# Work-Related Complex Regional Pain Syndrome

## Diagnosis and Treatment

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**KEYWORDS**

• Complex regional pain syndrome • RSD • Diagnosis • Treatment
• Evidence-based review • Workers compensation

**KEY POINTS**

- Prevention and early identification of complex regional pain syndrome (CRPS) are critical in regard to optimizing outcomes. Use of vitamin C can be helpful in preventing CRPS in cases of distal extremity injury.
- Risk factors include injury or immobilization of a distal extremity, female sex, fear of movement, and tobacco use. Failure to follow a normal course of return to function should warrant closer attention by the physician.
- The diagnosis of CRPS requires the presence of a specific set of symptoms and findings in addition to pain.
- A phased approach to treatment is presented. CRPS should be identified early and the patient moved quickly to more integrated and experienced levels of care aimed at reactivation if not improving.

### INTRODUCTION

This guideline is to be used by physicians, claim managers, occupational nurses, all other providers, and utilization review staff. The emphasis is on accurate diagnosis and treatment that is curative or rehabilitative (see Washington Administrative Code [WAC] 296-20-01,002 for definitions).

This guideline was developed between 2010 and 2011 by the Industrial Insurance Medical Advisory Committee (IIMAC) and its subcommittee on chronic noncancer pain. The subcommittee presented its work to the full IIMAC, and the IIMAC voted with full consensus advising the Washington State Department of Labor & Industries to adopt the guideline. This guideline is based on the best available clinical and scientific evidence from a systematic review of the literature and a consensus of expert

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opinion. One of the committee's primary goals is to provide standards that ensure high quality of care for injured workers in Washington State.

Complex regional pain syndrome (CRPS), sometimes referred to as reflex sympathetic dystrophy or causalgia, is an uncommon chronic condition with clinical features that include pain, sensory, sudomotor and vasomotor disturbances, trophic changes, and impaired motor function.[1–3] This condition may involve the upper or lower extremities and can affect men or women of any age, race, or ethnicity. Most people with onset of CRPS are females and adults. Females are affected as least 3 times more than males.[2,3] The pathophysiology of CRPS is not fully understood. When CRPS occurs it typically follows an injury, such as a fracture, sprain, crush injury, or surgery.[4,5] Immobilization, particularly after fracture or surgery, is a well-described risk factor.[5,6]

Two types of CRPS have been described: CRPS I and CRPS II. For the most part, the clinical characteristics of both types are the same. The difference is based on the presence or absence of nerve damage. CRPS I (also known as reflex sympathetic dystrophy) is not associated with nerve damage, whereas CRPS II (also known as causalgia) is associated with objective evidence of nerve damage. Treatment for either form of CRPS should follow the recommendations in this guideline, although if there is objective evidence for CRPS II, other references and treatment guidelines for the particular nerve injury may also apply.

## ESTABLISHING WORK RELATEDNESS

CRPS may occur as a delayed complication of a work-related condition or its treatment.[4,5] Usually, CRPS occurs following an injury. In rare situations, CRPS may occur following an occupational disease. An injury is defined as a sudden and tangible happening of a traumatic nature producing an immediate or prompt result and occurring from without. The only requirement for establishing work-relatedness for an injury is that it occurs in the course of employment.

For an occupational disease, establishing work relatedness requires a more critical analysis that demonstrates more than a simple association between the disease and workplace activities. Establishing work relatedness for an occupational disease requires

1. Exposure: workplace activities that contribute to or cause the condition
2. Outcome: a medical condition that meets certain diagnostic criteria
3. Relationship: generally accepted scientific evidence that establishes on a more probable than not basis (greater than 50%) that the workplace activity (exposure) in an individual case was a proximate cause of the development or worsening of the condition (outcome)

Establishing CRPS as a work-related condition requires documentation of

1. Another work-related condition has been previously accepted
2. A diagnosis of CRPS that meets the criteria in further section
3. CRPS involves the same body part as the accepted, work-related condition

## PREVENTION

CRPS is believed to be incited by trauma or immobilization following trauma. It is most likely to occur in the setting of bone fracture, especially of the distal extremity. The greatest risk for CRPS appears to be certain types of fractures such as distal radial, tibial, and ankle, as well as limited movement of the affected limb.[6–9]

CRPS may be preventable if the alert clinician is on the lookout for CRPS. Therefore, in addition to the usual protocols for a particular injury, close surveillance of patients