



## **Complex Regional Pain Syndrome**

Clinical Pathway for Work-Related Injury

**Revised Edition**

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## Introduction

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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)<sup>1</sup> (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.

The authors depend on research studies to verify the accuracy of the information offered and to explain generally accepted practices. However, we cannot guarantee its correctness. Professionals in the field may have different opinions and because of continual progress in medical research, we strongly recommend that readers independently confirm information on specific drugs and interventions.

**Furthermore, 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

### Project Leader

Carol Wells-Federman, MS, MEd, APRN BC.

### Working Group Panel

Robert N. Jamison, PhD

Nathaniel Katz, MD, MS

Carol Hartigan, MD

Scott Tromanhauser, MD, MBA

Michael J. Shor, MPH

## Intended Users

### Physicians and allied health professionals

## AIMS

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

## Patient Population

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

<sup>1</sup> See definitions

## 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<sup>1</sup>

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**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.<sup>2</sup>

**Body Mass Index: BMI:** the weight in kilograms, divided by height in meters squared

\*Note: to convert pounds to kilograms, multiply pounds by 0.455, to convert inches to meters, multiply inches by 0.0254.

**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.<sup>3</sup>

**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.

<sup>1</sup> See International Association for the Study of Pain (IASP) Classification of Chronic Pain 2nd Edition for complete description of pain-related terms.

<sup>2</sup> Ballantyne J and Mao J 2003

<sup>3</sup> Stanton-Hicks M et al. 1995

## Definitions (cont.)

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**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.

**Neuropathic pain (NP):** Any pain syndrome in which the predominating mechanism is a site of aberrant somatosensory processing in the peripheral or central nervous system.

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.<sup>4</sup>

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

**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.<sup>5</sup> 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.

<sup>4</sup> Backonja M 2003

<sup>5</sup> 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).

Critical to the prevention and/or treatment and management of CRPS is an appropriate diagnosis of the initial presentation of symptoms. If uncertain about the diagnosis, the patient should be referred to a pain clinic or neurologist.

Table 1: Components of a Comprehensive Pain Assessment

Detailed Pain History	Psychosocial Assessment	Physical Examination and Diagnostic Tests	Ongoing Reassessments
<ul style="list-style-type: none"> <li>Onset and temporal pattern</li> <li>Description</li> <li>Location</li> <li>Intensity/severity</li> <li>Aggravating and relieving factors                             <ul style="list-style-type: none"> <li>Previous and current treatments and effectiveness (Pharmacologic and nonpharmacologic)</li> </ul> </li> <li>Effects of pain on function</li> </ul>	<ul style="list-style-type: none"> <li>Effects of the pain problem and/or the chronic illness on the patient and the family caregiver</li> <li>Meaning of the pain to the patient and the family caregiver</li> <li>Significant past experiences with pain</li> <li>Changes in mood</li> <li>Typical coping responses to stress or pain</li> <li>Expectations regarding pain management</li> <li>Concerns about using opioid analgesics</li> <li>Economic impact of pain and its treatment</li> <li>Evaluation of support systems</li> </ul>	<ul style="list-style-type: none"> <li>Examine the site of the pain and evaluate common referral patterns</li> <li>Perform pertinent portions of the neurological examination depending on the pain complaint</li> <li>Perform appropriate diagnostic tests to facilitate the diagnosis of the cause of the pain (may need to give analgesics to facilitate the diagnostic workup)</li> </ul>	<ul style="list-style-type: none"> <li>Use valid and reliable tools</li> <li>Perform the reassessments at appropriate intervals</li> <li>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)</li> </ul>

Adapted from Miaskowski C, Cleary J, Burney R, Coyne P, Grossman S, Janjan N, Finley R, Foster R, Ray J, Syrjala K, Weisman S, and Zahbock C (2005). Guideline for the Management of Cancer Pain in Adults and Children, APS Clinical Guidelines Series, No. 3 Glenview, IL: American Pain Society, with permission from American Pain Society.

# Complex Regional Pain Syndrome

## IASP<sup>6</sup> Diagnostic Criteria for Complex Regional Pain Syndrome (IASP/CRPS).<sup>7</sup>

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 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.

Figures 1-3: Courtesy of Nagy A. Mekhail, MD, PhD



FIGURE 1. The left hand and forearm of a 37-year-old man with complex regional pain syndrome (CRPS 1) reveals swelling and color change characteristic of the condition. CRPS arose after a work-related injury. The patient also had allodynia in the same area. Allodynia is not limited to the distribution of a single peripheral nerve.



<sup>6</sup> International Association for the Study of Pain

<sup>7</sup> Mersky & Bogduk 1994

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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:

- Cellulitis
- Osteomyelitis
- Acute neuropathy/neuritis
- Panniculitis/fasciitis syndrome
- Deep vein thrombosis
- Arterial ischemic processes
- Acute dermatoses
- Myofascial pain syndrome
- Diabetic neuropathy
- Overuse syndrome
- Posttraumatic vasospasm
- Raynaud's phenomenon
- Neurogenic Inflammation
- Repetitive strain injury
- Cumulative trauma disorder
- Tennis elbow
- Nerve entrapment
- Fracture, sprain
- Thoracic outlet syndrome
- Fibromyalgia
- Inflammatory disorders
- Biologic Toxins
- Insect bite
- Disuse
- Rheumatological conditions
- Factitious disease

=>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.

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## 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 Resources and Appendix B).

### Yellow Flag Risk Factors<sup>8,9,10</sup>:

- Obesity
- Smoking
- 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

## 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.

<sup>8</sup> Green CR, et al. 2001

<sup>9</sup> Fayad F 2004

<sup>10</sup> Samanta J, et al. 2003

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

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.

- A. **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)<sup>11</sup> has been reached.
- B. **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 A for suggested protocol)
- C. **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.
- D. **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.
- E. **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.
- F. **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.<sup>12,13,14,15,16</sup> If the patient demonstrates a positive response<sup>17</sup> that includes improved pain and/or participation in 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 treatment approach to pharmacological treatment. A reasonable approach would be to begin treatment with a first-line pharmaceutical for neuropathic pain found in Tables 1: Stepwise pharmacologic management of neuropathic pain (NP), 2: Treatment selection considerations for first-line medications and for opioid agonists, and 3: Prescribing recommendations for first-line medications and for opioid agonists.<sup>18</sup> (For a discussion of efficacy, dosing and adverse effects for each drug see Dworkin RH et al. 2007)

<sup>11</sup> Maximum Medical Improvement: The treating physician determines that no further intervention will significantly affect the patient's medical problem

<sup>12</sup> Hord et al., 1992

<sup>13</sup> Kingery, 1997

<sup>14</sup> Hanna and Peat, 1989

<sup>15</sup> Perez et al. 2001

<sup>16</sup> Livingstone JA, Atkins RM. 2002

<sup>17</sup> 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).

<sup>18</sup> Dworkin RH et al. 2007

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Table 1 Stepwise pharmacologic management of neuropathic pain (NP)

Step 1

Assess pain and establish the diagnosis of NP [25,20]; if uncertain about the diagnosis, refer to a pain specialist or neurologist  
 Establish and treat the cause of NP; if uncertain about availability of treatments addressing NP etiology, refer to appropriate specialist  
 Identify relevant comorbidities (e.g., cardiac, renal, or hepatic disease, depression, gait instability) that might be relieved or exacerbated by NP treatment, or that might require dosage adjustment or additional monitoring of therapy  
 Explain the diagnosis and treatment plan to the patient, and establish realistic expectations

Step 2

Initiate therapy of the disease causing NP, if applicable  
 Initiate symptom treatment with one or more of the following:  
 • A secondary amine TCA (nortriptyline, desipramine) or an SSNRI (duloxetine, venlafaxine)  
 • A calcium channel  $\alpha 2\text{-}\delta$  ligand, either gabapentin or pregabalin  
 • For patients with localized peripheral NP: topical lidocaine used alone or in combination with one of the other first-line therapies  
 • For patients with acute neuropathic pain, neuropathic cancer pain, or episodic exacerbations of severe pain, and when prompt pain relief during titration of a first-line medication to an efficacious dosage is required, opioid analgesics or tramadol may be used alone or in combination with one of the first-line therapies  
 Evaluate patient for non-pharmacologic treatments, and initiate if appropriate

Step 3

Reassess pain and health-related quality of life frequently  
 If substantial pain relief (e.g., average pain reduced to  $\leq 3/10$ ) and tolerable side effects, continue treatment  
 If partial pain relief (e.g., average pain remains  $\geq 4/10$ ) after an adequate trial (see Table 3), add one of the other first-line medications  
 If no or inadequate pain relief (e.g.,  $< 30\%$  reduction) at target dosage after an adequate trial (see Table 3), switch to an alternative first-line medication

Step 4

If trials of first-line medications alone and in combination fail, consider second- and third-line medications or referral to a pain specialist or multidisciplinary pain center  
 TCA, tricyclic antidepressant; SSNRI, selective serotonin and norepinephrine reuptake inhibitor.

Dworkin R, et al. Pharmacologic management of neuropathic pain: Evidence-based recommendations. PAIN 2007; 132(3): 237-25. Used with permission from the International Association for the Study of Pain

Table 2 Treatment selection considerations for first-line medications and for opioid agonists

Medication class	Therapeutic index <sup>a</sup>	Major side effects	Precautions	Other benefits	Cost <sup>b</sup>
Secondary amine TCAs Nortriptyline, desipramine (use a tertiary amine TCA only if a secondary amine TCA is not available)	+	Sedation, drymouth, blurred vision, weight gain, urinary retention	Cardiac disease, glaucoma, suicide risk, seizure disorder, concomitant use of tramadol	Improvement of depression, improvement of insomnia	\$
SSNRIs Duloxetine	++	Nausea	Hepatic dysfunction, renal insufficiency, alcohol abuse, concomitant use of tramadol	Improvement of depression	\$\$
Venlafaxine	+	Nausea	Concomitant use of tramadol, cardiac disease, withdrawal syndrome with abrupt discontinuation	Improvement of depression	\$/\$\$
Calcium channel $\alpha 2\text{-}\delta$ ligands Gabapentin	++	Sedation, dizziness, peripheral edema	Renal insufficiency	Improvement of sleep disturbance, no clinically significant drug interactions	\$/\$\$
Pregabalin <sup>c</sup>	++	Sedation, dizziness, peripheral edema	Renal insufficiency	Improvement of sleep disturbance, improvement of anxiety, no clinically significant drug interactions	\$\$
Topical lidocaine	++	Local erythema, rash	None	No systemic side effects	\$\$ (patch) \$ (gel)
Opioid agonists <sup>d</sup> Morphine, oxycodone, methadone, levorphanol	+	Nausea/vomiting, constipation, drowsiness, dizziness	History of substance abuse, suicide risk, driving impairment during treatment initiation	Rapid onset of analgesic benefit	\$/\$\$
Tramadol	+	Nausea/vomiting, constipation, drowsiness, dizziness seizures	History of substance abuse, suicide risk, driving impairment during treatment initiation, seizure disorder, concomitant use of SSRI, SSNRI, TCA	Rapid onset of analgesic benefit	\$/\$\$

TCA, tricyclic antidepressants; SSNRI, selective serotonin and norepinephrine reuptake inhibitor; SSRI, selective serotonin reuptake inhibitor.

a Refers to the likelihood of pain relief relative to the likelihood of side effects, with '++' being more favorable.

b Cost varies by region but is estimated on the basis of availability and cost of generic formulations, with '\$\$\$' being relatively more expensive.

c Lack long-term clinical experience and safety data because new to market.

d First-line only in certain circumstances; see text.

Dworkin R, et al. Pharmacologic management of neuropathic pain: Evidence-based recommendations. PAIN 2007; 132(3): 237-25. Used with permission from the International Association for the Study of Pain

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Table 3 Prescribing recommendations for first-line medications and for opioid agonists

Medication class	Starting dosage	Titration	Maximum dosage	Duration of adequate trial
<i>Secondary amine TCAs</i> Nortriptyline, desipramine <sup>a</sup> (use tertiary amine TCA only if a secondary amine TCA is not available)	25 mg at bedtime	Increase by 25 mg daily every 3–7 days as tolerated	150 mg daily; if blood level of active medication and its metabolite is below 100ng/ml (mg/ml), continue titration with caution	6–8 weeks with at least 2 weeks at maximum tolerated dosage
<i>SSNRIs</i> Duloxetine	30 mg once daily	Increase to 60 mg once daily after one week	60 mg twice daily	4 weeks
Venlafaxine	375 mg once or twice daily	Increase by 75 mg each week	225 mg daily	4–6weeks
<i>Calcium channel <math>\alpha</math>2-<math>\delta</math> ligands</i> Gabapentin <sup>a</sup>	100–300 mg at bedtime or 100–300 mg three times daily	Increase by 100–300 mg three times daily every 1–7 days as tolerated	3600 mg daily (1200 mg three times daily); reduce if impaired renal function	3–8 weeks for titration plus 2 weeks at maximum dosage
Pregabalin <sup>a</sup>	50 mg tid or 75 mg bid	Increase to 300 mg daily after 3–7 days, then by 150mg/d every 3–7 days as tolerated	600 mg daily (200 mg three times or 300 mg twice daily); reduce if impaired renal function	4 weeks
<i>Topical lidocaine</i> 5% lidocaine patch	Maximum of 3 patches daily for a maximum of 12h	None needed	Maximum of 3 patches daily for a maximum of 12–18h	3 weeks
<i>Opioid agonists<sup>b</sup></i> Morphine, oxycodone, methadone, levorphanol	10–15 mg morphine every 4 h or as needed (equianalgesic dosages should be used for other opioid analgesics)	After 1–2 weeks, convert total daily dosage to long-acting opioid analgesic and continue short-acting medication as needed	No maximum dosage with careful titration; consider evaluation by pain specialist at relatively high dosages (e.g., 120–180 mg morphine daily; equianalgesic dosages should be used for other opioid analgesics)	4–6weeks
Tramadol <sup>c</sup>	50 mg once or twice daily	Increase by 50–100 mg daily in divided doses every 3–7 days as tolerated	400 mg daily (100 mg four times daily); in patients older than 75, 300 mg daily	4weeks

TCA, tricyclic antidepressants; SSNRI, selective serotonin and norepinephrine reuptake inhibitor.

a Consider lower starting dosages and slower titration in geriatric patients.

b First-line only in certain circumstances; see text.

c Consider lower starting dosages and slower titration in geriatric patients; dosages given are for short-acting formulation.

Dworkin R, et al. Pharmacologic management of neuropathic pain: Evidence-based recommendations. PAIN 2007; 132(3): 237-25. Used with permission from the International Association for the Study of Pain

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.

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.

- a) Calcitonin
- b) Corticosteroids
- c) Capsaicin

## Special Consideration for Opiates

1. Because of the challenging aspects of opioid treatment, (see *Opiate use for patients with chronic non-cancer related pain* on page 31) and given the effectiveness of the first-line medications discussed above, treatment of chronic NP with opioid agonists should generally be reserved for patients who have failed to respond to or cannot tolerate the first-line medications.<sup>19</sup>
2. However, in select clinical circumstances second-line medications such as opioid analgesics and tramadol can be used for first-line treatment.<sup>20</sup> For example:
  - During titration of a first-line medication to an effective dosage.
  - For episodic exacerbations of severe pain (breakthrough pain)

<sup>19</sup> Dworkin RH et al. 2007

<sup>20</sup> Dworkin RH et al. 2007

<sup>21</sup> See VA/DoD [Veterans Administration/Department of Defense] CLINICAL PRACTICE GUIDELINE FOR THE MANAGEMENT OF OPIOID THERAPY FOR CHRONIC PAIN at [http://www.oqp.med.va.gov/cpg/cot/ot\\_base.htm](http://www.oqp.med.va.gov/cpg/cot/ot_base.htm) for an evidence-based guide. A patient screening tool (Screener and Opioid Assessment for Pain patients – SOAPP) to assess risk potential for substance abuse among patients can be found at <http://www.painedu.com/tools.asp>. (Butler, SF et al. 2004)

<sup>22</sup> Dworkin RH et al. 2007

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

[http://www.oqp.med.va.gov/cpg/cot/ot\\_base.htm](http://www.oqp.med.va.gov/cpg/cot/ot_base.htm).

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

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

<http://www.painedu.com/tools.asp><sup>21</sup>

=>It is recommended that clinicians without opioid expertise obtain consultation from appropriate specialists in developing a treatment plan for challenging patients.<sup>22</sup>

=>Please see

- Consideration for the use of opiates in patients with a history of alcohol or drug abuse page 29 and
- Opiate use for patients with chronic non-cancer related pain on page 31

=>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.

(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.

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:

- Aquatherapy (may be especially helpful for CRPS of the lower extremity where weight-bearing can be problematic)
- Iontophoresis treatments with high-voltage pulsed galvanic stimulation (HVPGS)
- Transcutaneous electrical nerve stimulator (TENS)
- Acupuncture
- Hypnosis
- Paraffin
- Desensitization

G. 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 B)

## **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 Resources and Appendix B)
    - 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 D) 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 A)
  - (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
- Gradual resumption of normal light activities as tolerated

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.

# Complex Regional Pain Syndrome

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).

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

## Resources

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### Chronic Pain Management Resources

- Managing Pain Before It Manages You, Revised Edition by Margaret Caudill, MD, The Guilford Press, New York, New York, 2002.
- The Chronic Pain Control Workbook: A Step-By-Step Guide for Coping With and Overcoming Pain by Ellen Mohr Catalano, Ph.D. Kimeron N. Hardin. New Harbinger Workbooks, 1987.
- Learning to Master Your Chronic Pain by Robert Jamison. Professional Resource Press, Sarasota, Florida, 1996.
- Mayo Clinic on Chronic Pain (Mayo Clinic on Health) by Jeffrey Rome, Mayo Clinic, 2002.
- The Chronic Pain Solution: Your Personal Path to Pain Relief by James N Dillard MD with Leigh Ann Hirschman, Bantam Dell, New York, New York, 2003.
- Freedom from Chronic Pain: The Breakthrough Method of Pain Relief Based on the New York Pain Treatment Program at Lenox Hill Hospital by Norman J. Marcus, Jean S. Arbeiter. 1995.
- 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 (1-800-833-5256)

1-800-TDD-1477 (1-800-833-1477)

FAX: 1-866-560-9113

[www.trytostop.org](http://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](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  
(800) 366-1655  
<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

National Cholesterol Education Program. Short dietary questionnaire to assess adherence to a step I and step II diet. In: Second Report of Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults. 1993, National Institutes of Health. National Heart, Lung, and Blood Institute: Bethesda, Md.PIIA-1.

### Nutrition.gov

<http://www.nutrition.gov>

### Physical Activity Questionnaire

Blair SN. How to assess exercise habits and physical fitness. In: Matarazzo JD, Miller NE, Weiss SM, Herd, JA eds. Behavioral Health. New York, NY: Wiley; 1984: 424-447.

### Shape Up America

4500 Connecticut Avenue  
Washington, DC 20008  
(202) 244-3560  
<http://www.shapeup.org>

### Weight-Control Information Network

1 Win Way  
Bethesda, MD 20892-3665  
Phone: (877) 946-4627

## Addiction Disorders Resources

### **The American Society of Addiction Medicine**

4601 North Park Avenue  
Arcade Suite 101  
Chevy Chase, MD 20815  
(301) 656-3920  
email@asam.org  
[www.asam.org](http://www.asam.org)

### **NIAA: Helping patients with alcohol problems**

<http://www.niaaa.nih.gov/publications/Practitioner/HelpingPatients.htm>

### **NIAA: How to cut down on your drinking**

<http://www.niaaa.nih.gov/publications/handout.htm>

## Physical Abuse or Sexual Assault

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

[http://open-mind.org/Directory/index.php?ax=list&cat\\_id=6](http://open-mind.org/Directory/index.php?ax=list&cat_id=6)

### **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/>

## Screening for Psychological Risks

### Beck Depression Inventory (BDI)

The BDI is a self-administered 21 item self-report scale measuring supposed manifestations of depression. The BDI takes approximately 10 minutes to complete, although clients require a fifth – sixth grade reading age to adequately understand the questions. A copy of the BDI or any further information on it can be obtained through The Psychological Corporation at <http://harcourtassessment.com/HAIWEB/Cultures/en-us/default>.

**The Brief Symptom Inventory (BSI)** or the short version of the Symptom Check List (SCL-90) can be used to evaluate psychological problems including anxiety in a variety of medical settings.

The BSI test is brief and requires only 8-10 minutes to complete, making it well-suited for repeated administrations over time to evaluate patient progress. The instrument provides an overview of a patient's symptoms and their intensity at a specific point in time. The Global Severity Index (GSI) is designed to help quantify a patient's severity-of-illness and provides a single composite score for measuring the outcome of a treatment program based on reducing symptom severity. The reliability, validity, and utility of the BSI instrument have been tested in more than 400 research studies. Further information can be found at: <http://www.pearsonassessments.com/tests/bsi.htm>

### Brief Battery for Health Improvement (BHI)

The BBHI 2 test was developed specifically to help medical professionals assess the important mind/body connection for their patients. Derived from the well-researched, widely used BHI™ (Battery for Health Improvement) test, the shorter BBHI 2 instrument helps practitioners quickly evaluate for a number of psychomedical factors commonly seen in medical patients, such as pain, somatic, and functional complaints – as well as traditional psychological concerns such as depression, anxiety and patient defensiveness. Further information can be obtained at: <http://www.pearsonassessments.com/tests/bbhi2.htm>

### 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.

## **Appendix A**

### Suggested Protocol for Physical Therapy/Occupational Therapy for CRPS<sup>23</sup>

#### **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)

<sup>23</sup> 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 B

### Assessing and Treating Psychological and Behavioral (yellow flag) Risk Factors

It is important to remember that risk factors are often interrelated. This requires clinicians to use caution in treating them as if they were separate entities.<sup>24</sup> For example, certain risk factors may appear to be easily modifiable, however, complicating factors may in fact make them more difficult to address.<sup>25</sup> Take, for instance, functional disability. This appears to be a risk factor that could simply be improved by physical therapy. Nevertheless, if there are other risk factors such as older age, emotional distress, and high job dissatisfaction that are contributing to the disability, then treatment will be inadequate if it does not attend to these underlying issues.

Because of the high co-morbidity associated with pain and disability, it is beneficial for clinicians to develop a collaborative approach to treatment. Early referral to multidisciplinary treatments such as vocational counseling, return-to-work rehabilitation, and/or cognitive-behavioral and preventive physical therapy intervention can be the key to addressing multiple risk factors and reducing long-term disability.

#### 1. Assessment for overweight individuals (BMI 25.0-29.9)<sup>26</sup>:

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

**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).

**Emotional status:** Epidemiologic data suggest an association between obesity and depression<sup>27,28</sup>. Therefore, screening for depressive symptoms may be important in overweight individuals. Consider a screening tool such as the Beck Depression Inventory for Primary Care (BDI-PC). This is a self-administered questionnaire that helps to identify depressive symptoms (see resources). Another useful screening tool is the Battery for Health Improvement (BHI) that includes both psychological and functional scales (see resources).

A positive screen for depression should prompt referral for further evaluation and diagnostic interview with a psychologist, psychiatrist or other qualified mental health practitioner.

**Assess Readiness to change:** The Transtheoretical Model<sup>29,30,31</sup> is an integrative model of behavior change. The model describes how health care professionals can help individuals modify a problem behavior or acquire a positive behavior. The central organizing construct of the model is the Stages of Change where change is a process involving progress through a series of stages. Below is an example of the Stages of Change applied to assessment for weight loss and suggested intervention based upon the stage.

<sup>24</sup> Boersma K & Linton SJ 2005

<sup>25</sup> Turner J et al. 2000

<sup>26</sup> Marcus DA. 2004

<sup>27</sup> Simon GE et al. 2006

<sup>28</sup> Wyatt SB, Winters KP, Dubbert PM 2006

<sup>29</sup> Prochaska & DiClemente, 1983

<sup>30</sup> Prochaska, DiClemente, & Norcross, 1992

<sup>31</sup> Prochaska & Velicer, 1997

# Complex Regional Pain Syndrome

Stage	Assessment	Intervention
<b>PRECONTEMPLATION</b>	Patient is not ready to change	Personalize risk factors; Discuss risk related to pain; Offer help; Provide written material; Arrange follow-up
<b>CONTEMPLATION</b>	Patient is concerned about weight	Assess diet, physical activity, emotional status; Discuss risk; Educate re: simple steps; Offer help; Provide written material; Arrange follow-up
<b>PREPARATION</b>	Patient has decided to do something about it but has not yet begun	Assess diet, physical activity, emotional status; Discuss risk; Educate re: simple steps; Provide counseling (see weight loss below); Arrange follow-up

- 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.

• Recommend Dietary changes:

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](http://www.mypyramid.gov). A deficit of 500 to 1000 calories a day from ones typical caloric intake 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 Zone<sup>32</sup> revealed that weight loss was associated with self-reported dietary adherence but not with diet type. 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.

**- Provide brief counseling<sup>33,34</sup>**

Review food/physical activity records
Review goals from last visit
Review problems and solutions
Set realistic goals
Sign behavioral contract
Give positive feedback and encouragement

<sup>32</sup> Dansinger ML et al. 2005

<sup>33</sup> Poston WSC, Haddock CK, Pinkston MM, et al. 2004

<sup>34</sup> Foreyt JP Weight Loss: Counseling and Long-Term Management

# Complex Regional Pain Syndrome

- Weight Loss Counseling Strategies

- 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.

- 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<sup>35</sup>:

The *Clinical Evidence Handbook* published in 2007 by the British Medical Journal has summarized effectiveness of drug treatments for obesity according to evidence of benefit

<sup>35</sup> Arterburn, DeLeet, Schauer 2007

# Complex Regional Pain Syndrome

What are the effects of drug treatments in adults with obesity?		
Trade off between benefits and harms		<ul style="list-style-type: none"> <li>• Diethylpropion</li> <li>• Mazindol</li> <li>• Orlistat</li> <li>• Phentermine</li> <li>• Rimonabant</li> <li>• Sibutramine</li> </ul>
Unknown effectiveness		Sibutramine plus orlistat

Web publication date: 01 Aug 2006 (based on July 2005 search)

Diethylpropion, mazindol, orlistat, phentermine, rimonabant and sibutramine may promote modest weight loss (an additional 1 to 7 kg lost) compared with placebo in obese adults having lifestyle interventions, but they can all cause adverse effects.

- Diethylpropion, phentermine and mazindol have been associated with heart and lung problems in case reports and series.
- Sibutramine has been associated with cardiac arrhythmias and cardiac arrest in case reports.
- Orlistat may be less effective at promoting weight loss compared with sibutramine, although studies have shown contradictory results.
- The authors do not know whether combining orlistat and sibutramine treatment leads to greater weight loss than either treatment alone.

**=>Clinicians unfamiliar with prescribing these medications should refer patients to clinicians specializing in the treatment of obesity.**

### **Morbid obesity (BMI>35)**

In adults with morbid obesity or with BMI > 35 with a serious obesity-related co-morbidity surgery is the most effective intervention for the production of weight loss. Patients should be referred to a reputable weight loss center for consultation and evaluation<sup>36</sup>.

<sup>36</sup> Arterburn, DeLeet, Schauer 2007

# Complex Regional Pain Syndrome

What are the effects of bariatric surgery in adults with morbid obesity?		
Likely to be beneficial		<p>Bariatric surgery (more effective than non-surgical treatment for clinically important weight loss in morbidly obese adults; but operative complications common)</p> <ul style="list-style-type: none"> <li>• Gastric banding</li> <li>• Gastric bypass</li> <li>• Vertical banded gastroplasty</li> </ul>
Unknown effectiveness		<p>Biliopancreatic diversion (no studies comparing biliopancreatic diversion versus other bariatric techniques)</p> <p>Sleeve gastrectomy (no studies comparing sleeve gastrectomy versus other bariatric techniques)</p>

Web publication date: 01 Aug 2006 (based on July 2005 search)

Bariatric surgery (vertical banded gastroplasty, gastric bypass or gastric banding) may increase weight loss compared with no surgery in morbidly obese people.

- Bariatric surgery may result in loss of over 20% of body weight, which may be largely maintained for 10 years.
- Operative and postoperative complications are common and up to 2% of people die within 30 days of surgery. However, surgery may reduce long term mortality compared with no surgery.
- The authors do not know which surgical technique is the most effective or least harmful.
- The authors do not know how biliopancreatic diversion or sleeve gastrectomy compares with other treatments.

## 2. Assessment and Treatment for Smoking Cessation

**Assess** tobacco use in all injured workers.

- For patients currently smoking > 10 cigarettes/day<sup>37</sup>
  - **Advise** to quit smoking – “I strongly advise you to quit smoking and I can help you.”
  - **Advise** of overall health risk and that 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.<sup>38</sup>

**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”

**Assess** readiness to quit.

<sup>37</sup> Adapted from Rigotti A 2004

<sup>38</sup> An HS 1988

# Complex Regional Pain Syndrome

Stage	Assessment	Intervention
<b>PRECONTEMPLATION</b>	Patient is not ready to change	Personalize risk factors; Discuss risk related to pain; Offer help; Provide written material (see Quitworks below); Arrange follow-up
<b>CONTEMPLATION</b>	Patient is concerned about smoking	Assess current tobacco use; Discuss risk; Educate re: simple steps; Offer help; Provide written material (see QuitWorks below); Arrange follow-up
<b>PREPARATION</b>	Patient has decided to do something about it but has not yet begun	Assess current tobacco use, Discuss risk; Educate re: simple steps; Provide counseling (see smoking intervention below); Arrange follow-up

– **Assist** smokers in stopping

- Provide brief counseling
- Recommend use of pharmacotherapy (patch, gum, nasal spray, lozenge, inhaler, bupropion-SR) unless contraindicated<sup>39</sup>
- **QuitWorks** provides clinicians with FDA recommendations for pharmacotherapy dosing.
- Enroll patient for **QuitWorks** services through the Try-To-STOP TOBACCO resource Center (see Resources)

*Or*

- Provide self-help material (see Resources)
- Develop a tapering program and plan to stop
- Identify triggers and brainstorm strategies
- Advise physical activity where appropriate

– **Arrange** follow-up within 1 – 2 weeks.

- At subsequent visit, review quit status.
- Congratulate success; encourage maintenance.
- QuitWorks provides status report and a six-month follow-up report for every patient referred.

*If tobacco use has occurred:*

– **Ask** for recommitment to total abstinence.

- Review circumstances that caused lapse.
- Use lapse as a learning experience.
- Assess pharmacotherapy use and problems.
- If willing to try again, re-enroll patient for QuitWorks services.

– **Arrange** follow-up visit

=>Refer to Resources for additional quit smoking information

<sup>39</sup> Brunnhuber K, et al. 2007 Both nicotine- and nonnicotine-based therapies can increase the chances of successful smoking cessation (Lam et al 2006). Nicotine-based therapies are available as transdermal patch, gum, nasal spray, inhaler, or lozenge. FDA-approved nonnicotine-based drug treatments include bupropion and varenicline.

### 3. Assessment and treatment for alcohol or drug abuse<sup>40</sup>:

**Alcohol** is commonly overlooked as a risk factor and a cause of problems in the management of pain. Therefore, consumption should be a routine part of the assessment of patients in pain.<sup>41</sup> Some patients may attempt to use alcohol to self-medicate to treat pain, sleep disturbance, depression, anxiety or panic disorders.

**Drug abuse** is often a confusing assessment for clinicians treating patients with pain. When assessing drug use, clinicians must be familiar with the terminology. One of the most confusing distinctions is between physical dependence, which is a pharmacological feature of many drugs, and addiction, which is a biobehavioral syndrome evidenced by a person's interaction with a drug<sup>42,43</sup>. Fear and desperation in the patient seeking relief and poor understanding of drug actions can often lead to improper drug use or drug misuse in the pain patient. Cultural factors also figure in this and it is imperative to do a thoughtful history and evaluation.

#### Assess:

- Consequences and problems due to drinking
  - **ASK:** "Has your use of alcohol or drugs ever caused a problem for you or your loved ones?"
- Quantity/frequency of ETOH drinking related to established risk-levels
  - **ASK:** "How many glasses (ounces) of wine/beer/mixed drinks do you have a day?"

#### And/or

#### **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 + CAGE (AID):
    - 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 or drug use annoy you?
    - These exploratory questions serve two purposes:
      - Diagnosis
      - Preparing for intervention
  - At risk drinking<sup>44</sup>
    - Men >14 drinks/week or >4 drinks/occasion
    - Women of all ages and anyone >65 years of age: >7 drinks/week or >3 drinks/occasion

<sup>40</sup> Adapted from Bierer MF, 2004

<sup>41</sup> Haddox JD 1998

<sup>42</sup> Haddox JD 1998

<sup>43</sup> Savage S et al. 2001

<sup>44</sup> National Institute on Alcohol Abuse and Alcoholism (NIAAA)

# Complex Regional Pain Syndrome

- The Standard Drink (Standard Equivalent):
    - ~12-14 grams of pure ethanol
    - 5 oz wine
    - 12 oz beer
    - 1.5 oz distilled spirits (one shot)
  - 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
  - Consider 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
- If substance abuse is present or suspected, consider referral for chemical dependency assessment.
  - For patients with history of substance abuse or alcohol dependence resistant to brief intervention refer to addiction specialist<sup>45</sup> (See Resources).

<sup>45</sup> See definitions

# Complex Regional Pain Syndrome

=> Consideration for the use of opiates in patients with a history of alcohol or drug abuse: (Also, please see *“Opiate Use for Patients with Chronic Non-cancer Related Pain”* below)

- 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<sup>46, 47</sup>. 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.
  - 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.<sup>48</sup> 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.
    - For patients with a remote history of significant abuse or addiction, only experienced clinicians who can provide skilled assessment and monitoring should provide treatment.
  - A patient screening tool to assess risk potential for substance abuse can be found at:
    - <http://www.painedu.com/tools.asp><sup>49</sup>
  - For those patients at low risk:
    - An evidenced-based protocol can be found at: [http://www.oqp.med.va.gov/cpg/cot/ot\\_base.htm](http://www.oqp.med.va.gov/cpg/cot/ot_base.htm). This website includes a doctor-patient contract that is recommended when opioids are considered.
- =>It is important to remember that patients who are not showing a meaningful response in terms of pain reduction and improved function and who cannot maintain compliance with therapy need to be proactively weaned from opioids.

## 4. Assessing and treating psychological risk factors

An overall idea of the most salient emotional aspects of pain can be elicited by posing a general question about the patient’s well-being, such as, “How has the pain affected your life?” or, “Can you tell me how you are coping with the pain problem and its effect on your life?”<sup>50</sup>

### • Depression and anxiety

Patients frequently express depressive mood, including feelings of worthlessness, bad temper, and self-criticism. Suicidal ideation is quite common in patients with chronic pain conditions<sup>51,52</sup>. Every patient should be assessed for suicidal ideation and it should be addressed immediately.

The relationship of anxiety with chronic pain is well recognized both as a contributor to symptoms and a result of acute pain, persistent pain, and related disability.<sup>53</sup>

<sup>46</sup> Lu HU et al. 1998

<sup>47</sup> Passik SD 2001

<sup>48</sup> Menefee LA, Katz NP 2003

<sup>49</sup> See VA/DoD [Veterans Administration/Department of Defense] CLINICAL PRACTICE GUIDELINE FOR THE MANAGEMENT OF OPIOID THERAPY FOR CHRONIC PAIN at [http://www.oqp.med.va.gov/cpg/cot/ot\\_base.htm](http://www.oqp.med.va.gov/cpg/cot/ot_base.htm) for an evidence-based guide. A patient screening tool (Screener and Opioid Assessment for Pain patients – SOAPP) to assess risk potential for substance abuse among patients can be found at <http://www.painedu.com/tools.asp>. (Butler, SF et al. 2004)

<sup>50</sup> Menefee LA, Katz NP 2003

<sup>51</sup> Haddox JD 1998

<sup>52</sup> Menefee LA, Katz NP 2003

<sup>53</sup> Kulich RJ & Baker WK 1998

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Warning signs for referral to a psychologist, psychiatrist or mental health professional are:

- Suicidal ideation
- Anergia (i.e. lack of energy)
- Persistent anhedonia (i.e., lack of pleasure)
- Loss of appetite
- Sleep disturbance
- Anxiety or panic
- Prolonged difficulty accepting the condition
- And angry outbursts toward self or others

There are self-report screening tools available to assist the surgeon, primary care or occupational health clinician in assessing the psychological aspects of pain. The most frequently used self-report measure of depression is the **Beck Depression Inventory (BDI)** (see resources) and is often used in primary care settings as a brief screening instrument for affective disorders.

In addition, the **Battery for Health Improvement (BHI)** includes both psychological (anxiety and depression scales) and functional scales for use in a clinical setting (see resources).

A positive screen for depression should prompt referral for further evaluation and diagnostic interview with a psychologist, psychiatrist or other qualified mental health practitioner. Most importantly, suicidal thoughts should be taken seriously<sup>54</sup>. Clinicians are encouraged to learn the laws in their state that apply to this circumstance. Do not hesitate to consult a mental health professional for advice or to arrange hospital admission. Every patient must be handled differently, because suicidal ideation does not inevitably signify a wish to die.

## =>Important intervention for patients with suicidal plan:

Send immediately to nearest Emergency Room for evaluation, employ emergency response system, or advise patient, family or caregiver to employ emergency response system.

## 5. Assessing and treating physical trauma &/or emotional abuse or sexual assault

There is increasing consideration for the assessment of sexual assault and physical or emotional trauma with regard to chronic pain and disability<sup>55</sup>. Data suggest a higher proportion of sexual abuse is found in chronic pain populations than in the general population, although a causal link has not been demonstrated<sup>56</sup>. Case reports suggest that the effects of a history of abuse or trauma may predict a difficult treatment course and poor outcome. There appears to be support for adequate evaluation and appropriate psychotherapeutic treatment of individuals with this history in order to reduce suffering and differentiate past trauma from present work related trauma or procedure, and improve outcome.

### • Screening for physical trauma &/or emotional 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). Have you experienced physical trauma in your lifetime?”

- If significant physical or sexual abuse is reported, abuse counseling should be considered. (see resources)

<sup>54</sup> Haddox JD 1998

<sup>55</sup> Kulich RJ & Baker WK 1998

<sup>56</sup> Linton SJ 1997

## Opiate Use for Patients with Chronic Non-cancer Related Pain

The use of long-term opioids in chronic non-cancer pain remains controversial<sup>57</sup>. 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."<sup>58</sup>

In addition, in consideration of neuropathic pain conditions such as CRPS, there is experimental data that suggest that treatment with opiates may be associated with hyperalgesia.<sup>59,60,61</sup> Like **tolerance**, or the loss of analgesic effect over time, opioid-induced hyperalgesia could potentially change the risk-benefit relation of long-term treatment in patients with chronic pain conditions such as CRPS. However, to date there are no studies of opioid-induced hyperalgesia in patients with chronic neuropathic pain. Future studies will be needed to assess the clinical implications of this occurrence. Furthermore, clinicians must consider the possible risk of **addiction**, which is the compulsive and self-destructive use of opiates, which may occur, but again with unknown frequency. Results of recent studies estimate the frequency of misuse or addiction ranges widely from less than 5% to as much as 50%.<sup>62,63,64,65</sup> For these reasons current recommendations emphasize the need for clinical skills in risk assessment and management as a prerequisite to safe and effective opioid prescribing.

As with all medications, the prescribing of opioids should be intended toward helping patients increase function and reduce pain perception. Side effects include constipation, sedation, nausea, irritability, and sweating, itching, and cognitive dysfunction. These should be aggressively managed; however, most will lessen in time in many patients.

Generally opiates are used in chronic pain conditions when other therapies have not been effective<sup>66</sup>. The pharmacologic treatment of chronic pain should proceed considering the goals of both pain reduction and restoration of function. Realistic goal-setting is an important part of initial communications with the patient in chronic pain. Unfortunately, patients with chronic pain rarely achieve complete relief; however, function and quality of life can often be enhanced through a combination of pharmacologic and non-pharmacologic therapies. Therefore, it is essential to help the patient set appropriate expectations: that pain relief will likely be partial but life can be greatly improved through pain management. Although primary care practitioners often manage opioids for patients with chronic pain, they should not hesitate to refer patients to psychiatry, psychology or pain management centers for consultation and/or evaluation and treatment. It is especially important that clinicians without opioid expertise obtain consultation from appropriate specialists in developing a treatment plan for challenging patients.<sup>67</sup>

It is imperative that clinicians become aware of the data related to opioid dosing trends and mortality rates, consider carefully before prescribing opiates for long-term use in patients with chronic non-cancer-related pain<sup>68</sup> and use and attend to the principles outlined in the guidelines below when choosing to prescribe.

<sup>57</sup> Franklin GM et al. 2005

<sup>58</sup> Ballantyne & Mao 2003

<sup>59</sup> Angst MS 2006

<sup>60</sup> Chang G 2007

<sup>61</sup> Chu LF 2006

<sup>62</sup> Adams EH 2006

<sup>63</sup> Ballantyne JC 2007

<sup>64</sup> Hojsted J 2007

<sup>65</sup> Ives TJ 2006

<sup>66</sup> Menefee LA, Katz NP 2003

<sup>67</sup> Dworkin RH et al. 2007

<sup>68</sup> Franklin GM et al. 2005

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

- <http://www.painedu.com/tools.asp><sup>69</sup>

- For those patients at low risk:

- ***An evidenced-based protocol can be found at:***

- [http://www.oqp.med.va.gov/cpg/cot/ot\\_base.htm](http://www.oqp.med.va.gov/cpg/cot/ot_base.htm).

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

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

<sup>69</sup> See VA/DoD [Veterans Administration/Department of Defense] CLINICAL PRACTICE GUIDELINE FOR THE MANAGEMENT OF OPIOID THERAPY FOR CHRONIC PAIN at [http://www.oqp.med.va.gov/cpg/cot/ot\\_base.htm](http://www.oqp.med.va.gov/cpg/cot/ot_base.htm) for an evidence-based guide. A patient screening tool (Screener and Opioid Assessment for Pain patients – SOAPP) to assess risk potential for substance abuse among patients can be found at <http://www.painedu.com/tools.asp>. (Butler, SF et al. 2004).

## **Appendix C**

### Motivational Interviewing Technique for Self-Management Support and Behavior Change<sup>70,71</sup>:

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.

<sup>70</sup> Lange N, Tigges BB Influence Positive Change with Motivational Interviewing. The Nurse Practitioner. March 2005, Vol 30 (5); (44-53).

<sup>71</sup> Bodenheimer, T et al. Helping Patients Manage Their Chronic Conditions. June 2005, California Healthcare Foundation. www.chcf.org

## 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](http://www.chcf.org)

## Appendix D

### Intensive Multidisciplinary Treatment Program<sup>72</sup>

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 A)
  - Problem-solving

<sup>72</sup> Adapted from Commonwealth of Massachusetts Department of Industrial Accidents Treatment Guidelines. Downloaded from [www.mass.gov/dia/hcsb/treatmentguidelines.htm](http://www.mass.gov/dia/hcsb/treatmentguidelines.htm) September 10, 2004

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- 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).
    - Transcutaneous electrical nerve stimulator (TENS)
    - Acupuncture
    - Hypnosis
    - Paraffin
    - Desensitization
- Physical Conditioning
  - Functional restoration
  - Offer at least one of the following or refer to outside resource:
    - Aquatherapy
    - Muscle group strengthening
    - Yoga

## B) Evaluation must include:

Evaluation of the injured worker and development of a treatment plan by a multi-disciplinary 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.

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## 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 E)

## 3) Program Documentation must include:

- Weekly SOAP (subjective, objective, assessment, plan) notes provided to Nurse Advocate
- Weekly patient self-evaluation

## C) Treatment Team

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 E

### 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 ( $\alpha = .90 - .91$ ) for the sub-scale and total scores (Anderson, et al. 1995).

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## Methods used to formulate recommendations

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**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).

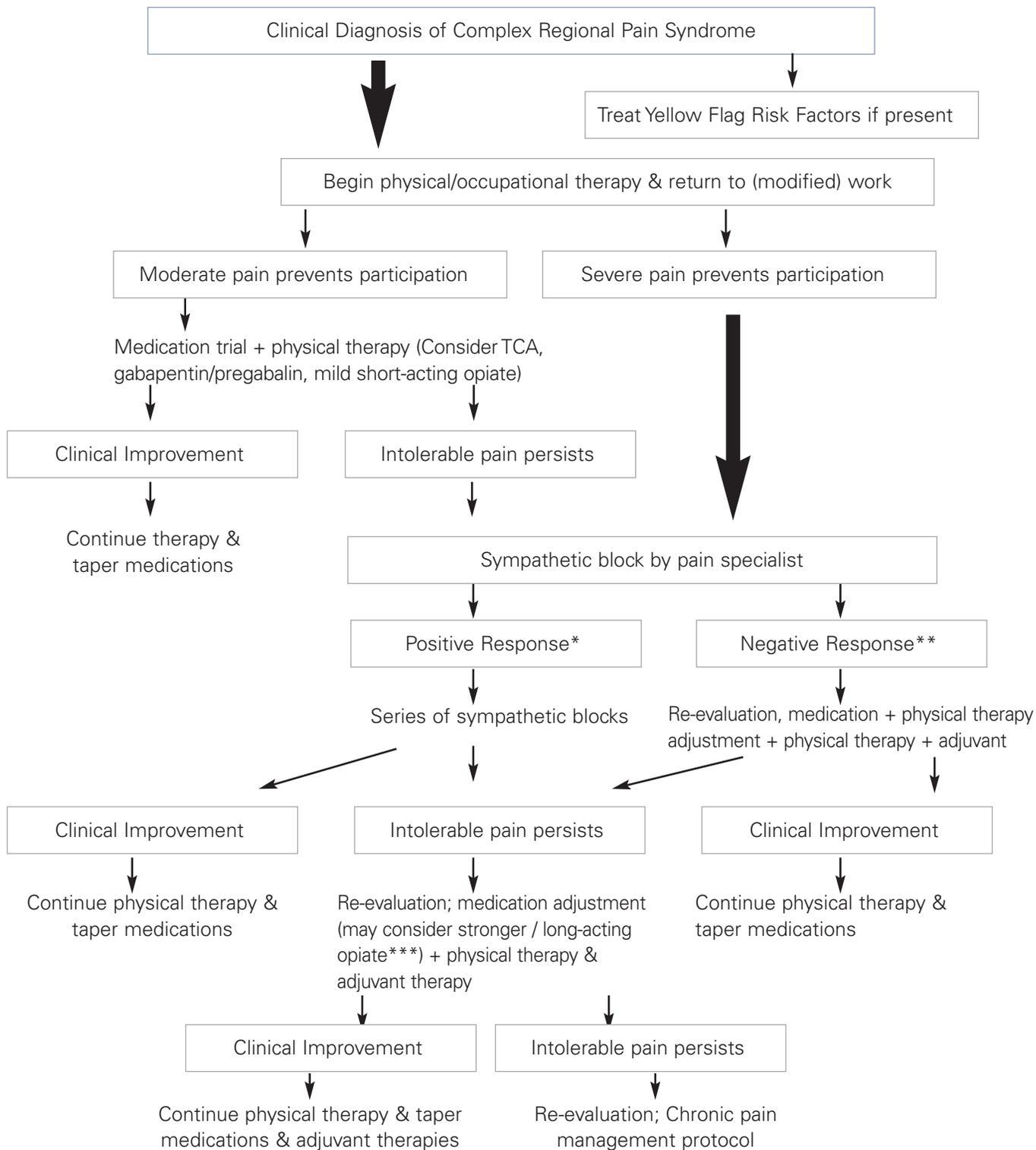
Modifications to the pathway will undoubtedly be necessary as a result of new research and practice-based evidence. The developers believe this pathway should always be considered a work in progress.

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# Complex Regional Pain Syndrome

## Appendix F

### Treatment Flow Chart for CRPS



\* 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.oqp.med.va.gov/cpg/cot/ot\\_base.htm](http://www.oqp.med.va.gov/cpg/cot/ot_base.htm); patient screening tool can be found at: <http://www.painedu.com/tools.asp>