



# CIGNA MEDICAL COVERAGE POLICY

The following Coverage Policy applies to all health benefit plans administered by CIGNA Companies including plans formerly administered by Great-West Healthcare, which is now a part of CIGNA.

**Subject Neurosurgical Treatment of Spasticity**

**Effective Date ..... 4/15/2010**  
**Next Review Date ..... 4/15/2012**  
**Coverage Policy Number ..... 0327**

## Table of Contents

Coverage Policy .....	1
General Background .....	1
Coding/Billing Information .....	3
References .....	4
Policy History.....	7

## Hyperlink to Related Coverage Policies

- Electrical Stimulators
- Implantable Infusion Pumps
- Occupational Therapy
- OnabotulinumtoxinA (Botox® A)
- Physical Therapy
- Speech/Language Therapy

### INSTRUCTIONS FOR USE

Coverage Policies are intended to provide guidance in interpreting certain **standard** CIGNA HealthCare benefit plans. Please note, the terms of a customer's particular benefit plan document [Group Service Agreement (GSA), Evidence of Coverage, Certificate of Coverage, Summary Plan Description (SPD) or similar plan document] may differ significantly from the standard benefit plans upon which these Coverage Policies are based. For example, a customer's benefit plan document may contain a specific exclusion related to a topic addressed in a Coverage Policy. In the event of a conflict, a customer's benefit plan document **always supercedes** the information in the Coverage Policies. In the absence of a controlling federal or state coverage mandate, benefits are ultimately determined by the terms of the applicable benefit plan document. Coverage determinations in each specific instance require consideration of 1) the terms of the applicable benefit plan document in effect on the date of service; 2) any applicable laws/regulations; 3) any relevant collateral source materials including Coverage Policies and; 4) the specific facts of the particular situation. Coverage Policies relate exclusively to the administration of health benefit plans. Coverage Policies are not recommendations for treatment and should never be used as treatment guidelines. Proprietary information of CIGNA. Copyright ©2011 CIGNA

## Coverage Policy

**CIGNA covers ANY of the following neurosurgical procedures as medically necessary for the management of spasticity:**

- selective posterior (dorsal) rhizotomy (SDR)
- microsurgical dorsal root entry zone lesion (DREZotomy)
- peripheral neurotomy
- longitudinal myelotomy

**when ALL of the following criteria are met:**

- The individual has failed all appropriate, nonsurgical medical management for spasticity (e.g., pharmacotherapy, occupational therapy, physical therapy).
- The individual has adequate intrinsic motor power, but mobility is limited due to spasticity.
- The individual has the functional and mental capacity to fully participate in a standard course of postoperative rehabilitation **OR** the surgery is being performed to facilitate activities of daily living (ADL).

**CIGNA does not cover neurectomy for the management of spasticity because it is considered experimental, investigational or unproven.**

## General Background

Spasticity is a motor disorder characterized by an abnormal increase in muscle tone accompanied by exaggerated deep tendon jerks and an imbalance between the muscle contraction and the relaxation process. It is a complication seen in conditions such as cerebral palsy, multiple sclerosis, stroke, spinal cord injury, brain trauma, amyotrophic lateral sclerosis (ALS) (i.e., Lou Gehrig's disease) or metabolic diseases. Prognosis depends upon the severity of the spasticity and the underlying disorder.

Neurosurgical treatment for spasticity is reserved for severe cases in which medical management has been ineffective or has lost its effectiveness, and orthopedic surgical options have been considered (e.g., aponeurotomy, tenotomy) and are not the most appropriate choice. Candidates for neurosurgical procedures include those patients who have adequate intrinsic motor power but their mobility is limited due to the spasticity, and they have the functional and mental capacity to participate in postoperative rehabilitation. The surgery may also be performed to facilitate activities of daily living. Well-established neurosurgical procedures for the treatment of spasticity include: selective posterior (i.e., dorsal) rhizotomy (SDR), microsurgical dorsal root entry zone lesion (i.e., DREZotomy), peripheral neurotomy, and longitudinal myelotomy. Neurectomy has also been proposed as a surgical intervention for spasticity but its safety and efficacy is not supported by the published peer-reviewed studies.

### **Selective Posterior (Dorsal) Rhizotomy (SDR)**

The principle neurosurgical procedure for the treatment of spasticity is the functional or selective dorsal rhizotomy (SDR) or selective posterior rhizotomy. SDR is a surgical procedure that involves the severing of nerve rootlets that lie just outside the vertebral column and transmit nerve impulses to and from the spinal cord. "Dorsal" or "posterior" indicates that the targeted nerve roots are those that lie at the back of the cord. SDR is primarily indicated in conditions exhibiting severe spasticity (e.g., spastic diplegia) impeding the patient's function (Farmer and Sabbagh, 2007; Mandigo, et al., 2006; Patwardhan, et al., 2006; Abbott, 2004; Tilton, 2003; Jacobs, 2001).

Evidence in the published, peer-reviewed scientific literature in the form of randomized controlled trials, meta-analysis, case series and retrospective reviews support the safety and efficacy of SDR for the treatment of spasticity (Golan, et al., 2007; Langerak, et al., 2007; Engsborg, et al., 2006; Buckon, et al., 2004; Salame, et al., 2003; McLaughlin, et al., 2002; Mittal, et al., 2002; Kim, et al., 2001).

### **Microsurgical DREZotomy**

Microsurgical DREZotomy (i.e., Dorsal Root Entry Zone-otomy), a hyper-selective rhizotomy, is a well-established surgical intervention for the treatment of spasticity. The procedure consists of cutting the ventral nerve fibers at the entry zone. The severing creates a lesion that suppresses afferent discharges to the spinal cord, decreasing synaptic reflexes. DREZotomy is indicated in the treatment of severe, extensive spasticity limited to the upper or lower limbs. It may also be considered in the treatment of hyperactive bladder (Abbott, 2004; Lazorthes, et al., 2002).

### **Peripheral Neurotomy**

Peripheral neurotomy (PN) is a surgical procedure performed under general anesthesia and involves microdissection (i.e., cutting) of peripheral nerves at the point at which they enter the muscle. Sensory and motor fibers are selectively cut to prevent complete severing of the nerve bundle. The main indications for PN are spastic neck, elbow, hand, hip, and foot (Sindou, et al., 2007; Mandigo, et al., 2006; Lazorthes, et al., 2002).

Randomized controlled trials and prospective case series have reported statistically significant improvements in patients treated with neurotomy for limb spasticity secondary to conditions such as stroke, brain trauma/tumor, spinal conditions, and cerebral palsy. Postoperative outcomes included relief from spasticity that resulted in improved motor strength and function. Peripheral neurotomy is an established treatment option for patients who do not respond to conventional medical management (Rousseaux, et al., 2008; Maarawi, et al., 2006; Buffenoir, et al., 2004).

### **Longitudinal Myelotomy**

This procedure involves longitudinal division of the spinal cord to sever crossing sensory fibers and produce localized analgesia. It is also performed for the removal of intramedullary tumors. Myelotomy is indicated for those patients who exhibited conditions with severe and painful spasticity, such as paraplegics and spinal cord injured patients. Myelotomy is a technically difficult procedure with significant morbidity and is not frequently

used for the treatment of spasticity. Typically, it has been replaced by surgeries with fewer complications (Salame, 2003).

### **Neurectomy**

Focal hypertonia is primarily treated with injections of botulinum toxin into the muscle and intensive rehabilitation therapy. When the muscles become refractory to the injections, a neurectomy has been proposed as a treatment option. Unlike a neurotomy that cuts selected fibers, neurectomy involves the cutting of the nerve branches as they enter the targeted muscle. The literature indicates that, although conditions with clonus and spasticity may be diminished by neurectomy, the patient may still require further orthopedic surgery, such as tendon lengthening. Also, in neurectomies of mixed nerves (e.g., ulnar nerve), there is often permanent painful dysesthesias (i.e., burning pain). In children who have adductor contractures (e.g., cerebral palsy), the use of selective neurectomies can lead to loss of walking ability and to abduction contractures. Because the procedure decreases central nervous system hyperactivity, it may result in residual hypertonia or loss of muscle function (Abbott, 2004; Koman, 2004). There is insufficient evidence in the literature to support the efficacy of surgical neurectomy in the management of spasticity.

### **Professional Societies/Organizations**

In a guidance document on selective dorsal rhizotomy (SDR) for spasticity in cerebral palsy, the National Institute for Health and Clinical Excellence (NICE) (United Kingdom) (2006) stated that although limited, current evidence on the safety of SDR for the treatment of spasticity in patients with cerebral palsy appears adequate.

The Veterans Affairs/Department of Defense clinical practice guidelines (2005) for the care of adult stroke victims stated that selective dorsal rhizotomy or dorsal root entry zone lesion may be considered as an invasive treatment for spasticity for stroke patients. However, they stated that these procedures “lack clinical trial evidence and carry significant risks such as unintended spinal cord damage” (Bates, et al., 2005).

In the stroke clinical practice guidelines published by the American Stroke Association (2005), recommendations for the treatment of spasticity included consideration of neurosurgical procedures, such as selective dorsal rhizotomy or dorsal root entry zone lesion for spasticity that is associated with pain, poor skin hygiene, or decreased function (Duncan, et. al., 2005).

In a 2004 clinical report, the American Academy of Pediatrics lists dorsal rhizotomy as a surgical treatment option for spasticity in children with cerebral palsy. Ideal surgical candidates are between ages 3–7 years and exhibit spastic diplegia, stable trunk control, and good lower extremity strength (Cooley, et al., 2004).

The clinical practice guidelines on the management of spasticity published by the Multiple Sclerosis Council (MSC) included dorsal rhizotomy and myelotomy as procedures that might be appropriate for patients who do not respond to noninvasive therapies. They stated that posterior rhizotomy and lumbar myelotomy may be considered palliative surgical treatment in “carefully select individuals who are refractory to other medical management strategies”. The MSC rates all of these procedures as “data inadequate or conflicting and, given current knowledge, treatment is unproven” (Haselkorn, et al., 2005).

### **Summary**

Professional societies and evidence in the peer-reviewed literature support the safety and efficacy of neurosurgical procedures for the treatment of spasticity in a carefully selected subset of patients. The established neurosurgical procedures include selective posterior (i.e., dorsal) rhizotomy (SDR), microsurgical dorsal root entry zone lesion (i.e., DREZotomy), and peripheral neurotomy, and longitudinal myelotomy. There is insufficient evidence in the published peer-reviewed scientific literature to support the use of neurectomy for the treatment of spasticity.

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## **Coding/Billing Information**

**Note:** This list of codes may not be all-inclusive.

**Covered when medically necessary:**

<b>CPT®*</b> <b>Codes</b>	<b>Description</b>
61450	Craniectomy, subtemporal, for section, compression, or decompression of sensory root of gasserian ganglion
63170	Laminectomy with myelotomy (eg Bischof or DREZ type) cervical, thoracic, or thoracolumbar)
63185	Laminectomy with rhizotomy; one or two segments
63190	Laminectomy with rhizotomy; more than two segments
63200	Laminectomy, with release of tethered spinal cord, lumbar

<b>ICD-9-CM</b> <b>Diagnosis</b> <b>Codes</b>	<b>Description</b>
781.0	Abnormal involuntary movements

**Experimental/Investigational/Unproven/Not Covered for the Treatment of Spasticity:**

<b>CPT*</b> Codes	<b>Description</b>
27325	Neurectomy, hamstring muscle
27326	Neurectomy, popliteal (gastrocnemius)
28055	Neurectomy, intrinsic musculature of foot

<b>ICD-9-CM</b> <b>Diagnosis</b> <b>Codes</b>	<b>Description</b>
781.0	Abnormal involuntary movements

\*Current Procedural Terminology (CPT®) © 2010 American Medical Association: Chicago, IL.

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## Policy History

<b>Pre-Merger Organizations</b>	<b>Last Review Date</b>	<b>Policy Number</b>	<b>Title</b>
CIGNA HealthCare	04/15/2008	0327	Neurosurgical Treatment of Spasticity

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