Introduction

This clinical pathway is intended to serve as an instructional aid. It is designed for clinicians treating work-injured patients with or at risk for the development of complex regional pain syndrome (CRPS)\(^1\) (formerly reflex sympathetic dystrophy (RSD)). The goal of this pathway is to provide clinicians with evidence-based therapeutic options that will help reduce the incidence of those who develop intractable pain from CRPS in the American workforce.

It should be noted that this clinical pathway is not intended to constitute inflexible treatment recommendations, and is not a scientific treatise on the subject. Modifications to the pathway will undoubtedly be necessary as a result of new research and practice-based evidence. The developers believe this pathway should always be considered a work in progress. For this reason it must be broad enough to incorporate a wide range of diagnostic and treatment modalities. This allows for philosophical and practice differences between the various licensed health care practitioners. It is not intended either to replace a clinician’s judgment or to establish a protocol for all patients at risk for development of CRPS. It is expected that a health care professional will establish a plan of care based on an individual patient’s needs, taking into account the individual’s medical condition, personal needs, and preferences, as well as the health care professional’s experience. Treatment may differ from that outlined here.

Working Group

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Intended Users

Physicians and allied health professionals

Goals

This guide will focus on treatment recommendations health care professionals can begin to consider in an effort to assure:

- the work-injured are receiving high quality, evidence based therapeutics,
- a reduction in the number of work injured who develop intractable pain from CRPS/RSD, and
- a reduction in unnecessary costs associated with delayed recovery and inefficient resource utilization.

\(^1\)See definitions.
Patient Population

Adult injured workers 18 years or older with or at risk for development of CRPS/RSD.

Objectives

- To improve the clinical and financial outcomes associated with the work-injured with or at risk for development of CRPS.
- To serve as an instructional aid for clinicians when treating injured workers with or at risk for development of CRPS.
- To provide nurse advocates and physicians with information necessary to make recommendations about the medical necessity and clinical appropriateness of treatment.

The authors are confident that each recommendation if implemented with clear qualitative and quantitative goals and objectives will improve the quality of care available to the workforce and help create an evolutionary constructive dialog between those who pay for chronic pain care and those who provide clinical services.
**Definitions**

**Allodynia:** Pain due to a stimulus that does not normally provoke pain.

**Addiction:** The joint consensus statement of the American Academy of Pain Medicine, American Pain Society, and American Society of Addiction Medicine defines addiction as a primary, chronic, neurobiologic disease, the development and manifestations of which are influenced by genetic, psychosocial, and environmental factors, and as characterized by one or more of the following types of behavior: impaired control over drug use, compulsive use, continued use despite harm or craving. A more comprehensive definition in the American Psychiatric Association’s Diagnostic and Statistical Manual of Mental Disorders, fourth edition emphasizes the destructive features of addictive behavior.

**Body Mass Index:** BMI: weight in kg/(height in M)^2

**Complex regional pain syndromes (CRPS):** This overall term, CRPS, requires the presence of regional pain and sensory changes following a noxious event. Further, the pain is associated with findings such as abnormal skin color, temperature change, abnormal sudomotor activity, or edema. The combination of these findings exceeds their expected magnitude in response to known physical damage during and following the inciting event.

Two types of CRPS have been recognized: type I, corresponds to Reflex Sympathetic Dystrophy (RSD) and occurs without a definable nerve lesion, and type II, formerly called causalgia refers to cases where a definable nerve lesion is present.

**Causalgia:** A syndrome of sustained burning pain, allodynia, and hyperpathia after a traumatic nerve lesion, often combined with vasomotor and sudomotor dysfunction and later trophic changes.

**Desensitization:** a variety of physical therapy techniques used to reduce allodynia.

**Dysesthesia:** An unpleasant abnormal sensation, whether spontaneous or evoked.

**Dystonia:** Disordered tonicity of muscle.

**Hyperpathia:** A painful syndrome, characterized by increased reaction to a stimulus, especially a repetitive stimulus, as well as an increased threshold. In other words patients have hypoalgesia in that it takes a stronger stimulus for them to perceive pain, but once pain is perceived it is very painful often explosive in character (allodynia). Hyperpathia may occur with hyperalgesia, or dysesthesia. Faulty identification and localization of the stimulus, delay, radiating sensation, and after-sensation may occur.

**Hyperalgesia:** An increased response to a stimulus that is normally painful.

**Hyperesthesia:** Increased sensitivity to stimulation, excluding the special senses.

**Hypoalgesia:** Diminished pain in response to a normally painful stimulus.

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1 See International Association for the Study of Pain (IASP) Classification of Chronic Pain 2nd Edition for complete description of pain-related terms.
3 Jain A 2004.
4 Stanton-Hicks M et al. 1995.
Neuropathic pain: Any pain syndrome in which the predominating mechanism is a site of aberrant somatosensory processing in the peripheral or central nervous system.\(^5\)

A more current proposed definition is pain caused by a lesion of the peripheral or central nervous system (or both) manifesting with sensory symptoms and signs.

**Sudomotor changes** are changes related to the activity of sweat glands causing increased or decreased sweating.

**Sympathetically maintained pain:** A condition where the altered function of the sympathetic nervous system contributes to a painful hypersensitivity in an affected area of the body.

**Trophic changes:** Abnormalities of the skin, hair, nail, subcutaneous tissues and bone caused by peripheral nerve lesions.

**Yellow Flag Risk Factors:** Co-morbid factors associated with an increased risk of compromised recovery.\(^6\) These include: smoking, obesity, diabetes, history of physical abuse or sexual assault, history of previous injury, work-related injury, absence and job dissatisfaction, fear avoidance behavior, depressive mood, substance abuse history.

\(^5\) Backonja M 2003.
\(^6\) Kendall NAS et al 1997.
Major Recommendations

I. Evaluation & History

A comprehensive assessment of pain should include a detailed pain history, psychosocial assessment, physical examination and diagnostic tests and ongoing assessment (see Table 1).

Table 1: Components of a Comprehensive Pain Assessment

<table>
<thead>
<tr>
<th>Detailed Pain History</th>
<th>Psychosocial Assessment</th>
<th>Physical Examination and Diagnostic Tests</th>
<th>Ongoing Reassessments</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Onset and temporal pattern</td>
<td>• Effects of the pain problem and/or the chronic illness on the patient and the family caregiver</td>
<td>• Examine the site of the pain and evaluate common referral patterns</td>
<td>• Use valid and reliable tools</td>
</tr>
<tr>
<td>• Description</td>
<td>• Meaning of the pain to the patient and the family caregiver</td>
<td>• Perform pertinent portions of the neurological examination depending on the pain complaint</td>
<td>• Perform the reassessments at appropriate intervals</td>
</tr>
<tr>
<td>• Location</td>
<td>• Significant past experiences with pain</td>
<td>• Perform appropriate diagnostic tests to facilitate the diagnosis of the cause of the pain (may need to give analgesics to facilitate the diagnostic workup)</td>
<td>• Document reassessment (pain intensity, extent to which pain interferes with function, pain relief is a distinct parameter from pain assessment, level of adherence with the pain management plan)</td>
</tr>
<tr>
<td>• Intensity/severity</td>
<td>• Changes in mood</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Aggravating and relieving factors</td>
<td>• Typical coping responses to stress or pain</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Previous and current treatments and effectiveness (Pharmacologic and nonpharmacologic)</td>
<td>• Expectations regarding pain management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Effects of pain on function</td>
<td>• Concerns about using opioid analgesics</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Economic impact of pain and its treatment</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Evaluation of support systems</td>
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</tbody>
</table>


Critical to the prevention and/or treatment and management of CRPS is an appropriate diagnosis of the initial presentation of symptoms.

International Association for the Study of Pain Diagnostic Criteria for Complex Regional Pain Syndrome (IASP/CRPS)³

1. The presence of an initiating noxious event, or a cause of immobilization.

2. Continuing pain, allodynia, or hyperalgesia with which the pain is disproportionate to any inciting event.

3. Evidence at some time of edema, changes in skin blood flow, or abnormal sudomotor activity in the region of pain. (See photo on below)

4. This diagnosis is excluded by the existence of conditions that would otherwise account for the degree of pain and dysfunction.

Associated signs and symptoms of CRPS listed in IASP taxonomy but not used for diagnosis:

1. Atrophy of the hair, nails, and other soft tissues. (See photo below)
2. Alterations in hair growth.
3. Loss of joint mobility.
4. Impairment of motor function, including weakness, tremor, and dystonia.
5. Sympathetically-maintained pain may be present.

Some patients with CRPS type I or II may have premorbid psychological or psychiatric disturbances. Their occurrence is not a basis for excluding a diagnosis of CRPS.
A. ANCILLARY STUDIES:

No single test can be used on its own to diagnose or exclude CRPS. However, ancillary testing can be used to support the diagnosis of CRPS, or to exclude other illness that may mimic CRPS.

1. Three-phase bone scan that is abnormal in pattern characteristics for CRPS.

This test is not needed if the above examination findings are present. However, it may be helpful in ruling out other diagnoses such as osteomyelitis, and the characteristic pattern, if present, will support the diagnosis of CRPS.

=> It should be noted that the diagnostic usefulness of bone scanning is debatable. Some small studies have suggested that bone scan and autonomic testing have been shown to diagnose the condition in >80% of cases. However, because of the unknown specificity it is unwarranted to rule out CRPS on a negative bone scan.

2. Nerve conduction velocity tests and electromyography

These assess peripheral nerve function and provide information about large myelinated peripheral nerve function.

3. Magnetic resonance imaging (MRI)

This would assess the anatomical integrity of the brain and spinal cord, and the peripheral tissues structures associated with pain.

B. DIFFERENTIAL DIAGNOSIS:

It is important to remember that CRPS can occur as a consequence of any of these or other types of injuries or diseases, such that the two conditions (or more) can coexist. The underlying condition may be the inciting cause of CRPS. In these cases both the CRPS and the inciting cause(s) require treatment. These include:

<table>
<thead>
<tr>
<th>Cellulitis</th>
<th>Repetitive strain injury</th>
</tr>
</thead>
<tbody>
<tr>
<td>Osteomyelitis</td>
<td>Cumulative trauma disorder</td>
</tr>
<tr>
<td>Acute neuropathy/neuritis</td>
<td>Tennis elbow</td>
</tr>
<tr>
<td>Panniculitis/fasciitis syndrome</td>
<td>Nerve entrapment</td>
</tr>
<tr>
<td>Deep vein thrombosis</td>
<td>Fracture, sprain</td>
</tr>
<tr>
<td>Arterial ischemic processes</td>
<td>Thoracic outlet syndrome</td>
</tr>
<tr>
<td>Acute dermatoses</td>
<td>Fibromyalgia</td>
</tr>
<tr>
<td>Myofascial pain syndrome</td>
<td>Inflammatory disorders</td>
</tr>
<tr>
<td>Diabetic neuropathy</td>
<td>Biologic Toxins</td>
</tr>
<tr>
<td>Overuse syndrome</td>
<td>Insect bite</td>
</tr>
<tr>
<td>Posttraumatic vasospasm</td>
<td>Disuse</td>
</tr>
<tr>
<td>Raynaud's phenomenon</td>
<td>Rheumatological conditions</td>
</tr>
<tr>
<td>Neurogenic Inflammation</td>
<td>Factitious disease</td>
</tr>
</tbody>
</table>
With nerve injury the classic triad of pain, allodynia and hyperalgesia are usually limited to the distribution of the affected nerve; autonomic changes do not dominate the picture. However with CRPS II (Causalgia) autonomic and trophic changes begin to dominate the picture in addition to pain, allodynia and hyperalgesia, and involve not only the nerve distribution but in fact the entire limb may become involved.

C. SCREEN FOR YELLOW FLAG RISK FACTORS:

Initial evaluation of the work-injured to include screening for yellow flag risk factors that are associated with a high risk for compromised recovery (see Appendix A “Psychosocial Screening and Assessment Tools”).

Yellow Flag Risk Factors \(^{8,9,10}\)

- Smoking
- Obesity
- History of physical abuse or sexual assault
- Currently in litigation
- History of alcohol or substance abuse
- Work-related injury
- Absence and job dissatisfaction
- Fear avoidance behavior and reduced activity levels
- An expectation that passive, rather than active, treatment will be beneficial
- A tendency to depression, low morale, and social withdrawal
- Social or financial problems
- Related sick leave
- Poor general health
- Current emotional stressors

Additional screening may include these moderate levels of evidence for risk:

- employment status
- low wage earner
- workers’ compensation
- lifting time per day
- work postures
- single parent status
- approaching retirement age

\(^{9}\) Fayad F 2004.
\(^{10}\) Samanta J, et al. 2003.
D. RELATIONSHIP TO OCCUPATIONAL INJURY:

If a physician believes CRPS is related to an accepted occupational injury, written documentation of the relationship (on a more probable than not basis) to the original condition should be provided. Treatment for CRPS will only be authorized if the relationship to an accepted injury is established.

II. Treatment Weeks 1-6 (See Treatment Flow Chart Appendix B)

Early aggressive care is encouraged. Emphasis should be on improved functioning of the symptomatic limb.

It should be noted there is little definitive evidence for or against most of the treatments for CRPS. Although most experts agree on a similar approach to that outlined below, treatment remains for the most part an area of individualized therapy for patient and doctor.

**Nurse Advocate.** In the presence of yellow flag risk factors a nurse advocate may be assigned at the time of initial injury or onset of symptoms to follow the patient until maximum medical improvement (MMI) has been reached.

**Physical/occupational therapies** are the mainstays of treating CRPS. Aggressive active physical therapy and rehabilitation several times per week should focus on use of the limb in as “normal” a fashion as possible. These programs should be individually designed with the ultimate goal of regaining normal function of the affected extremity. All other therapies can be viewed as adjuncts in that their focus is to facilitate movement. (See Appendix C for suggested protocol)

**Educate** the patient about therapeutic goals of pain control and improved function (return to work –modified if necessary) and normal use of affected limb as much as possible.

**Treatment Plan.** Develop a treatment plan with the patient to include follow-up visits every 1-2 weeks during initial phase of treatment to evaluate progress and determine need for plan revisions.

**Return to work** with job modification where necessary should be tried in most people. If symptoms worsen or reappear after return to work, refer to a neurologist or pain specialist for further evaluation and treatment.

**Pain Control.** Consider treatment when needed to promote participation in physical/occupational therapy and return to work:

1. **Sympathetic blocks**

   Pain specialist trained in pain management for pain control should perform sympathetic blocks. If the patient demonstrates a positive response that includes improved pain and/or participation in

   14 Hanna and Peat, 1989.
   15 Perez et al. 2001.
   17 Current data propose that a reduction of 30% on an 11-point numerical rating scale in which 0 equals “no pain” and 10 equals “worst possible pain” is clinically important and equivalent to categorical ratings of “moderate relief” or “much improved” (Farrar JT 2001).
physical/occupational therapy and/or return to (modified) work, continue blocks followed immediately by physical/occupational therapy several times a week.

(2) Pharmacological Pain Control

Initiate a sequential approach to pharmacological treatment. A reasonable approach would be to begin treatment with a first-line pharmaceutical for neuropathic pain found in Table 2: First-Line Medications for Neuropathic Pain.\textsuperscript{18} (For a discussion of efficacy, dosing and adverse effects for each drug see Dworkin et al. 2003)

<table>
<thead>
<tr>
<th>Medication</th>
<th>Beginning Dosage</th>
<th>Titration</th>
<th>Maximum Dosage</th>
<th>Duration of Adequate Trial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gabapentin</td>
<td>100-300 mg every night or 100-300 mg 3 times daily</td>
<td>Increase by 100-300 mg 3 times daily every 1-7 d as tolerated</td>
<td>3600 mg/d (1200 mg 3 times daily); reduce if low creatinine clearance</td>
<td>3-8 wk for titration plus 1-2 wk at maximum tolerated dosage</td>
</tr>
<tr>
<td>5% Lidoocaine patch</td>
<td>Maximum of 3 patches daily for a maximum of 12 h</td>
<td>None needed</td>
<td>Maximum of 3 patches daily for a maximum of 12 h</td>
<td>2 wk</td>
</tr>
<tr>
<td>Opioid analgesics*</td>
<td>5-15 mg every 4 h as needed</td>
<td>After 1-2 wk, convert total daily dosage to long-acting opioid analgesic and continue short-acting medication as needed</td>
<td>No maximum with careful titration; consider evaluation by pain specialist at dosages exceeding 120-150 mg/dl</td>
<td>4-6 wk</td>
</tr>
<tr>
<td>Tramadol hydrochloride</td>
<td>50 mg once or twice daily</td>
<td>Increase by 50-100 mg/d in divided doses every 3-7 d as tolerated</td>
<td>400 mg/d (100 mg 4 times daily); in patients older than 75 y. 300 mg/d in divided doses</td>
<td>4 wk</td>
</tr>
<tr>
<td>Tizanidine antidepressants (eg, mirtazapine hydrochloride or desipramine hydrochloride)</td>
<td>10-25 mg every night</td>
<td>Increase by 10-25 mg/d every 3-7 d as tolerated</td>
<td>75-150 mg/d; if blood level of active drug and its metabolite is &lt;100 ng/mL, continue titration with caution</td>
<td>6-6 wk with at least 1-2 wk at maximum tolerated dosage</td>
</tr>
</tbody>
</table>

*Dosages given are for morphine sulfate.

It is strongly recommended that the dosage be adjusted as necessary based on frequent and careful evaluation of adverse effects, treatment adherence, and pain relief.

After these recommendations were published, pregabalin (LyricaDM) was FDA approved for use in diabetic peripheral neuropathy and postherpetic neuralgia. Start with 150 mg in divided doses, (50 mg TID).

- 2nd Line Medications: Small studies have found the following medications may be useful in the treatment of CRPS and may be considered 2nd-line to those outlined in Table 2 above.
  - (a) Calcitonin
  - (b) Corticosteroids
  - (c) Capsaicin

\textsuperscript{18} Dworkin RH et al. 2003
• Special Consideration for Opiates

1. When considering the use of opiates an evidenced-based protocol can be found at:


   This website includes a doctor-patient contract that is recommended when opioids are considered.

2. A patient screening tool to assess risk potential for substance abuse can be found at:


=>It is important to remember that patients who are not showing a meaningful response in terms of pain reduction and function and who cannot maintain compliance with therapy need to be proactively weaned from opioids.

• For those individuals with current or remote alcohol or drug abuse who may benefit from the therapeutic use of abusable drugs including the use of opioids to treat acute or chronic pain, monitoring of drug taking is crucial. Treatment requires a system for monitoring drug-taking behavior that is fitting for the apparent level of risk. If the abuse occurred in the distant past, the level of risk may be low. If the risk were high, a rigorous monitoring system would be essential.

• Research on the use of opiate-based pain relievers, in what dose, for how long does not yet provide clear guidance for clinicians when prescribing for patients with non-cancer related chronic pain. A recent review of opiate therapy in chronic pain concluded that: “Whereas it was previously thought that unlimited dose escalation was at least safe, evidence now suggests that prolonged, high dose opioid therapy may be neither safe nor effective.” (Ballantyne & Mao 2003)

• It is imperative that clinicians become aware of this and other data related to opioids dosing trends and mortality rates, consider carefully before prescribing opiates for long-term use in patients with chronic non-cancer-related pain and use and attend to the principles outlined in the guidelines when choosing to prescribe. (Franklin GM et al. 2005)

(3) Nonpharmacological adjuvant therapies for pain control

As previously noted, rigorous evidence is lacking for the effectiveness of many therapies for CRPS. Some of the following therapies have been found to be helpful for other painful conditions such as low back and neck pain, carpal tunnel syndrome, and various neuropathies. It would be reasonable to try these in conjunction with treatments outlined above if the patient shows few signs of improvement.

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A sequential treatment protocol should be outlined that includes one additional treatment at a time. The application of multiple therapies at the same time makes it almost impossible to evaluate and optimize an individual therapy for safety and efficacy.

Therapies to consider:
- a) Aquatherapy (may be especially helpful for CRPS of the lower extremity where weight-bearing can be problematic).
- b) Iontophoresis treatments with high-voltage pulsed galvanic stimulation (HVPGS).
- c) Transcutaneous electrical nerve stimulator (TENS)
- d) Acupuncture
- e) Hypnosis
- f) Paraffin
- g) Desensitization

E. TREAT “YELLOW FLAG” RISK FACTORS:

Yellow flag risk factors have been found to contribute to compromised recovery in many chronic pain conditions. As part of the comprehensive care of patients with CRPS these risk factors should be evaluated and treated. (See Appendix D)

III. Treatment 6-12 Weeks:

Re-evaluation

A. Improving (reduced pain and/or participation in physical/occupational therapy and/or return to (modified) work)
   1. Continue Treatment Plan
   2. Return to work / modified work schedule or transitional work where necessary
   3. Taper medication

B. No Improvement (pain does not allow participation in physical/occupational therapy and/or return to (modified) work)
   1. Comprehensive physical & psychosocial re-evaluation
      a. Diagnosis correct?
      b. Behavioral or psychosocial issues?
         - Complete psychosocial re-evaluation (see Appendix A for “Psychosocial Screening and Assessment Tools”)
   2. Modified work schedule or transitional work where possible
   3. Due to the complexity of this syndrome, if the patient does not respond to the above treatments, a referral is
warranted to an Intensive Multidisciplinary Treatment Program (See Appendix E) whenever possible or continue with pain specialist for sympathetic blocks and/or medication adjustment if response has been helpful in terms of allowing for participation in active physical/occupational therapy and/or documented reduced pain intensity and improved function along with:

(a) Psychiatric or psychological consultation

(b) Continue active physical / occupational therapy (See Appendix C).

(c) Consider adjuvant therapy

(d) Refer or treat risk factors

VI. 12 Weeks

Re-evaluation

A. Improving (reduced pain and/or participation in physical/occupational therapy and/or return to (modified) work)

1. Continue Treatment Plan

2. Return to work / modified work schedule or transitional work where necessary

3. Taper medications

B. No Improvement (pain does not allow participation in physical/occupational therapy and/or return to (modified) work)

1. Comprehensive physical & psychosocial re-evaluation
   For those patients who do not improve after 12 weeks a comprehensive re-evaluation should be done

2. Modified work schedule

3. Chronic Pain Management

   a) Active Rehabilitation
   The treatment of chronic pain should include:

   • Intensive Multidisciplinary Treatment Program (if not previously completed)

   • Education (See Resources)

   • Treatment of risk factors

   • Active self-management
b) Pain Management: See pharmacological (Section II 2 above) and Nonpharmacological (Section II 3 above) management.

=> It is important to remember that patients who are not showing a meaningful response in terms of pain reduction and function and who cannot maintain compliance with therapy need to be proactively weaned from opioids.

c) Additional considerations

If above therapies fail to reduce pain and improve function, consideration of the following modalities may be warranted. They should never be initiated until aggressive multidisciplinary care has been instituted by a specialty center and in highly selected patients. It should be noted that despite decades of research on these relatively invasive and expensive procedures, there is no scientific evidence that there is long-term benefit in treating various chronic pain syndromes.

1. **Trial intravenous lidocaine drip.** If this trial reduces pain, the patient may respond well to oral mexiletine.

2. **Morphine pump:** This delivers morphine into the intrathecal space. Unfortunately, the same side effects associated with oral morphine use are also found with the pump such as development of drug tolerance, nausea, constipation, weight gain, decreased libido, edema and sweating. In addition, malfunction of the pump system can be a significant problem, with 10-20% of patients requiring return trips to the operating room.

3. **Spinal Cord Stimulation (SCS):** SCS uses low intensity, electrical impulses to trigger selected nerve fibers along the spinal cord that are believed to stop pain messages from being transferred to the brain. A temporary trial with a temporary electrode should be performed first before implanting permanent electrodes. There are rare, but potentially devastating complications such as spinal infection and paralysis associated with implantation. Patients must have a psychosocial evaluation and be well informed of the potential risks. Advantages of SCS are that it is a non-pharmacological modality, and that there are long-term (albeit uncontrolled) studies showing benefit in CRPS.

4. **Sympathectomy:** Published data suggests that sympathectomy in highly selected CRPS patients may provide effective treatment, although on the whole, sympathectomy has not been found to be effective, and is harmful in some patients. The selection criteria for sympathectomy are critical in achieving long-term success (IRF 2003). Recently endoscopic thoracic sympathectomy (ETS) has been developed for sympathectomy for CRPS with reports of relief of pain and improvement in quality of life (Bosco 2003).

**VI. Re-evaluation for MMI & continued treatment and active rehabilitation customized to the patient’s individual lifestyle, preferences, pain type, pattern and recovery.**
Resources

Chronic Pain Management Resources


Mayo Clinic on Chronic Pain (Mayo Clinic on Health) by Jeffrey Rome, Mayo Clinic, 2002.


The Truth About Chronic Pain: Patients and Professionals on How to Face It, Understand It, Overcome It by Arthur Rosenfeld. 2004.

Smoking Cessation Resources

QUITWORKS
A free, evidence-based stop-smoking service to which health care professionals may refer any Massachusetts patient, regardless of health insurance status.
1-800-TRY-TO-STOP (1-800-879-8678)
1-800-8-DEJALO (1800-833-5256)
1-800-TDD-1477 (1-800-833-1477)
FAX: 1-866-560-9113
www.trytostop.org

Strategies & Skills for Quitting
U.S. Surgeon General’s five keys to quitting: get ready, get support, learn new skills and behaviors, get and use medication, and be prepared for relapse.
http://aolsvc.health.webmd.aol.com/hw/smoking_cessation/aa151797.asp

National Cancer Institute
via the Internet web site at http://cancer.gov
or call 1-800-4-CANCER
Weight Control Resources

American Dietetic Association
216 West Jackson Boulevard
Chicago, IL 60606-6995
1(800) 36-1655
http://www.eatright.org

American Obesity Association
1250 24th Street, NW
Suite 300
Washington, DC 20037
(800) 98-OBESE (986-2373)
http://www.obesity.org

Food and Nutrition Information Center
http://www.nal.usda.gov/fnic

Food Safety Information
http://www.foodsafety.gov

Dietary Questionnaire:

Nutrition.gov
http://www.nutrition.gov

Physical Activity Questionnaire:

Shape Up America
4500 Connecticut Avenue
Washington, DC 20008
(202) 244-3560
http://www.shapeup.org
Chronic Regional Pain Syndrome

Weight-Control Information Network
1 Win Way
Bethesda, MD 20892-3665
Phone. (877) 946-4627

Addiction Disorders Resource

The American Society of Addiction Medicine.
4601 North Park Avenue
Arcade suite 101
Chevy Chase, MD 20815
301/6563920
email@asam.org
www.asam.org

NIAA: Helping patients with alcohol problems

NIAA: How to cut down on your drinking

Physical Abuse or Sexual Assault

Grant me the serenity ..Resource Directory for survivors of abuse

National Clearinghouse on Child Abuse and Neglect Information
http://nccanch.acf.hhs.gov/

Abuse Resources available at the Center for Disability Resources Library
http://uscm.med.sc.edu/CDR/abuse.html

National Sexual Assault Hotline
1/800-656-HOPE

Rape, Abuse & Incest National Network (RAINN)
http://www.rainn.org/
References


Fayad F., Chronicity, Recurrence, and Return to Work in Low Back Pain, Common Prognostic Factors. Annales de Readaptation et de Medecine Physique, 2004


Chronic Regional Pain Syndrome


Ware, J.E., Sherbourne, C.D., The MOS 36-item Short Form Health Survey (SF-36), Med Care 1992;30:473-483.


Appendix A

Psychosocial Screening and Assessment Tools

**Psychological Risk Factors**

There is consensus that the following factors are important to note and consistently predict poor outcomes:

- Presence of a belief that pain is harmful or potentially severely disabling.
- Fear-avoidance behavior (avoiding a movement of activity due to misplaced anticipation of pain) and reduced activity levels.
- Tendency to low mood and withdrawal from social interaction.
- An expectation that passive treatments rather than active participation will help.

**Groups of Risk Factors**

**Psychosocial Risk Factors - main categories**

Clinical assessment of risk factors may identify the risk of long-term disability, distress and work loss due to:

- Attitudes and beliefs about pain
- Emotions
- Behaviors
- Family
- Compensation issues
- Work
- Diagnostic and treatment issues

**How to Judge if a Person is at Risk**

A person may be at risk if:

- there is a cluster of a few very salient factors
- there is a group of several less important factors that combine cumulatively

**Psychosocial Assessment Tools**

**DSM-IV TR Screening Checklist for Depression**

Consider psychosocial factors. For a diagnosis of a major depressive episode, at least five of the symptoms listed below must be present nearly every day for at least two weeks and represent a change from previous functioning. At least one of the symptoms must be either be depressed mood, or loss of interest or pleasure.

---

Adapted from ICSI Health Care Guideline Adult Low Back Pain; Annotation Appendix B.
1. Depressed mood.
2. Markedly diminished interest or pleasure in all or almost all activities.
3. Significant (greater than 5% body weight) weight loss or gain or decrease or increase in appetite.
4. Insomnia or hypersomnia.
5. Psychomotor agitation or retardation.
6. Fatigue or loss of energy.
7. Feeling of worthlessness or inappropriate guilt.
8. Diminished concentration or indecisiveness.
9. Recurrent thoughts of death or suicide.

**CAGE (AID) Screening Checklist for Possibility of Alcoholism**
The CAGE (AID) Screen broadens the CAGE to include other drug use.

**CAGE (AID) Screen**
Have you ever:

C: felt you ought to cut down on your drinking or drug use?
A: had people annoy you by criticizing your drinking or drug use?
G: felt bad or guilty about your drinking or drug use?
E: had a drink or used drugs as an eye opener first thing in the morning to steady your nerves or get rid of a hangover or to get the day started?

If substance abuse is present or suspected, consider referral for chemical dependency assessment.

**Work APGAR**

<table>
<thead>
<tr>
<th></th>
<th>Almost</th>
<th>Some of the time</th>
<th>Hardly ever</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I am satisfied that I can turn to a fellow worker for help when something is troubling me.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. I am satisfied with the way my fellow workers talk things over with me and share problems with me.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. I am satisfied that my fellow workers accept and support my new ideas or thoughts.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. I am satisfied with the way my fellow workers respond to my emotions, such as anger, sorrow, or laughter.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. I am satisfied with the way my fellow workers and I share time together.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*6. I enjoy the tasks involved in my job.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*7. Please check the column that indicates how well you get along with your closest or immediate supervisor.</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

*Modified Work APGAR score assesses job task enjoyment. A low score means that patient rarely enjoys job tasks.

Negative responses often indicate a higher risk of chronic back pain/disability.
Items 1-5 may be omitted. Items 6 and 7 usually are the most predictive for prolonged disability in low-back pain patients.

**6 Specific Screening Questions in Tool Kit**

Suggested questions (to be phrased in health care professional’s own words):

- Have you had time off work in the past for (insert anatomical site) pain?
- What do you understand is the cause of your (insert anatomical site) pain?
- What are you expecting will help you?
- How is your employer responding to your pain? Your co-workers? Your family?
- What are you doing to cope with the pain?
- Do you think you will return to work? When?
Chronic Regional Pain Syndrome

Appendix B

Treatment Flow Chart for CRPS

Clinical Diagnosis of Complex Regional Pain Syndrome

1. Treat Yellow Flag Risk Factors if present

Begin physical/occupational therapy & return to (modified) work

- Moderate pain prevents participation
- Severe pain prevents participation

2. Medication trial & physical therapy (Consider TCA, gabapentin/pregabalin, mild short-acting opiate)

- Clinical Improvement*
- Intolerable pain persists**

3. Continue therapy & taper medications

4. Sympathetic block by pain specialist

- Medication trial

   - Positive Response
   - Negative Response

5. Series of sympathetic blocks & physical therapy

- Clinical Improvement

6. Re-evaluation; medication adjustment & physical therapy & adjuvant

- Intolerable pain persists

7. Continue physical therapy & taper medications

8. Re-evaluation; medication adjustment (may consider stronger/long-acting opiate***); physical therapy & adjuvant therapy

   - Clinical Improvement

9. Continue physical therapy & taper medications & adjuvant therapies

10. Re-evaluation; Chronic pain management protocol

   - Intolerable pain persists

---

* Improved pain and function; can participate in rehabilitation and return to (modified) work.

** No improvement in pain and function; cannot participate in rehabilitation or work.

*** When considering the use of opiates an evidenced-based protocol can be found at: [http://www.cog.med.va.gov/csp/cog/pain_base.htm](http://www.cog.med.va.gov/csp/cog/pain_base.htm); patient screening tool can be found at: [http://www.painedu.com/tools.asp](http://www.painedu.com/tools.asp).
Appendix C

Suggested Protocol for Physical Therapy/Occupational Therapy for CRPS

1. Evaluation should:
   A. Include a date of onset of original injury (helpful in determining if early or late stage) and a date of onset of the CRPS symptoms.
   B. Establish a baseline for strength and motion.
   C. Establish a baseline for weight bearing for lower extremity.
   D. If lower extremity, evaluate distance able to walk and need for assistive device. If upper extremity, establish a baseline for grip strength, pinch strength, and shoulder range of motion.
   E. If possible, objectify swelling (e.g., do volume displacements).
   F. Define functional limitations.

2. Set specific functional goals for treatment related to affected extremity.
   All treatment programs should include a core of:
   A. A progressive active exercise program, including a monitored home exercise program
   B. Progressive weight bearing for the lower extremity (if involved)
   C. Progressive improvement of grip strength, pinch strength, and shoulder range of motion of the upper extremity (if involved)
   D. A desensitization program (a variety of physical therapy techniques used to reduce nerve sensitivity).

   For specific cases, additional treatment options may be indicated to enhance effectiveness of the above core elements. Documentation should reflect reasons for these additional treatment options.

   Documentation should include:
   A. At least every two weeks, assessment of progress toward goals
   B. Response to treatment used in addition to core elements
   C. Evidence of motivation and participation in home exercise program (i.e., diary or quota system)

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21 Early physical therapy treatment has been advocated for CRPS, since earlier treatment correlates with better outcome. ... Despite the widespread use of physical therapy in the treatment of CRPS ... no controlled trials have examined its efficacy. Kingery 1997.
Appendix D

Treat Yellow Flag Risk Factors

A. Patients currently smoking > 10 cigarettes/day:22
   • Advise to quit smoking. "I strongly advise you to quit smoking and I can help you."
     o Provide rationale related to:
       • cigarette smoking is statistically linked to CRPS/RSD and may be involved in its pathogenesis by enhancing
         sympathetic activity, vasoconstriction, or by some other unknown mechanism.23
       • Assess readiness to quit.
       • Ask every tobacco user if s/he is willing to make a quit attempt at this time.
       • If willing to quit, provide assistance (see below)
       • If unwilling to quit, provide motivational intervention

QuitWorks a free stop-smoking service offered to any Massachusetts patient (see resources) provides a take-home pamphlet “Think About It”

• Assist smokers in stopping.
   • Provide brief counseling:
     o Recommend use of pharmacotherapy (patch, gum, nasal spray, inhaler, bupropion-SR) unless contraindicated.
       • QuitWorks provides clinicians with FDA recommendations for pharmacotherapy dosing.
     o Enroll patient for QuitWorks services through the Try-To-STOP TOBACCO resource Center (see resources).
     or
     o Provide self-help material (see Resources).
     o Develop a tapering program and plan to stop
     o Identify triggers and brainstorm strategies
     o Advise physical activity where appropriate

• Arrange follow-up within 1 - 2 weeks.
  o At subsequent visit, review quit status.
  o Congratulate success; encourage maintenance.
  o QuitWorks provides status report and a six-month follow-up report for every patient referred.
  o If tobacco use has occurred:
    o Ask for recommitment to total abstinence.
    o Review circumstances that caused lapse.
    o Use lapse as a learning experience.
    o Assess pharmacotherapy use and problems.
    o If willing to try again, re-enroll patient for QuitWorks services.

22 Adapted from Rigotti A 2004.
• Arrange follow-up visit

Refer to Resources for additional quit smoking information. Also see Motivational Interviewing section below.

B. Overweight individuals (BMI 25.0-29.9):24

1. Dietary assessment

Preferably dietary assessment should be carried out by referral to a registered dietitian. If not practical, there are several brief tools, such as the MEDFICTS Dietary Assessment Questionnaire (see resources), which can give some quick insight into the patient’s dietary patterns.

2. Diet

One of the most efficacious diets for weight loss is a balanced, reduced calorie plan based on the United States Department of Agriculture (USDA) guidelines. See www.mypyramid.gov. A deficit of 500 to 1000 calories a day will result in a safe 1- to 2-pound weight loss a week.

Recent research comparing popular diets such as Atkins, Ornish, Weight Watchers and Zone25 revealed that weight loss was associated with self-reported dietary adherence but not with diet type (2-3 kg of weight loss at 1 year). For each diet, reduction in cholesterol, CRP and insulin were related to weight loss, with no significant difference among the diets.

The best approach may be to find 2 or 3 commercially available diets to recommend. What is important in terms of outcome is that the patient be able find a diet he or she can adhere to.

3. Assess physical activity.

Physical activity can be quickly assessed by a number of questionnaires including the Self-Administered 7-day Physical Activity Recall Questionnaire. (See resources).

4. Assess emotional status.

Identify depressive symptoms in patients. See “Screening Checklist for Depression” Appendix E in for “Psychosocial Screening and Assessment Tools” or use the Beck depression Inventory for Primary Care (BDI-PC) which is a self-administered questionnaire that helps to identify depression (See resources).

24 Marcus DA. 2004
25 Dansinger ML et al. 2005
5. Assess readiness to change.

<table>
<thead>
<tr>
<th>Stage</th>
<th>Assessment</th>
<th>Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Precontemplation</td>
<td>Patient is not ready to change</td>
<td>Personalize risk factors; Discuss risk related to pain (see #6); Offer help; Provide written material; Arrange follow-up</td>
</tr>
<tr>
<td>Contemplation</td>
<td>Patient is concerned about weight</td>
<td>Assess diet, physical activity, emotional status; Discuss risk (see #6); Educate re: simple steps; Offer help; Provide written material; Arrange follow-up</td>
</tr>
<tr>
<td>Preparation</td>
<td>Patient has decided to do something about it but has not yet begun</td>
<td>Assess diet, physical activity, emotional status; Discuss risk (see #6); Educate re: simple steps; Provide counseling (see below); Arrange follow-up</td>
</tr>
</tbody>
</table>

6. Discuss risk relationship of overweight and chronic pain:

- Weight is associated with co-morbid
  - Disability,
  - Depression and
  - Reduced quality of life for physical function in chronic pain patients.

7. Provide brief counseling²⁶,²⁷

- Weight Loss Counseling Strategies (Also see Motivational Interviewing section below).
  - Set realistic goals
    - Help patients to set moderate realistic short-term goals such as making small increases in daily walking and decreases in portion sizes. Re-evaluate and revise at regular increments.
  - Self-monitoring
    - Ask patient to write down what they eat and look up the calories. This is critical to raising awareness. Ask the patient to write down the minutes they exercise or the number of steps a day if using a pedometer.

²⁷ Foreyt JP Weight Loss: Counseling and Long-Term Management.
Consider meal replacements
- Research documents that substituting 2 meals with a meal replacement for weight loss has been shown excellent efficacy with no significant safety concerns.

Stimulus control
- Ask patients to identify the problems contributing to dietary and exercise lapses. Discuss ways to modify this behavior.

Managing stress
- Recommending relaxation techniques and increasing physical activity can be helpful for patients with stressful lifestyles.

Cognitive restructuring
- Recommend a cognitive-behavioral weight-loss program. This can help patients adopt self-enhancing, self-affirming rather than self-defeating thoughts and behaviors.

Relapse prevention
- Relapses are a normal part of a weight-loss process. Counseling patients about how to deal with relapses includes helping them to understand that they can be expected and how to prepare for them.

Social support
- Support is valuable for both weight loss and maintenance. Referral to a support group may be beneficial.

Contracts
- Ask patients to verbalize at least 1 behavior change they agree to make over the next 2-3 weeks. Examples may be increase walking from 15 to 30 minutes, increase the number of days from 3 to 5 or limit desserts from 4 days a week to 2 days a week. Ask the patient to write the behavior change down and sign the contract.


Pharmacological interventions:
- Of those medications used to treat obesity, sibutramine and orlistat appear to have modest effects (weight loss of 3-5 kg 6-11 lbs) with frequent but not serious side effects. Phentermine and mazindol have similar efficacy but only up to six months. Metformin, diethylpropion, and fluoxetine have questionable efficacy and are more likely to have adverse effects.
- Studies of dietary supplements and herbal products were limited but suggest that pyruvate and conjugated linoleic acid may prove to be safe and effective.

C. Patients with psychosocial risk factors (see Appendix A "Psychosocial Screening and Assessment Tools"):  

(1) Assess for depression. 
(See "Screening Checklist for Depression" Appendix A "Psychosocial Screening and Assessment Tools"): 

For patients who meet DSM IV criteria for mild to moderate depression treat or refer.
- Effective treatments for mild to moderate depression:
  - Cognitive therapy or
  - Interpersonal psychotherapy

(2) Assess for physical abuse or sexual assault

ASK: "In your lifetime, have you been physically or sexually abused? Has anyone ever tried to pressure or force you to have unwanted sexual contact? (sexual contact: touching your sexual parts, you touching their sexual parts, or intercourse

• Refer for abuse counseling (see resources)

(3) Assess for alcohol abuse

ASK: "Has your use of alcohol or drugs ever caused a problem for you or your loved ones?"

or

CAGE questions:

• Have you ever felt you should Cut down on your drinking?
• Have people Annoyed you with comments about your drinking?
• Have you ever felt bad or Guilty about your drinking?
• Have you ever had a drink first thing in the morning to steady your nerves or to get rid of a hangover? (Eye-opener)?

o If + CAGE:

• Flesh out the responses asking "why" and "how" questions. For instance:
  Why did you try to cut down?
  How do people’s comments about your drinking annoy you?

• These exploratory questions serve two purposes:
  Diagnosis
  Preparing for intervention

At risk drinking (NIAAA)

• Men >14 drinks/week or >4 drinks/occasion
• Women and people >65 years of age: >7 drinks/week or >3 drinks/occasion
• The Standard Drink (Standard Equivalent):
  12-14 grams of pure ethanol
  5 oz wine
  12 oz beer
  1.5 oz distilled spirits (one shot)

Data for assessment

• Quantity/frequency of ETOH drinking related to established risk-levels
• Consequences and problems due to drinking

---

30 Data support that the presence of long-term abuse is a possible predictor of the onset of chronic pain states in women. Women describing long-term abuse reported a significantly greater number of physical, pain, and anxiety symptoms and were more likely to report a history of substance abuse than women reporting abuse during childhood or adulthood alone. (Green et al. 2001).

30 Adapted from Bierer MF, 2004.
Safe drinking
- Moderate drinking: recommended maximum limits given no contraindications (e.g. depression, sleep apnea, seizures or reflux).

At risk drinking
- Above recommended maximum: NOT necessarily a "problem" but warrants further exploration and at least recommendation to drink at healthy levels
- With negative consequences: "problematic drinking": patient should decrease or stop
- More severe: alcohol abuse
- Most severe: dependence

Diagnosis
- Alcohol dependence (Alcoholism)
  - Loss of control / inability to cut down
  - Use despite known negative consequences
  - Significant preoccupation and effort spent
  - Loss of major life role(s)
    - Optimally, patient needs to abstain; possibly taper or undergo medical detoxification

Brief Intervention (See also Motivational Interviewing section below)
- Share your thoughts
  - Be non-judgmental, supportive. This starts with the tenor of the questioning/history-gathering
- Ask what the patient wants to do about this (potential) problem
- Make clear recommendations and arrive at a clear next step (e.g. cutting down, quitting, trial of abstinence)
- Arrange clear follow-up
- Cardinal elements:
  - Raising awareness
  - Advising change
  - Arranging follow-up

Refer to Resources for additional information.
=> For patients with history of substance abuse or alcohol dependence resistant to brief intervention refer to addiction specialist (See Resources).

=> Special Consideration for the use of opiates in patients with a history of alcohol or drug abuse.
- For those patients at high risk:
  For the patient with chronic nonmalignant pain and substance abuse, there is neither a large and encouraging database of clinical experience nor empirical evidence that substantiate the safety and usefulness of opioid therapy. Clinicians must exercise caution in recommending opioid treatment to such patients. Generally, the use of opiates for active substance abusers with chronic nonmalignant pain should not be initiated. Referral to an addiction specialist should be made (see resources) and collaboration with experienced clinicians who can provide skilled assessment and multidisciplinary treatment should provide treatment.

See definitions.
For patients with a remote history of significant abuse or addiction, only experienced clinicians who can provide skilled assessment and monitoring should provide treatment.

**Motivational Interviewing Technique for Self-Management Support and Behavior Change**

First developed in the addictions field, Motivational Interviewing (MI) has been adapted to a brief form that can be used in primary care. The underlying principle of MI is to help patients explore and eventually resolve ambivalence towards changing current health behaviors. Motivational interviewing highlights personal choice, self-directed learning, and responsibility for deciding future behavior.

**Assess Importance of Change:**

Assessing the importance of change to patients requires an understanding of their personal values and expectations of change. One method of evaluating importance is to weigh the pros and cons of changing a behavior. For example, the patient is asked to answer the questions, "How will I benefit from change? What will it cost to change? How much do I really want to change?"

In the MI model, readiness = importance x confidence.

**Assess Confidence to Change:**

Confidence to change answers the question, "Can I change?" In assessing confidence, the health care professional should focus on the patient’s self-efficacy. Self-efficacy includes skills that can be used to change a behavior. A patient may have skills in one area that may be transferred to a behavior he/she wishes to change. For example, a person who is confident with work skills or a particular sport and is thinking about smoking cessation may be asked, "What is it that makes you successful with X job/sport? How can you use those same skills to stop smoking?" People can also build confidence through modeling themselves after others. They may profit from talking about friends who have succeeded in change.

A practical way to measure readiness, importance, and confidence is by using the readiness ruler, a scale that rates these qualities from 1 to 10.

The health care professional asks, "If 1 is 'not ready' and 10 is 'ready', how ready do you feel to change X behavior?" This method can be used to assess importance and confidence.

The permutations of how individuals will feel in relation to readiness, importance, and confidence are infinite. A patient may feel ready and have confidence, but may feel the change is unimportant. Or, a patient may be unsure about readiness but understands the importance of change and feels confident to change. When patients feel ready to change, know they can change, and feel it is important, they will be more motivated to succeed.

---


Intervene to Promote Change

Once readiness, confidence, and importance have been assessed, the next step is to clarify and summarize the patient’s concerns. The patient may be unsure about change and low in confidence, yet feels change is very important? The patient may be ready to change but low in confidence about the ability to change? Summarizing this information with the patient helps focus attention on possibilities for problem solving.

Ask direct questions such as, “What would it take to increase your confidence level from a 4 to a 7?” or “What would it take to make change important to you?” to facilitate resolution of ambivalence about change. This allows the patient to set the agenda and may allow the patient to present the argument for change.

Intervening in behavior change begins with resolving ambivalence about change. To discuss the advantages and disadvantages of change, have patients write down the pros and cons of both changing and not changing. The role of the health care professional is to give structure, listen carefully, and summarize the issues elicited from the patient. This allows for a collaborative approach to self-management and behavior change. The goal is to increase the patient’s confidence in the ability to change.

For more information on Self-Management Support and Motivational Interviewing see www.chcf.org.
Appendix E

Intensive Multidisciplinary Treatment Program

The purpose of an intensive short-term (8-10 week) treatment program is behavioral management of pain behaviors, risk factor reduction, and reduction of physical impairments. The work-injured patient/claimant suffering from delayed recovery and at high risk for chronic pain is often experiencing a number of physical and psycho-behavioral health issues including daily pain, weight gain, smoking, inactivity / deconditioning, and stress.

Treatment objectives should include:
- Reduction of physical discomfort
- Risk factor reduction
- Maximizing functional capacity
- Successful reintegration to workforce/prepare for retraining

A) Program Components should include all or most of the following:

Cognitive strategies
- Education
- Goal setting
- Relaxation techniques
- Cognitive restructuring for stress management

Behavioral strategies
- Pacing activities
- Seeking Social support
- Progressive active physical therapy and exercise program (See Appendix C)
- Problem-solving

Risk Factor Reduction (where appropriate) - or may refer to outside resource
- Smoking cessation
- Weight reduction
- Treatment for depression
- Physical abuse or sexual assault counseling
- Alcohol or substance abuse counseling

Pain Management
- Pharmacological management (see recommendations section II F (2) above)
- Offer at least of one of the following:
  - Aquatherapy
  - Iontophoresis treatments with high-voltage pulsed galvanic stimulation (HVPGS).

Adapted from Commonwealth of Massachusetts Department of Industrial Accidents Treatment Guidelines. Downloaded from www.mass.gov/dia/hcsb/treatmentguidelines.htm on September 10, 2004.
B) Evaluation must include:

Evaluation of the injured worker and development of a treatment plan by a multidisciplinary treatment team, no member of which is a practitioner who has previously examined, ordered medical care for, rendered medical care to, or reviewed the medical records of the injured employee.

1) Quantitative Measures must document:
   - Functional Capacity Evaluation (FCE) pre program
     - A helpful evaluation tool is the Short-Form Health Survey (SF-36; Ware and Sherbourne 1992) initially developed from the Medical Outcomes Study to survey health status. The tool includes eight scales that measure (1) limitations in physical activities due to health problems, (2) limitations in social activities due to physical and emotional problems, (3) limitations in usual role activities due to physical health problems, (4) bodily pain, (5) general mental health, (6) limitations in usual role activities due to emotional problems, (7) vitality (energy and fatigue), and (8) general health perceptions. The SF-36 is a short test with excellent reliability and validity.
     - Attendance
     - Weight
     - FCE mid program
     - FCE post program

2) Qualitative Measures must document:
   - Pain level (numeric rating scale (NRS) 0-10) Pre, Post and weekly
   - Pain location
   - Effects of treatment on pain and function
   - Self-Efficacy of pain management Pre and post program (See Appendix F)

3) Program Documentation must include:
   - Weekly SOAP (subjective, objective, assessment, plan) notes provided to Nurse Advocate
   - Weekly patient self-evaluation
The treatment team should include a licensed mental health professional (either a psychiatrist or psychologist) and no more than three of the following: physician, advanced practice nurse/physician’s assistant, physical therapist, and/or occupational therapist. At least one member of the treatment team should be a clinician, who by virtue of training or experience, is especially qualified to evaluate and treat chronic pain patients.

A member from within the pain program/treatment team must be assigned to coordinate clinical care (a Program Coordinator). This person is to communicate and coordinate the treatment plan, goals and outcome measures with the patient’s Nurse Advocate.

D) Patient Contract

Within 7 calendar days of the initial evaluation for treatment under this guideline, a Patient Contract should be completed and signed with an outline of a treatment plan.

E) Additional considerations

If above therapies fail to reduce pain and improve function, consideration of the following modalities may be warranted. They should never be initiated until aggressive multidisciplinary care has been instituted by a specialty center and in highly selected patients. It should be noted that despite decades of research on these relatively invasive and expensive procedures, there is no scientific evidence that there is long-term advantage over oral opiates in treating various chronic pain syndromes.

1. **Trial intravenous lidocaine drip.** If this trial reduces pain, the patient may respond well to oral mexiletine.

2. **Morphine pump:** This delivers morphine into the intrathecal space. Unfortunately, the same side effects associated with oral morphine use are also found with the pump such as development of drug tolerance, nausea, constipation, weight gain, decreased libido, edema and sweating. In addition, malfunction of the pump system can be a significant problem, with 10-20% of patients requiring return trips to the operating room.

3. **Spinal Cord Stimulator (SCS):** SCS uses low intensity, electrical impulses to trigger selected nerve fibers along the spinal cord that are believed to stop pain messages from being transferred to the brain. A temporary trial with a temporary electrode should be performed first before implanting permanent electrodes. There are rare, but potentially devastating complications such as spinal infection and paralysis associated with implantation. Patients must have a psychosocial evaluation and be well informed of the potential risks. Advantages of SCS are that it is a non-pharmacological modality, and that there are long-term (albeit uncontrolled) studies showing benefit in CRPS.

4. **Sympathectomy:** Published data suggests that sympathectomy in highly selected CRPS patients may provide effective treatment, although on the whole sympathectomy has not been found to be effective, and is harmful in some patients. The selection criteria for sympathectomy are critical in achieving long-term success (IRF 2003). Recently endoscopic thoracic sympathectomy (ETS) has been developed for sympathectomy for CRPS with reports of relief of pain and improvement in quality of life (Bosco 2003).
Appendix F

Chronic Pain Self-efficacy Scale

The Chronic Pain Self-efficacy Scale measures the extent to which patients perceive their current ability to manage, function and cope with chronic pain. The 22-item questionnaire consists of three sub-scales: pain management (5 items); coping (8 items); and physical function (9 items). Responses to perceived ability (e.g., "How certain are you that you can...") to carry out the specified activity or achieve a specific outcome are recorded on a 10-point scale (by tens) from very uncertain (10) to very certain (100). A scale score is the mean response for that scale, and the total score is the sum of the scale scores. Validity has been supported in a variety of populations with satisfactory internal consistency reliability estimates (α = .90 - .91) for the sub-scale and total scores (Anderson, et al. 1995).
Methods used to formulate Recommendations

Literature Review: Searches of Electronic Databases

Expert consensus: Development has taken place between members of the committee (orthopedic surgeon, physician pain specialist, physiatrist, psychologist, and nurse practitioner specializing in pain medicine).

Modifications to the pathway will undoubtedly be necessary as a result of new research and practice-based evidence. The developers believe this pathway should always be considered a work in progress.