 weeks recommend referral to specialist

RECOVERY

After surgery:

- 1-2 weeks
 - sutures out
 - splinting, as needed, for comfort
- 2-4 weeks
 - progress to gentle active ROM
 - consider therapy
- 4-6 weeks
 - continue with active ROM exercises
 - begin gentle resistive exercises
- 6+ weeks
 - progress to normal activity

WORK CAPACITY

Totally Disabled..... 0-2 weeks

With Restrictions 2-6 weeks

Without Restrictions 6-12 weeks

MMI..... 6-12 months



LATERAL AND MEDIAL EPICONDYLITIS (TENNIS AND GOLFER'S ELBOW)

INITIAL EVALUATION

Complete History

Physical Exam

Specifics:

- location of pain (epicondyle vs. forearm musculature)
- mechanism of injury
- work / hobby / sports Hx
- ROM
- wrist extension test
- radial neuritis
- acute / chronic
- VAS / functional ability

DIAGNOSTIC STUDIES

X-Ray

Other studies occasionally necessary:

- MRI
- Ultrasound

TREATMENT

Activity Modification

Brace / Splint

NSAIDs

Therapy:

- CHT
- OT

Steroid Injection(s)

Surgery:

- most commonly improves without surgical intervention
- surgery frequently delayed until 6-12 months after onset of symptoms, with the expectation that patient may improve with non-op management

RECOVERY

After surgery:

- 1-2 weeks
 - sutures out
 - splinting, as needed, for comfort

- 2-4 weeks
 - progress to gentle active ROM
 - consider therapy

- 4-6 weeks
 - continue with active ROM exercises
 - begin gentle resistive exercises

- 6+ weeks
 - progress to normal activity

With non-operative management, prolonged recovery of 4-6 months is not unusual.

Appropriate work modifications may be necessary.

WORK CAPACITY

Totally Disabled..... 0-4 weeks

With Restrictions 2-12 weeks

Without Restrictions 6-24 weeks

MMI..... 12 months



CONTUSION, LACERATION, AND CRUSH TO THE HAND/WRIST/ELBOW

INITIAL EVALUATION	DIAGNOSTIC STUDIES	TREATMENT	RECOVERY	WORK CAPACITY
<p>Complete History</p> <p>Physical Exam</p> <p>Specifics:</p> <ul style="list-style-type: none"> ▪ mechanism of injury ▪ location of pain ▪ interval Tx ▪ Abx / Tetanus ▪ document each tendon / nerve function ▪ VAS / functional ability <p>Follow-Up:</p> <ul style="list-style-type: none"> ▪ interval history ▪ pertinent exam ▪ VAS / functional ability 	<p>X-Ray:</p> <ul style="list-style-type: none"> ▪ at least 2 orthogonal X-Rays (typically 3) <p>Considered for:</p> <ul style="list-style-type: none"> ▪ crush ▪ significant contusion ▪ laceration (if foreign material may be present) <p>Other studies, depending upon indications:</p> <ul style="list-style-type: none"> ▪ Ultrasound ▪ MRI 	<p>Initial Management:</p> <ul style="list-style-type: none"> ▪ open wounds irrigated and closed, when clean ▪ consider Abx ▪ splint for comfort or tendon deficit <p>Emergent Referral:</p> <ul style="list-style-type: none"> ▪ compartment concern ▪ vascular compromise ▪ evolving neurologic status <p>Early Referral:</p> <ul style="list-style-type: none"> ▪ tendon deficit ▪ neurologic deficit (static) ▪ concern for ligament instability (beyond sprain) <p>Definitive management based upon injured structures.</p> <p>Surgery indicated for:</p> <ul style="list-style-type: none"> ▪ tendon laceration ▪ nerve laceration ▪ ligament rupture 	<p>Most soft tissue injuries are stable within 10-14 days.</p> <p>Tendon repairs require specific post-operative splinting protocols under guidance of therapist.</p> <p>Frequently indicated after casting or surgery, as hand is susceptible to significant loss of motion:</p> <ul style="list-style-type: none"> ▪ CHT ▪ OT <p>Specific early therapy program, with splinting mandatory, for tendon repairs:</p> <ul style="list-style-type: none"> ▪ Certified Hand Therapist critical 	<p><i>No surgery required:</i></p> <p>Totally Disabled..... 0-2 weeks</p> <p>With Restrictions 2-6 weeks</p> <p>Without Restrictions 6-12 weeks</p> <p><i>Post-surgery:</i></p> <p>Totally Disabled..... 0-2 weeks</p> <p>With Restrictions 2-6 weeks</p> <p>Without Restrictions 6-12 weeks</p> <p>MMI..... 6-12 months</p>



BICEP AND TRICEP INJURIES OF THE ELBOW

INITIAL EVALUATION

Complete History

Physical Exam

Specifics:

- location of pain
- deformity
- mechanism of injury
(usually single episode traumatic for complete ruptures and can be repetitive for partial ruptures/"tendinosis")

Detailed history of potential associated aggravating activities (i.e., weight lifting, use of fluoroquinolone antibiotics)

VAS / functional Ability

DIAGNOSTIC STUDIES

Radiographs:

- rule out other causes or bone avulsion injuries

MRI:

- study of choice, especially for evaluating partial (or incomplete) ruptures

With some complete ruptures, exam findings are obvious enough to complete the diagnosis without diagnostic tests.

Confirm complete or partial.

TREATMENT

Partial ruptures:

- bicep tears
 - lifting, pulling, climbing restrictions
- partial triceps
 - pushing, weight-bearing, climbing restrictions

Non-operative modalities:

- rest
 - work and personal restrictions
- physical therapy
 - more effective for triceps
- injections
 - not recommended
- reassessment every 2-6 wks

Complete ruptures:

- triceps
 - critical to repair
- biceps
 - optional to repair depending on patients needs / desires

Surgical repair optimal within 3 weeks of acute complete rupture to minimize detrimental effects of muscle retraction / scarring and need of grafts

RECOVERY

Pain relief and functional strength recovery

Partial rupture:

- consider surgical repair after failure of non-operative methods

WORK CAPACITY

RTW on TPD..... 0-4 days, if no surgery planned

Totally Disabled..... 0-2 weeks

With Restrictions 2-12 weeks

Without Restrictions 6-24 weeks

MMI..... 1 year post-operatively



WRIST PAIN (ACUTE)

INITIAL EVALUATION

Complete History

Physical Exam

Specifics:

- location of pain
- mechanism of injury
- work / hobby / sports Hx
- ROM
- DRUJ pain / instability
- Crepitus
- Scaphoid Shift
- VAS / functional ability

DIAGNOSTIC STUDIES

Plain film X-Rays:

- minimum 3 views

Consider 7 view formal wrist series films and/or contralateral wrist for comparison.

TREATMENT

Normal X-Ray:

- splint continuously for 2 weeks
- NSAIDs
- ice and heat
- rest
- reassess

Abnormal X-Ray:

- treat for appropriate fracture or acute ligament injury (see other Protocols)

RECOVERY

2 weeks

WORK CAPACITY

Totally Disabled..... 0-2 weeks

With Restrictions 2-6 weeks

Without Restrictions 6-12 weeks

MMI..... 6-12 months



WRIST PAIN (2 WEEKS AFTER INJURY)

INITIAL EVALUATION

2 weeks after injury

DIAGNOSTIC STUDIES

Repeat plain film X-Rays with special views, if needed (e.g. Scaphoid views).

TREATMENT

Still normal X-Rays:

- consider cortisone injection
- continue NSAIDs
- consider occupational therapy, if low suspicion
- splint continuously 4 more weeks for significant symptoms and a high suspicion

Abnormal X-Rays:

- treat for appropriate fracture or ligament injury (see other Protocols)

For DISI / VISI, scapholunate gap, clunking or signs of instability, positive scaphoid shift test, consider:

- MRI
- arthrogram / arthroscopy
- surgery

RECOVERY

4 weeks

WORK CAPACITY

Totally Disabled..... 0-2 weeks

With Restrictions 2-6 weeks

Without Restrictions 6-12 weeks

MMI..... 6-12 months



WRIST PAIN (6-12 WEEKS AFTER INJURY)

INITIAL EVALUATION

6-12 weeks after injury

DIAGNOSTIC STUDIES

Physical Exam:

- is wrist pain localizing?

TREATMENT

Reassess

If non-tender or improving:

- wean splint
- start occupational therapy
- consider injection, if not yet done

If still tender:

- MRI arthrogram

If MRI / A abnormal:

- arthroscopy / surgery

If MRI / A normal:

- Occupational therapy
- consider cortisone injection
- consider diagnostic arthroscopy

RECOVERY

4 weeks

WORK CAPACITY

Totally Disabled..... 0-2 weeks

With Restrictions 2-6 weeks

Without Restrictions 6-12 weeks

MMI..... 6-12 months



WRIST PAIN (CHRONIC: GREATER THAN 3 MONTHS)

INITIAL EVALUATION

chronic wrist pain – greater than 3 months

DIAGNOSTIC STUDIES

Wrist exam:

- localizing pain or signs of instability

Reassess in 4 weeks

TREATMENT

Repeat X-Rays, if not already done.

If normal:

- consider splint
- NSAIDs
- OT
- cortisone injection

If still significantly tender:

- MRI +/- Arthrogram

If abnormal:

- arthroscopy / surgery

If normal, consider:

- diagnostic arthroscopy
- bone scan
- rheumatologic lab studies
- steroid injection(s)

If negative MRI / A, negative arthroscopy, negative X-Rays, ongoing pain despite steroid injections, splinting, therapy – then consider:

- rheumatology referral
- acupuncture
- ergonomic changes
- job modifications or job change
- vocational training
- candid discussion that not all pain has a surgical remedy and a hand surgeon no longer needed
- may always have some wrist discomfort

Discharge

RECOVERY

4 weeks

WORK CAPACITY

One or two-handed duty with restrictions, if necessary.

Return to some type of work, possible with splint.



NERVE COMPRESSION SYNDROMES OF THE HAND, WRIST, AND ELBOW

OVERVIEW

Work-related nerve injuries can occur through repetitive trauma, blunt injury or via penetrating and open injuries.

Onset can be acute, subacute, or chronic. Symptoms vary on presentation and depend on the degree and type of nerve injury.

Nerve injuries can be classified as Neuropraxia, Axonotmesis and Neurotmesis:

- Neuropraxia represents physiological dysfunction of the nerve without anatomic disruption.
- Axonotmesis represents anatomic disruption with interruption and injury to the nerve axon.
- Neurotmesis is defined as disruption of all elements of the nerve.

In the case of Axonotmesis and Neurotmesis, Wallerian degeneration of the distal nerve end takes place. This process occurs before nerve regeneration and basically is a debridement process of the distal stump of the nerve to aid in nerve regeneration.

Nerve healing takes place in an organized, sequential manner; first with Wallerian degeneration of the distal nerve ending, followed by axonal regeneration and growth, and finally nerve reinnervation.

Unfortunately, the process of nerve healing is variable and, thus, the time required to recover from nerve injury is often difficult to predict.

IDENTIFYING NERVE INJURIES

Understanding the functional anatomy of nerve is critical in making the correct diagnosis of nerve injury.

Identification of sensory and / or muscle loss will help identify the location of nerve injury and possibly help with prognosis predictions. Supplemental testing such as nerve conduction testing and electromyography are also often helpful in identifying not only the location of nerve injury, but may also indicate the severity of injury.

These tests can also help provide information concerning degree of healing of the nerve. Although these tests are helpful, they should not be the only determining factor in recommending treatment.

Based upon current literature, strong consideration should be given to pre-operative electrodiagnostic testing to assess for concomitant or coexisting neuropathy, and to serve as a baseline study for comparative purposes should another study be needed following treatment.

It is important to recall that these studies have a well-documented false-negative rate, and the presence of a negative study does not necessarily indicate absence of disease or necessity of treatment.

PROGNOSIS

Prognosis for peripheral nerve injuries is often difficult to determine, but with a thorough neurological exam based on the clear understanding of the anatomy and the use of supplemental testing – such as nerve conduction tests and electromyography – treatment plans can be developed and predictions for return to work status made.



CARPAL TUNNEL SYNDROME

INITIAL EVALUATION

Complete History

Physical Exam

Specifics:

- location of symptoms
- work / hobby / sports Hx
- atrophy
- 2-point discrimination
- VAS / functional ability
- comorbidities

Provocative tests:

- Median nerve compression test
- Tinel's Sign
- Phalen's Test

DIAGNOSTIC STUDIES

X-Ray

Electrodiagnostic testing

Other, with specific indication:

- MRI
- CT scan
- Ultrasound

TREATMENT

Initial (first 2 weeks):

- splinting
- possible NSAIDs
- possibly vitamin B6
- possible steroid injection
 - CHT
 - OT
- activity modification
- ergonomic evaluation, as indicated

If no improvement after 2 weeks, consider referral to a specialist for continued non-surgical treatment or surgical treatment.

RECOVERY

Non-operative treatment:

- continued depending on nerve recovery

Post-operative treatment:

- post-operative mobilization, as tolerated
- post-operative therapy, as needed

WORK CAPACITY

Non-operative treatment:

- frequently does not require work restrictions

Operative treatment:

Totally Disabled..... 0-2 weeks

With Restrictions 2-6 weeks

Without Restrictions 6-12 weeks

MMI..... 6-12 months



CUBITAL TUNNEL SYNDROME

INITIAL EVALUATION

Complete History

Physical Exam

Specifics:

- location of symptoms
- work / hobby / sports Hx
- atrophy
- froments
- Wartenberg Sign
- clawing
- 2-point discrimination
- VAS / functional ability
- comorbidities

Provocative tests:

- Elbow Flexion Test
- Tinel's Sign

DIAGNOSTIC STUDIES

X-Ray

Electrodiagnostic testing

Other, with indications:

- MRI
- CT scan
- Ultrasound

TREATMENT

Initial (first 2 weeks):

- splinting
- possible NSAIDs
- possibly vitamin B6
- possible steroid injection
- possible therapy
 - CHT
 - OT
- activity modification
- ergonomic evaluation as indicated

If no improvement after 2 weeks, consider referral to a specialist for continued non-surgical treatment or surgical treatment.

RECOVERY

Non-operative treatment:

- continued depending on nerve recovery

Post-operative treatment:

- post-operative mobilization, as tolerated
- post-operative therapy, as needed

WORK CAPACITY

Non-operative treatment:

- frequently does not require work restrictions

Operative treatment:

Totally Disabled..... 0-2 weeks

With Restrictions 2-6 weeks

Without Restrictions 6-12 weeks

MMI..... 6-12 months



OTHER COMPRESSION NEUROPATHIES (PRONATOR SYNDROME, ANTERIOR INTEROSSEUS SYNDROME, RADIAL NERVE PALSY, RADIAL TUNNEL SYNDROME, SUPERFICIAL RADIAL NERVE PALSY, ULNAR TUNNEL SYNDROME)

INITIAL EVALUATION	DIAGNOSTIC STUDIES	TREATMENT	RECOVERY	WORK CAPACITY
<p>Complete History</p> <p>Physical Exam</p> <p>Provocative tests:</p> <ul style="list-style-type: none"> ▪ Pronator Syndrome <ul style="list-style-type: none"> – Tinel's Sign – resisted forearm pronation – resisted elbow flexion with forearm pronation – resisted flexion of the middle finger sublimis ▪ Radial Nerve Palsy <ul style="list-style-type: none"> – Tinel's Sign ▪ Radial Tunnel Syndrome <ul style="list-style-type: none"> – pain at the origin of the extensor carpi radialis brevis with resistance of middle finger extension – pain with resisted forearm supination ▪ Superficial Radial Nerve <ul style="list-style-type: none"> – Tinel's Sign – sensory in first web ▪ Ulnar Tunnel Syndrome <ul style="list-style-type: none"> – Tinel's Sign – wrist extension and flexion maneuver 	<p>X-ray</p> <p>Electrodiagnostic testing</p> <p>Other, with indications:</p> <ul style="list-style-type: none"> ▪ MRI ▪ CT scan ▪ Ultrasound <p>Note that electrodiagnostic studies are well recognized to be negative in Radial Tunnel Syndrome and proximal median nerve compression, but a positive result is significant, and the study serves as a baseline for comparison following treatment or surgery, and is therefore still recommended.</p>	<p>Initial (first 2 weeks):</p> <ul style="list-style-type: none"> ▪ splinting ▪ anti-inflammatory ▪ possibly vitamin B6 ▪ possible steroid injection ▪ therapy <ul style="list-style-type: none"> – CHT – OT ▪ activity modification ▪ ergonomic evaluation as indicated <p>If no improvement after 2 weeks, consider referral to a specialist for continued non-surgical treatment or surgical treatment.</p>	<p>Non-operative treatment:</p> <ul style="list-style-type: none"> ▪ continued, depending on nerve recovery <p>Post-operative treatment:</p> <ul style="list-style-type: none"> ▪ post-operative mobilization, as tolerated ▪ post-operative therapy, as needed 	<p>Non-operative treatment:</p> <ul style="list-style-type: none"> ▪ return to work, depending on nerve recovery ▪ does not always require work restrictions <p>Operative treatment:</p> <p>Totally Disabled..... 0-2 weeks</p> <p>With Restrictions 2-6 weeks</p> <p>Without Restrictions 6-12 weeks</p> <p>MMI..... 6-12 months</p>



FRACTURES AND DISLOCATIONS OF THE HAND, WRIST, AND ELBOW

OVERVIEW	INITIAL DIAGNOSIS AND MANAGEMENT	EMERGENCIES	REFERRAL	SURGICAL INDICATIONS	RETURN TO WORK
<p>Guidelines provided are intended to establish a consistent framework for initial evaluation and subsequent management for common workplace fractures of the upper extremity.</p> <p>These are guidelines provided to improve consistency, and providers should understand that these do not supersede individual circumstances, which should be appropriately documented.</p>	<p>Evaluation:</p> <ul style="list-style-type: none"> history and physical examination should include mechanism of injury and any other complaints from present injury <p>History should include:</p> <ul style="list-style-type: none"> previous history of injury / fracture to the same body part sensory complaints history of smoking <p>Physical examination should include:</p> <ul style="list-style-type: none"> documentation of any pain throughout limb status of skin (open or closed fracture, tenting, blistering) neurological examination (pre- and post-immobilization) tendon function degree of wound contamination any visible structures (e.g., lacerated tendon) should be noted <p>Radiographs:</p> <ul style="list-style-type: none"> at least 2 orthogonal views of area of concern joints above and below fracture should be evaluated CT scan possible to further clarify fracture specifics, such as degree of joint displacement MRI possible for soft tissue injuries or to determine presence of scaphoid fracture <p>Management:</p> <ul style="list-style-type: none"> Closed fractures <ul style="list-style-type: none"> Fractures and acute soft tissue injuries should be managed expeditiously. Fractures should be aligned and splinted, whenever possible, to avoid further soft tissue injuries and minimize pain. This is typically accomplished with longitudinal traction. Further reduction maneuvers should be limited to those with appropriate expertise. Open fractures <ul style="list-style-type: none"> Open fractures pose significant risk for infection. Time to administration of IV antibiotics and debridement in open fractures has been shown to be critically important to minimize infection risk. These should be transferred to appropriate center emergently. Wound irrigation and hemostasis, when possible, is appropriate. As with closed fractures, splinting is critical to reduce risk to other soft tissues and control pain. Further management may require hospitalization. Many hand injuries with minimal wound contamination may be managed with irrigation in office or ER setting and oral antibiotics. 	<p>While many simple fractures can be managed in the office setting, providers should be acutely aware of these emergent situations.</p> <p>Open fractures:</p> <ul style="list-style-type: none"> See above. These require emergent intervention and administration of antibiotics. Providers should be aware that a very small laceration associated with fracture may represent a small "poke-hole" or Grade I open fracture. In the upper extremity, many of these may be treated with antibiotics alone, but antibiotic management is critical. <p>Compartment Syndrome:</p> <ul style="list-style-type: none"> Compartment Syndrome occurs when tissue pressure exceeds perfusion pressure and tissue ischemia results. In the upper extremity, the most common area of concern is the forearm. Compartment Syndrome in the hand can occur much less often and, while reported, occurrence isolated to the fingers is extremely rare. These are often associated with fracture and crush injuries. As tissue pressures increase, pain escalates. The compartments become tight, but may be covered by splint. The splints should be loosened to further investigate. Neurologic deficits and vascular occlusion occur later, usually after irreparable tissue necrosis. Early diagnosis is essential. Hallmark findings in Compartment Syndrome are pain out of proportion to exam, and pain with passive stretch. For example, in the forearm the scenario is much more common with fracture of the shaft of radius and ulna rather than at the wrist. Passive flexion and extension of the digits should normally be somewhat tolerable. Concern should be raised when there is little to no active motion, and small amounts of passive motion elicit severe pain. <p>Neurologic injury:</p> <ul style="list-style-type: none"> Neurological deficits should be noted on initial examination. These are typically static and, as such, do not require emergent treatment, but should be evaluated immediately. However, change in neurological status following reduction or progression of neurologic deficit should be evaluated and managed emergently. <p>Vascular injury:</p> <ul style="list-style-type: none"> Loss of pulse or capillary refill is indicative of insult to the arterial inflow. Typical vascular deficit in the hand and wrist are a result of laceration to the artery or displaced fracture. Initial reduction is performed and vascular status is reevaluated. Persistent deficit or arterial laceration compromising distal perfusion should be referred to ED and managed emergently. 	<p>Referral to ED should be made emergently in cases of contaminated wound, open fractures, concern for Compartment Syndrome, or evolving neurological deficit.</p> <p>Closed fractures, if stabilized, should be referred to an Orthopedic surgeon within a week for definitive management.</p>	<p>Fractures often require operative intervention.</p> <p>Fractures are reduced and immobilized initially.</p> <p>Based upon position after reduction, or progression of displacement, surgery may be indicated to correct and maintain position.</p>	<p>Most fractures of the hand and wrist will be stable in 6-8 weeks, but often not fully healed.</p> <p>Typically, these are transitioned to splints, to allow for range of motion and eventually strengthening while the fracture goes on to full healing.</p> <p>Often, patients may be able to return to limited capacity within 2-4 weeks, depending on fracture, pain level, and degree of immobilization.</p>



FRACTURES OF METACARPALS AND PHALANGES

INITIAL EVALUATION

Complete History

Physical Exam

Specifics:

- location of pain
- mechanism of injury
- deformity
- open wounds
- compartments
- instability
- Crepitus

Must document neurological and vascular status pre- and post-reduction or splinting

Interval Hx

VAS / functional ability

DIAGNOSTIC STUDIES

X-Ray:

- at least 2 orthogonal X-Rays (typically 3) must be obtained of any area of concern or complaint of pain

CT scan:

- occasionally considered to define fracture

MR:

- not typical for isolated fractures
- may be necessary to define ligament injuries

Specific X-Ray views:

- for isolated injury to digit, recommend X-Ray of specific digit more helpful than whole hand film

Things to look out for:

- common missed diagnosis occurs with poor lateral film of involved digit
- metacarpal injury best viewed with 3 views of hand
- base of 5th metacarpal often best seen with reverse oblique

TREATMENT

General:

- open wounds irrigated and closed, when possible
- if open, usually begin Abx and refer immediately
- always splint

Emergent referral:

- open fractures
- compartment concern
- vascular compromise
- evolving neurologic status

Early referral:

- closed fractures with stable neurological status

Management:

- definitive management based upon fracture alignment and stability
- may require cast vs. surgical reduction / fixation
- surgical indications include
 - rotational malalignment
 - shortening
 - angular deformity (not reducible)

RECOVERY

Most metacarpal or phalangeal fractures require casting 4-6 weeks.

Surgical repair occasionally allows for earlier motion but not loading until healed.

Frequently indicated after casting or surgery, as hand is susceptible to significant loss of motion:

- CHT
- OT
- typically 2 visits per week for 2-8 weeks

WORK CAPACITY

Totally Disabled..... 0-2 weeks

With Restrictions 2-12 weeks

Without Restrictions 6-24 weeks

MMI..... 6-12 months



FRACTURES OF WRIST

INITIAL EVALUATION

Complete History

Physical Exam

Specifics:

- location of pain
- mechanism of injury
- deformity
- open wounds
- compartments
- instability
- Crepitus

Must document neurological and vascular status pre- and post-reduction or splinting.

Interval Hx

VAS / functional ability

DIAGNOSTIC STUDIES

X-Ray:

- at least 2 orthogonal views (typically 3)

CT scan:

- considered, if more information needed on fracture specifics

MRI:

- useful for occult fractures
- should be considered – typically at 2 weeks – for exam concerning for scaphoid fracture with negative radiographs

Specific X-Ray views:

- concern for scaphoid injury with snuffbox tenderness – obtain "scaphoid view"
- distal radius angulation best seen with "facet lateral" view (20 degrees off true lateral)

Things to look out for:

- scaphoid fractures often subtle; if snuffbox tenderness, obtain scaphoid view
 - when in doubt, splint

Perilunate injuries often missed

TREATMENT

Wounds:

- irrigate open wounds
- begin Abx and refer immediately
- reduction performed, if displaced
- always splint

Emergent Referral:

- open fractures
- compartment concern
- vascular compromise
- evolving neurologic status

Early Referral:

- closed fractures with stable neurological status

Management:

- definitive management based upon fracture alignment and stability
- may require cast vs. surgical reduction / fixation
- surgical indication based upon patient age, fracture stability, and position
- frequent – but not definitive – indications for surgery in distal radius
 - articular displacement
 - dorsal tilt > 10 deg
 - shortening > 3 mm

RECOVERY

Most distal radius fractures require casting 4-6 weeks.

Surgical repair occasionally allows for earlier motion but not loading until healed.

Frequently indicated after casting or surgery, as hand is susceptible to significant loss of motion:

- CHT
- OT
- typically 2 visits per week for 2-8 weeks
- complex regional pain syndrome (RSD) may necessitate substantially greater amount of therapy

WORK CAPACITY

Totally Disabled..... 0-2 weeks

With Restrictions 2-6 weeks

Without Restrictions 6-12 weeks

MMI..... 6-12 months

Carpal fractures – and notably scaphoid – are slow to heal and may more than double above timeline.



FRACTURES OF ELBOW

INITIAL EVALUATION

Complete History

Physical Exam

Specifics:

- location of pain
- mechanism of Injury
- ROM
- instability
- Crepitus

Detailed history of work injury, usually single traumatic event

Detailed history of any previous elbow injuries/fractures

Appropriate relevant neurovascular exam

VAS / functional ability

DIAGNOSTIC STUDIES

Radiographs:

- critical to obtain initially, and additional special views if necessary

CT Scan:

- often necessary to confirm treatment plan

MRI:

- occasionally useful to evaluate occult fractures

TREATMENT

Open fractures:

- treated acutely with direct emergency room evaluation and urgent surgical intervention

Closed fractures:

- initial immobilization with or without a closed reduction, then acute referral to orthopedic surgeon

Surgery:

- open reduction / internal fixation (ORIF):
 - scheduled typically less than two weeks
 - optimally less than one week for closed fractures (immediate for open fractures)

Medications:

- OTC analgesics
- narcotic pain medication
- injections:
 - may be appropriate for selected cases, i.e. aspiration and injection for acute radial head fracture

RECOVERY

Pain relief and functional strength recovery

If goals not met:

- most simple elbow fractures (i.e., single fractures not associated with dislocations) heal in 2-4 months
- if a simple fracture treated non-operatively is not healed in 2-4 months, further specialist consultation and / or diagnostic tests (i.e., CT Scan) are necessary
- complex fracture dislocations needing ORIF take much longer to heal and obtain functional recovery, not uncommonly 6-9 months

WORK CAPACITY

For non-operative/cast immobilization:

Totally Disabled..... 1-4 weeks

With Restrictions 2-12 weeks

Without Restrictions 6-12 weeks

For open reduction/internal fixation:

Totally Disabled..... 1-4 weeks

With Restrictions 2-12 weeks

Without Restrictions 6-12 weeks

MMI..... 1 year

Post-operative:

- extended accordingly for complex cases, including at least 6 months after full RTW



OSTEOARTHRITIS OF THE HAND, WRIST, AND ELBOW

OVERVIEW

Osteoarthritis (osteoarthrosis, DJD) is the most common disease of the joints. It is characterized by progressive deterioration and loss of articular cartilage, and by reactive changes at the margins of the joints and in the subchondral bone. Associated synovitis is common.

Clinical manifestations are characterized by progressive joint pain, stiffness, and enlargement.

Prevalence increases with age and is almost universal in persons over the age of 65. It is more common in women. Genetic, hormonal, and biomechanical factors also play a role.

Direct injury to joints can lead to post-traumatic arthritis, which may present in a delayed fashion. Most likely no specific type of manual labor can directly "cause" arthritis.

The role of repetitive trauma is controversial, but in certain scenarios it may worsen underlying and pre-existing arthritis.

EVALUATION

Osteoarthritis will present with focal / joint specific findings. These are not always painful, but may restrict range of motion.

Evaluation should focus on focal pain and mobility.

Radiographs are essential to diagnosis.

TREATMENT

There is no cure for cartilage wear.

Treatment is often directed to alleviate the associated painful synovitis, either by decreasing load on the affected joint through activity modification, bracing, medication, or injection.

Surgical treatment may offer relief after all conservative measures have been exhausted.



OSTEOARTHRITIS

INITIAL EVALUATION	DIAGNOSTIC STUDIES	TREATMENT	RECOVERY	WORK CAPACITY
Complete History	X-Rays	Rest	Maximum 8 weeks of conservative treatment, including:	Totally Disabled..... 0-2 weeks
Physical Exam	Controversial if repetitive strain without discreet injury materially and substantially aggravates underlying arthritis, or is pain part of the natural history of arthritis, and unrelated to job.	Splinting	<ul style="list-style-type: none"> ▪ CHT ▪ OT 	With Restrictions 2-12 weeks
Specifics: <ul style="list-style-type: none"> ▪ location of pain ▪ mechanism of injury ▪ work / hobby / sports Hx ▪ ROM ▪ swelling ▪ instability ▪ Crepitus ▪ grip strength ▪ Grind Test (thumb CMC) ▪ Heberden's / Bouchard's 	A remote injury can result in certain patterns of arthritis years later, such as SLAC wrist after scapholunate ligament injury. A patient presenting with an arthritis pattern that appears to be from an old injury may be experiencing the natural history of their original injury rather than an injury caused by work.	Steroidal / NSAIDs	Recovery following surgery 3 months.	Without Restrictions 6-24 weeks
Interval Hx	Consider blood work to rule out rheumatoid arthritis or other non-work related cause of arthritis.	Heat		MMI..... 6-12 months
VAS / functional ability		Topicals: <ul style="list-style-type: none"> ▪ e.g., Diclofenac, Flector Patch, capsaicin 		Return to work with permanent restrictions, if cannot perform full duty; otherwise consider alternative employment.
		Steroid injection(s)		May need permanent restrictions following surgery
		Therapy: <ul style="list-style-type: none"> ▪ CHT ▪ OT 		
		Arthritis may require long-term management as opposed to cure. Patients may never be completely pain free. Symptoms may wax and wane depending upon activity level.		
		Surgery is indicated for refractory cases, unresponsive to conservative measures, or interfering with activities of daily living and causing loss of work.		
		Surgery: <ul style="list-style-type: none"> ▪ arthroplasty (with or without replacement) ▪ arthrodesis 		



HISTORY AND PHYSICAL EXAMINATION

HISTORY OF PRESENT ILLNESS	MEDICATIONS	PAST MEDICAL / SURGICAL HISTORY	SOCIAL HISTORY	REVIEW OF SYSTEMS	PHYSICAL EXAMINATION		
<p>Description of Injury:</p> <ul style="list-style-type: none"> ▪ details of events before, during, and immediately after the alleged injury ▪ mechanism of injury ▪ identification of body parts involved ▪ location of the pain, characteristics of the pain, and distribution of the pain symptoms ▪ frequency and duration of symptoms ▪ alleviating / exacerbating factors <p>Any limitations in functional activities should be noted. Inquire about previous insults, surgery, prescriptions, and limitations of the knee.</p> <p>The history should include the presence and distribution of any lower extremity numbness, weakness, or radicular symptoms, as well as limpness and / or other leg symptoms.</p> <p>A visual analog pain scale should be used and monitored at each visit. The patient should be asked their current rating, average over the last week and range from low to high. Note any pain at night or at rest.</p> <p>Note any history of emotional and / or psychological condition, i.e. psychiatric diagnoses and hospitalizations for mental illness.</p>	<p>History should include:</p> <ul style="list-style-type: none"> ▪ previous medications taken for this knee injury ▪ a list of all current medications, including dose and frequency ▪ any significant side effects from previous medications ▪ tolerance to specific medications <p>Medication allergies should be verified at every visit.</p>	<p>Identify any previous occupational and non-occupational injuries to the same area.</p> <p>Determine if the patient has any history of non-traumatic knee problems such as arthritis, cancer, surgery, etc.</p> <p>Document any prior knee treatment, chronic or recurrent symptoms, response to previous treatment, and any functional limitations or previous restrictions in work capacity.</p> <p>Determine if the patient has any history of non-knee medical conditions such as diabetes, cardiac arrest, etc.</p>	<p>Identify:</p> <ul style="list-style-type: none"> ▪ smoking ▪ alcohol use ▪ other drug use ▪ psychologic profile ▪ vocational activities ▪ recreational activities <p>Note potential primary or secondary gains.</p>	<p>Identify systemic disease symptoms:</p> <ul style="list-style-type: none"> ▪ cardiac ▪ endocrine ▪ gastrointestinal ▪ hematological ▪ infectious ▪ neurologic ▪ neoplastic ▪ renal ▪ rheumatologic ▪ other 	<p>Physical exam:</p> <ul style="list-style-type: none"> ▪ height ▪ weight ▪ vital signs ▪ general appearance ▪ note signs of symptom amplification; consider: <ul style="list-style-type: none"> – affect – behavior <p>Visual inspection of knee:</p> <ul style="list-style-type: none"> ▪ skin color ▪ scars ▪ deformity ▪ edema <p>Compare to contralateral:</p> <ul style="list-style-type: none"> ▪ muscle atrophy ▪ alignment of extremity ▪ temperature of knee <p>Knee range of motion:</p> <ul style="list-style-type: none"> ▪ extension to full flexion <p>Reflexes:</p> <ul style="list-style-type: none"> ▪ patella tendon <p>Strength testing:</p> <ul style="list-style-type: none"> ▪ quadriceps ▪ hamstring muscles <p>Patella – femoral exam:</p> <ul style="list-style-type: none"> ▪ crepitus ▪ alignment ▪ tracking ▪ compression test ▪ grind test <p>Meniscal testing:</p> <ul style="list-style-type: none"> ▪ McMurray's ▪ Apley <p>Ligament assessment (Lachman, Drawer, Step off):</p> <ul style="list-style-type: none"> ▪ anterior ▪ posterior <p>Collaterals:</p> <ul style="list-style-type: none"> ▪ Varus ▪ Valgus ▪ stress <p>Stress Testing:</p> <ul style="list-style-type: none"> ▪ posterior lateral ▪ posterior medial <p>Tenderness:</p> <ul style="list-style-type: none"> ▪ distal thigh ▪ proximal tibia ▪ note areas of soreness <p>Examine Joints above / below:</p> <ul style="list-style-type: none"> ▪ hip ▪ ankle <p>Gait Pattern:</p> <ul style="list-style-type: none"> ▪ limp ▪ short arc ▪ avoidance <p>Evaluate non-knee-related issues:</p> <ul style="list-style-type: none"> ▪ hip ▪ sciatica ▪ vascular <p>Consider autoimmune phenomenon and inflammatory etiologies, i.e.:</p> <ul style="list-style-type: none"> ▪ gout ▪ lyme ▪ rheumatoid ▪ sepsis <p>Arthrofibrosis:</p> <ul style="list-style-type: none"> ▪ separate guarding from true contracture 		



ACUTE TRAUMATIC OR OVERUSE/REPETITIVE STRESS (LESS THAN 4 WEEKS)

DIAGNOSTIC STUDIES

Recommended:

- X-Rays, if indicated by trauma or medical suspicion
- MRI or CT, only if suggestion of locked knee, ligament instability, or suspicion of significant occult process

TREATMENT

Recommended:

- Ice / Heat:
 - elevation +/- compression
- Rest / Immobilization:
 - question crutches
- Physical Therapy:
 - 4-6 weeks (12-18 visits)
 - as indicated by progress
- Chiropractic Care:
 - 4-6 weeks (12-18 visits)
- Acupuncture
 - 4-6 weeks (12-18 visits)

Medications:

- NSAIDs
- analgesics
- antispasmodics
- psychotropics
- aspiration / injection, if necessary

GOALS OF TREATMENT

Recommend RTW – Non-Surgical:

- light duty.....within 3-4 weeks (generally)
- full duty.....within 6-8 weeks (for most cases)

Contingent on assessment of functional capacity

IF GOALS NOT MET

Document:

- compliance
- no shows / cancellations
- effort: clinic
- effort: home

Refer to specialist:

- after 2 weeks with no positive result or benefit of symptoms with regard to clinical exam and history



SUBACUTE KNEE INJURY (1-3 MONTHS)

DIAGNOSTIC CRITERIA	DIAGNOSTIC STUDIES	TREATMENT	GOALS OF TREATMENT	IF GOALS NOT MET
<p>On initial visit:</p> <ul style="list-style-type: none"> ▪ complete history ▪ physical examination ▪ pain diagram <p>Height and weight (BMI)</p> <p>On each visit document:</p> <ul style="list-style-type: none"> ▪ primary diagnosis ▪ precise location and character of pain ▪ VAS pain level ▪ current medications ▪ exam pertinent to injured body part ▪ functional capacity ▪ appraisal of ADLs and functional activity <p>Work capacity and status</p> <p>Appraise compliance</p> <p>Consider specialty referral, if not improved</p>	<p>Recommended, if clinically indicated:</p> <ul style="list-style-type: none"> ▪ X-Ray of knee: <ul style="list-style-type: none"> – question hip ▪ MRI: <ul style="list-style-type: none"> – with or without contrast (if previous surgery) ▪ CT Scan: <ul style="list-style-type: none"> – for some fractures – for tumor ▪ Ultrasound to rule out DVT ▪ Bone Scan to rule out: <ul style="list-style-type: none"> – contusion – infection – cancer – fatigue FX ▪ Nuclear Testing: <ul style="list-style-type: none"> – prosthetic loosening vs. infection ▪ White Blood Cell Tagged: <ul style="list-style-type: none"> – indium scan to rule out infection ▪ Neuro Conductive: <ul style="list-style-type: none"> – to rule out nerve compression injuries 	<p>Recommended:</p> <ul style="list-style-type: none"> ▪ Chiropractic Care: <ul style="list-style-type: none"> – 6 to 8 weeks (18 to 24 visits) ▪ Physical Therapy: <ul style="list-style-type: none"> – 6 to 8 weeks (18 to 24 visits) <p>Medications:</p> <ul style="list-style-type: none"> ▪ NSAIDs ▪ analgesics (oral or topical) ▪ antispasmodics ▪ psychotropics ▪ injection / aspiration ▪ steroid / hyaluronic acid <p>Document result and duration.</p> <p>Surgery:</p> <ul style="list-style-type: none"> ▪ dependent on DX and response to conservative treatment <p>Negative Surgical Correlates:</p> <ul style="list-style-type: none"> ▪ smoking ▪ poor physiology ▪ diabetic / immunosuppression ▪ previous surgery ▪ obesity / de-conditioned ▪ chronicity – i.e., more than three months of symptoms since injury ▪ retraction or atrophy of thigh musculature ▪ multiple physician or caregiver involvement <p>Rehabilitation Protocol (post-surgical):</p> <ul style="list-style-type: none"> ▪ 2 to 3 times per week for 4 to 6 weeks (extendable) ▪ re-evaluate every 4 to 6 weeks by clinical and treating physician ▪ physical therapy for three month maximum, accumulative in nature with the exception of special circumstances 	<p>Recommend RTW:</p> <ul style="list-style-type: none"> ▪ Non-Surgical: <ul style="list-style-type: none"> – generally light duty within 3 to 4 weeks – full duty within 6 to 8 weeks for most cases ▪ Surgical: <ul style="list-style-type: none"> – light duty within 4 to 6 weeks for most surgical interventions – full duty within 6 to 8 weeks for most surgical interventions – potentially longer (3 to 4 months) for extensive ligament reconstruction or arthroplasty with some vocations – contingent on assessment of functional capacity predicated on the treater's judgment with second opinion when appropriate 	<p>Consider alternative cause.</p> <p>Consider psychological and motivational factors</p> <ul style="list-style-type: none"> ▪ see Psychological Guideline <p>Second opinion:</p> <ul style="list-style-type: none"> ▪ after 3 to 6 months of non-surgical or conservative treatment without benefit ▪ after 6 to 12 months post-surgical with poor result <p>At any time during treatment, the patient should be given the option for second opinion, if there is an apparent physician-patient problem.</p>



CHRONIC KNEE INJURY (GREATER THAN 3 MONTHS)

DIAGNOSTIC CRITERIA	DIAGNOSTIC STUDIES	TREATMENT	GOALS OF TREATMENT	IF GOALS NOT MET
<p>On initial visit:</p> <ul style="list-style-type: none"> ▪ complete history ▪ physical examination ▪ pain diagram <p>Height and weight (BMI)</p> <p>On each visit document:</p> <ul style="list-style-type: none"> ▪ primary diagnosis ▪ precise location and character of pain ▪ VAS pain level ▪ current medications ▪ exam pertinent to injured body part ▪ functional capacity ▪ appraisal of ADLs and functional activity <p>Work capacity and status</p> <p>Appraise compliance</p> <p>Consider specialty referral, if not improved</p>	<p>Recommended, if clinically indicated:</p> <ul style="list-style-type: none"> ▪ X-Ray of knee: <ul style="list-style-type: none"> – question hip ▪ MRI: <ul style="list-style-type: none"> – with or without contrast (if previous surgery) ▪ CT Scan: <ul style="list-style-type: none"> – for some fractures – for tumor ▪ Ultrasound to rule out DVT ▪ Bone Scan to rule out: <ul style="list-style-type: none"> – contusion – infection – cancer – fatigue FX ▪ Nuclear Testing: <ul style="list-style-type: none"> – prosthetic loosening vs. infection ▪ White Blood Cell Tagged: <ul style="list-style-type: none"> – indium scan to rule out infection ▪ Neuro Conductive: <ul style="list-style-type: none"> – to rule out nerve compression injuries 	<p>Recommended:</p> <ul style="list-style-type: none"> ▪ Chiropractic Care: <ul style="list-style-type: none"> – 6 to 8 weeks (18 to 24 visits) ▪ Physical Therapy: <ul style="list-style-type: none"> – 6 to 8 weeks (18 to 24 visits) <p>Medications:</p> <ul style="list-style-type: none"> ▪ NSAIDs ▪ analgesics ▪ antispasmodics ▪ psychotropics ▪ injection / aspiration ▪ steroid / hyaluronic acid <p>Document result and duration.</p> <p>Surgery:</p> <ul style="list-style-type: none"> ▪ dependent on DX and response to conservative treatment <p>Negative Surgical Correlates:</p> <ul style="list-style-type: none"> ▪ smoking ▪ poor physiology ▪ diabetic / immunosuppression ▪ previous surgery ▪ obesity / de-conditioned ▪ chronicity – i.e., more than three months of symptoms since injury ▪ retraction or atrophy of thigh musculature ▪ multiple physician or caregiver involvement <p>Rehabilitation Protocol (post-surgical):</p> <ul style="list-style-type: none"> ▪ 2 to 3 times per week for 4 to 6 weeks (extendable) ▪ re-evaluate every 4 to 6 weeks by clinical and treating physician ▪ physical therapy for three month maximum, accumulative in nature with the exception of special circumstances 	<p>Recommend RTW:</p> <ul style="list-style-type: none"> ▪ Non-Surgical: <ul style="list-style-type: none"> – generally light duty within 3 to 4 weeks – full duty within 4 to 6 weeks for most cases ▪ Surgical: <ul style="list-style-type: none"> – light duty within 4 to 6 weeks for most surgical interventions – full duty within 6 to 12 weeks for most surgical interventions – potentially longer for ligament reconstruction, fracture repair, and arthroplasty – contingent on assessment of functional capacity predicated on the treater's judgment with second opinion when appropriate 	<p>Consider alternative cause.</p> <p>Consider psychological factors</p> <ul style="list-style-type: none"> ▪ see Psychological Guideline <p>Second opinion:</p> <ul style="list-style-type: none"> ▪ after 3 to 6 months of non-surgical or conservative treatment without benefit ▪ after 6 to 12 months post-surgical with poor result <p>At any time during treatment, the patient should be given the option for second opinion, if there is an apparent physician-patient problem.</p>