*National Imaging Associates, Inc.	
Clinical guideline: **SYMPATHETIC NERVE BLOCKS**	**Original Date: November 2020**
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GENERAL INFORMATION

It is an expectation that all patients receive care/services from a licensed clinician. All appropriate supporting documentation, including recent pertinent office visit notes, laboratory data, and results of any special testing must be provided. If applicable: All prior relevant imaging results and the reason that alternative imaging cannot be performed must be included in the documentation submitted.

STATEMENT

Sympathetically maintained pain is a symptom of neuropathic pain. The pain is driven by overactivity of the sympathetic nervous system with or without an identifiable injury and is notably characterized as a clinical syndrome called complex regional pain syndrome (CRPS); but may also occur from neuropathic pain syndromes of different etiologies. Sympathetic nerve blocks provide diagnostic value in the identification of sympathetically maintained pain and the focused location of nerves along the spinal column provide a targeted advantage. These blocks are widely used in both acute and chronic management of sympathetically maintained pain of visceral, ischemic, and neuropathic etiologies.

PURPOSE

This guideline focuses on the utilization management of sympathetic nerve blocks for the diagnosis and acute and chronic management of sympathetically maintained pain for specific indications.

SPECIAL NOTE

NEW EPISODES OF CARE

~~**Note:**~~ Any injection performed at least two years from prior injections in the same region will be considered a new episode of care and the **INITIAL** injection requirements must be met for approval. Events such as surgery on the same spinal region or any new pathology would also prompt a new episode of care.

GENERAL INDICATIONS

- Acute or chronic noncancer pain causing functional disability or average pain level of ≥ 6 on a scale of 0 to 10 prior to injection **AND** continuation of pain or functional disability after the relief period due to the block
- Cancer pain affecting quality of life prior to injection and continuation after the relief period due to the block [1]

NOTE: It is generally considered **not medically necessary** to perform multiple interventional pain procedures on the same date of service (e.g., diagnostic block and neurolytic procedure)

NOTE: Each block must be performed under image guidance [2, 3]

INDICATIONS FOR STELLATE GANGLION BLOCK

Applies to face, upper extremities and upper thoracic region [4]

DIAGNOSTIC EVALUATION OR ACUTE MANAGEMENT OF SYMPATHETICALLY MAINTAINED PAIN RESULTING FROM:

- Acute Herpes Zoster (shingles) for prevention of postherpetic neuralgia [5], **AND**
  - Pain duration less than 4 weeks, **AND**
  - Active antiviral therapy regimen or documented medical reason unable to tolerate
- Frostbite, hyperhidrosis, chronic nonsurgical neuropathic pain syndromes, cancer pain, phantom limb pain, or nonsurgical vascular pain due to insufficiency, arterial embolism, vasospasm [2], **AND**
  - Failure to respond to nonoperative conservative treatment pertinent to the diagnosis or a clearly documented medical reason the conservative treatment cannot be done

~~***Posttraumatic stress disorder (psychiatrist)[2], refractory angina, refractory ventricular electrical storm, AND~~

~~**Indications requiring assessment**~~**assessment and clearance by a licensed, physician specialist in the management of the indication~~:**~~

~~Posttraumatic stress disorder (psychiatrist) [2]~~
~~Refractory angina (cardiologist)~~
~~Refractory Ventricular Electrical Storm (cardiologist)~~

-
- Up to 6 sympathetic blocks may be performed per 12 months.
  - For the treatment of posttraumatic stress disorder (PTSD), up to 3 blocks in the first 12 weeks, with **NO** more than 6 blocks per year
- The previous block resulted in at least 50% relief or significant documented functional improvement for at least the duration of the anesthetic

~~**FOR THE**~~ **DIAGNOSTIC EVALUATION, ACUTE OR CHRONIC MANAGEMENT OF SYMPATHETICALLY MAINTAINED PAIN RESULTING FROM:**

- Complex regional pain syndrome types I [6] and II [7], meeting Budapest criteria, **AND**

    - Active participation in a multimodal, multidisciplinary pain rehabilitation plan with a focus on functional restoration which may include physical therapy, occupational therapy, or pain psychology modalities (e.g., desensitization, range of motion, biofeedback, etc.) or a clearly documented medical reason the patient is unable participate [2]
- ~~In~~During the initial treatment phase, a total of 6 blocks may be performed ~~in~~ within the first 12 weeks
- ~~After the 12-week initial treatment phase,~~ Following the initial treatment phase,~~-~~ a~~a~~ maximum of 4 sympathetic nerve blocks may be performed -in a 12-month period
- The previous block resulted in at least 50% relief or significant documented functional improvement for at least the duration of the anesthetic

GENERAL LIMITATIONS

- It has been at least one week since the prior injection in the same or different region
- Bilateral stellate ganglion blocks will not be performed on the same day of service

CONTRAINDICATIONS

- Patient refusal
- Local or systemic infection
- Coagulopathy or recent myocardial infarction
- Contralateral pneumothorax or severe emphysema
- Contralateral palsy of recurrent laryngeal nerve or phrenic nerve
- Allergy to anesthetic medication

INDICATIONS FOR THORACIC OR LUMBAR SYMPATHETIC BLOCK

Applies to thoracic region and lower extremities [4]

FOR THE DIAGNOSTIC EVALUATION OR ACUTE MANAGEMENT OF SYMPATHETICALLY MAINTAINED PAIN RESULTING FROM:

- Acute Herpes Zoster (shingles) for prevention of postherpetic neuralgia [8], **AND**
    - Pain duration less than 4 weeks, **AND**
    - Active antiviral therapy regimen or documented medical reason unable to tolerate
- Frostbite, hyperhidrosis, chronic nonsurgical neuropathic pain syndromes, cancer pain, phantom limb pain, or nonsurgical ischemic limb pain [2], **AND**
    - Failure to respond to nonoperative conservative treatment pertinent to the diagnosis or a clearly documented medical reason the conservative treatment cannot be done

- Up to 6 sympathetic blocks may be performed per 12 months. ~~For the treatment of posttraumatic stress disorder (PTSD), up to 3 blocks in the first 12 weeks, with **NO** more than 6 blocks per year~~
- The previous block resulted in at least 50% pain relief, significant documented functional improvement, or 50% reduction in PTSD symptoms for at least the duration of the anesthetic

FOR THE DIAGNOSTIC EVALUATION, ACTUE OR CHRONIC MANAGEMENT OF SYMPATHETICALLY MAINTAINED PAIN RESULTING FROM:

- Complex regional pain syndrome types I and II [9], meeting Budapest criteria, **AND**
    - Active participation in a multimodal, multidisciplinary pain rehabilitation plan with a focus on functional restoration which may include physical therapy, occupational therapy, or pain psychology modalities (e.g., desensitization, range of motion, biofeedback, etc.) or a clearly documented medical reason the patient is unable participate [2]
- During the initial treatment phase, a total of 6 blocks may be performed within the first 12 weeks
- ~~In the initial treatment phase, a total of 6 blocks may be performed in the first 12 weeks~~
- Following the initial treatment phase, a maximum of 4 sympathetic nerve blocks may be performed in a 12-month period ~~After the 12-week initial treatment phase, a maximum of 4 sympathetic nerve blocks may be performed in a 12-month period~~
- The previous block resulted in at least 50% relief or significant documented functional improvement for at least the duration of the anesthetic

GENERAL LIMIATIONS

- It has been at least one week since the prior injection in the same or different region
- Bilateral thoracic or lumbar sympathetic blocks will not be performed on the same day
- Imaging modalities do not include ultrasound guidance

CONTRAINDICATIONS

- Patient refusal
- Local or systemic infection
- Coagulopathy, hypotension or recent myocardial infarction
- Contralateral pneumothorax
- Allergy to anesthetic medication

INDICATIONS FOR CELIAC PLEXUS BLOCK

Applies to the upper abdomen [4]

FOR THE DIAGNOSTIC EVALUATION OF SYMPATHETICALLY MAINTAINED VISCERAL PAIN

- Upper abdominal pain associated with malignancy [9]
  - C~~No c~~onservative treatment ~~requirement~~is not required
- Up to two diagnostic blocks may be performed in the initial diagnostic phase for a planned neurolysis procedure

FOR THE ACUTE OR CHRONIC MANAGEMENT OF SYMPATHECIALLY MAINTAINED VISCERAL PAIN RESULTING FROM:

- Acute pancreatitis, **OR**
- Chronic, relapsing pancreatitis [2], **AND**
  - Failure to respond to nonoperative conservative treatment pertinent to the diagnosis or a clearly documented medical reason the conservative treatment cannot be done
- If the first injection is unsuccessful, a second initial injection may be performed in the initial phase for a maximum of 2 injections.
- After the initial phase, a therapeutic block may be performed every 3 months in a 12-month period
- The previous block resulted in at least 50% relief or significant documented functional improvement for at least the duration of the anesthetic
- Each therapeutic block resulted in at least 50% relief for a duration of 3 months

GENERAL LIMITATIONS

- At least one week between diagnostic blocks or injections performed in the initial phase

CONTRAINDICATIONS

- Patient refusal
- Local or systemic infection
- Coagulopathy, hypotension or recent myocardial infarction
- Contralateral pneumothorax
- Allergy to anesthetic medication
- Abnormal anatomy

INDICATIONS FOR SUPERIOR HYPOGASTRIC BLOCK

Applies to the pelvic and rectal regions [4]

FOR THE DIAGNOSTIC EVALUATION OF SYMPATHETICALLY MAINTAINED VISCERAL PAIN

- Pelvic or rectal pain associated with malignancy
  - Conservative treatment is not required
  - ~~No conservative treatment requirement~~

- Up to two diagnostic blocks may be performed in the initial diagnostic phase for a planned neurolysis procedure

FOR THE ACUTE OR CHRONIC MANANGEMENT OF SYMPATHETICALLY MAINTAINED VISCERAL PAIN RESULTING FROM:

- Chronic noncancer pain of pelvic and rectal viscera, **AND**
    - Failure to respond to nonoperative conservative treatment pertinent to the diagnosis or a clearly documented medical reason the conservative treatment cannot be done
- If the first injection is unsuccessful, a second initial injection may be performed in the initial phase for a maximum of 2 injections.
- After the initial phase, a therapeutic block may be performed every 3 months in a 12-month period
- The previous block resulted in at least 50% relief or significant documented functional improvement for at least the duration of the anesthetic
- Each therapeutic block resulted in at least 50% relief for a duration of 3 months

GENERAL LIMITATIONS

- At least one week between diagnostic blocks or injections performed in the initial phase
- Imaging modalities do not include ultrasound guidance

CONTRAINDICATIONS

- Patient refusal
- Local or systemic infection
- Coagulopathy, hypotension or recent myocardial infarction
- Contralateral pneumothorax
- Allergy to anesthetic medication
- Abnormal anatomy

EXCLUSIONS

These requests are excluded from consideration under this guideline;

- Sphenopalatine ganglion block
- Ganglion impar block
- Other parasympathetic ganglion blocks
- Inferior hypogastric block

~~**INDICATIONS FOR SYMPATHETIC NERVE BLOCK**~~

For the treatment of Post-Traumatic Stress Disorder (PTSD)[1-6]

- Stellate ganglion block can be performed for treatment of PTSD

For the treatment of acute pain[7]

- Duration of pain < 3 months[8]
- Pain causing functional disability or average pain level of ≥ 6 on a scale of 0 to 10
- Failure to respond to non-operative conservative therapy for a minimum of 2 weeks unless the medical reason this treatment cannot be performed is clearly documented

For the treatment of chronic pain[9-12]

- Duration of pain ≥ 3 months
- Pain causing functional disability or average pain level of ≥ 6 on a scale of 0 to 10
- Pain characterized by at least **ONE** of the following:
    - Pain in one upper extremity with or without associated pain on the same side in the upper trunk, head, or neck
    - Pain in one lower extremity with or without associated pain on the same side in the buttock, pelvis, or groin
    - Ischemic limb pain with at least one of the following:
        - Intractable pain at rest
        - Non-healing ulcers
        - Failed surgical revascularization
- At least **THREE** of the following must be present when treating non-ischemic, extremity pain:
    - Allodynia or hyperalgesia
    - Trophic bone changes on imaging
    - Unilateral osteoporosis on imaging
    - Bone scan consistent with complex regional pain syndrome (CRPS)[13]
    - Unilateral vasomotor changes, including:
        - Changes in skin color (e.g., cyanotic, or mottled)
        - Changes in skin temperature
    - Unilateral edema
    - Unilateral sudomotor changes, including:
        - Skin is asymmetrically dry
        - Skin is asymmetrically moist
    - Unilateral trophic changes, including:
        - Skin is smooth or shiny
        - Soft issue atrophy
        - Joint stiffness, with decreased passive ROM
        - Nail changes
        - Hair growth change

- Failure to respond to non-operative conservative therapy which may include physical and occupational therapies (e.g., desensitization, mirror therapy, graded motor imagery, range of motion exercises), transcutaneous electrical nerve stimulation (TENS), ultrasound, laser, and/or cognitive behavioral therapy

NOTE: All procedures must be performed using imaging guidance[17-21]

Where a specific clinical indication is not directly addressed in this guideline, medical necessity determination will be made based on widely accepted standard of care criteria. This criterion is supported by evidence-based or peer-reviewed sources such as medical literature, societal guidelines and state/national recommendations.

FREQUENCY OF REPEAT INJECTIONS

Sympathetic nerve blocks may be repeated only as medically necessary. Each sympathetic nerve block requires an authorization, and the following must be met for repeat injections:

- For the treatment of pain:
  - The previous sympathetic nerve block resulted in at least 50% pain relief or significant documented functional improvement for at least the duration of the local anesthetic
  - The individual continues to have pain causing functional disability or average pain levels ≥ 6 on a scale of 0 to 10
  - The individual is engaged in ongoing active conservative therapy* unless the medical reason this treatment cannot be done is clearly documented or is not indicated.
  - It has been at least one week since the prior sympathetic nerve block
  - For acute pain, no more than 6 sympathetic block procedures per region per year
  - For chronic pain, no more than 4 sympathetic block procedures per region per year
- For the treatment of PTSD:
  - The previous stellate ganglion block resulted in at least 50% reduction in symptoms or significant documented functional improvement for at least the duration of the local anesthetic
  - It has been at least one week since the prior sympathetic nerve block
  - No more than three blocks in the first 12 weeks, with no more than 6 blocks per year

NOTE: It is generally considered **not medically necessary** to perform multiple interventional pain procedures on the same date of service. Documentation of a medical reason to perform injections in different regions on the same day can be provided and will be considered on a

~~case-by-case basis (e.g., holding anticoagulation therapy on two separate dates creates undue risk for the patient).~~

~~**CONTRAINDICATIONS FOR SYMPATHETIC NERVE BLOCKS**~~

- ~~Active systemic or spinal infection~~
- ~~Skin infection at the site of needle puncture~~

BACKGROUND

~~The sympathetic autonomic nervous system (SANS) is involved in both acute and chronic pain. Selective interventional blockade of specific sympathetic pathways can be used to treat ischemic pain. Due to the anatomical separation of the sympathetic ganglia and plexi from somatic nerves in prevertebral and paravertebral regions, sympathetic blocks can be used to provide analgesic effects without somatic sensory deficits. These sympathetic nerve blocks may be used to treat visceral, vascular, and neuropathic pain, including pain associated with a wide range of conditions, such as cancer, post-traumatic stress disorder (PTSD), and complex regional pain syndrome (CRPS).[2, 22-25]~~

~~McLean (2015)[1] noted that multiple case series have been conducted evaluating the potential impact of stellate ganglion block (SGB) for PTSD symptom management as well as the safety of image-guided procedures. The author conducted a review of single center data on 250 SGBs performed over an 18-month period (November 2013 – April 2015). The goal of this study was to perform a quality assurance and performance improvement project on the safety and individual acceptability of the SGB procedure for the relief of symptoms related to chronic PTSD, including detection of any potential complications or unanticipated side effects. Post-procedural individual satisfaction survey results (n=110 individuals) show 100% "overall satisfied" with the procedure, and 95% of respondents indicated a willingness to repeat the procedure. The author concluded that in the study center "the SGB procedure for PTSD is a safe, well-tolerated, and acceptable treatment adjunct in the management of severe symptoms associated with chronic treatment-refractory PTSD."[1] The author also noted that further studies are necessary to determine the optimal treatment regimen and efficacy.~~

~~Ya Deau et al (2018)[7] compared spinal and general anesthesia as supplements to nerve blocks in a randomized controlled trial to determine the effect on early patient release following foot and ankle surgery. Without using intraoperative opioids, all individuals received popliteal and adductor canal nerve blocks (bupivacaine and dexamethasone), but the individuals were randomized to either the spinal anesthesia group or general anesthesia group. Time until ready~~

for discharge and pain scores at rest were both recorded. The individuals receiving general anesthesia were discharged earlier than the spinal anesthesia individuals (median of 39 minutes earlier; 95% CI, 2-75; P=0.0380); however, their pain scores at rest one-hour post-procedure were higher (adjusted difference in means, 2.1; P < 0.001). The authors conclude, "The choice of spinal or general anesthesia as an adjunct to peripheral nerve blockade can reflect patient, clinician, and institutional preferences."[7]

Makharita et al (2012)[8] conducted a randomized, controlled, double-blind trial (n=64) to determine whether SGB, performed under fluoroscopy, can reduce postherpetic neuralgia (PHN). Individuals were divided into two groups: a control group receiving saline and an experimental group receiving bupivacaine and dexamethasone. The amounts of post-operative analgesic (acetaminophen) and pain (using a visual analog scale) were recorded at baseline, weekly (for six weeks), and after 2, 3, and 6 months. The experimental group recorded a significantly shorter duration of pain after both 3 and 6 months (P = 0.043 and 0.035, respectively) as well as a significant reduction in total doses of analgesics (P < 0.001). The authors conclude that SGB, in combination with an antiviral agent, is effective at treating PHN.[8]

Yoo et al (2011)[9] stated that the sympathetic nervous system has important roles in mediating many neuropathic pain conditions. They noted that thoracic sympathetic block (TSB) is a useful therapeutic procedure for neuropathic pain in the upper extremities and thorax, but that no studies have examined the factors related to an improved therapeutic effect of TSB. This study was designed to evaluate the influence of potential prognostic factors for a better TSB effect and identified clinically important prognostic factors in 51 individuals under fluoroscopic guidance. Regarding incorporation of TSB, only symptom duration was statistically relevant, with percutaneous TSB being more efficacious in individuals with symptom durations one year or less as compared to individuals with symptoms of more than one year (P = 0.006; odds ratio, 8.037; 95% confidence interval, 1.808-35.729). However, TSB effectiveness was not affected by either the individual's age, gender, BMI, diagnosis, or pre-procedural pain intensity. The authors concluded that these "results showed that an earlier TSB produced a better outcome for patients with chronic pain syndrome. Thus, early TSB should be performed in patients with chronic pain in the upper extremities."[9]

Cohen et al (2014)[13] conducted a randomized control trial (n=73) to study the effects of sedation during diagnostic injections since the use of sedation may be a potential cause of an inaccurate diagnostic block. 46 individuals within the study were considered good candidates for a repeat injection within three months. All individuals maintained a pain diary. The individuals who had blocks performed with sedation reported statistically larger reduction in pain diary score and less procedure-related pain than individuals without sedation. However, no statistical difference in either increased satisfaction or in outcomes one-month post-procedure were observed between the two groups.[13]

****HOME EXERISE PROGRAM (HEP)**

The following two elements are required to meet guidelines for completion of conservative therapy:

- Documentation of an exercise prescription/plan provided by a physician, physical therapist, or chiropractor [10, 11]~~26, 28, 29~~

AND

- Follow-up documentation regarding completion of HEP after the required 6-week timeframe or inability to complete HEP due to a documented medical reason (e.g., increased pain or inability to physically perform exercises). Closure of medical offices, closure of therapy offices, patient inconvenience, or noncompliance without explanation does not constitute "inability to complete" HEP [10].~~15, 26~~

POLICY HISTORY

Date	Summary
January 2024~~3~~	• Expanded criteria to enumerate individual block types~~Formatted for Table of Contents~~ • Added exclusions~~Updated references~~ • Clarified la~~inical criteria updated and rearranged by regio~~nguage on application for treatment of PTSD and emphasized need for psychiatric referral and care
May 2023	• Statement added for clinical indication • Adjusted treatment for chronic pain • Adjusted non-operative conservative therapy • Adjusted frequency of repeat injections • Adjusted background (conservative therapy removed) • Types of sympathetic nerve blocks covered was removed
May 2022	• Added note to clarify when **INITIAL** injection requirements must be met for approval • Reorganized and reworded indications for clarity and uniformity • Under treatment for chronic pain, updated non-operative conservative therapy • Clarified frequency of injections for treatment of PTSD versus other indications • Clarified lack of medical necessity of performing multiple pain procedures on same DOS • Added Contraindications section • Added region-specific wording to conservative treatment requirement (e.g., conservative therapy targeting the requested spinal region)

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Reviewed / Approved by NIA Clinical Guideline Committee

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