01-95805-18 Original Effective Date: 11/15/01 Reviewed: 12/08/23 Revised: 01/01/24

# Subject: Quantitative Sensory Testing

THIS MEDICAL COVERAGE GUIDELINE IS NOT AN AUTHORIZATION, CERTIFICATION, EXPLANATION OF BENEFITS, OR A GUARANTEE OF PAYMENT, NOR DOES IT SUBSTITUTE FOR OR CONSTITUTE MEDICAL ADVICE. ALL MEDICAL DECISIONS ARE SOLELY THE RESPONSIBILITY OF THE PATIENT AND PHYSICIAN. BENEFITS ARE DETERMINED BY THE GROUP CONTRACT, MEMBER BENEFIT BOOKLET, AND/OR INDIVIDUAL SUBSCRIBER CERTIFICATE IN EFFECT AT THE TIME SERVICES WERE RENDERED. THIS MEDICAL COVERAGE GUIDELINE APPLIES TO ALL LINES OF BUSINESS UNLESS OTHERWISE NOTED IN THE PROGRAM EXCEPTIONS SECTION.

Position Statement	Billing/Coding	Reimbursement	Program Exceptions	Definitions	Related Guidelines
Other	<u>References</u>	<u>Updates</u>			

# **DESCRIPTION:**

Quantitative sensory testing (QST) systems are used for the noninvasive assessment and quantification of sensory nerve function in patients with symptoms of or the potential for neurologic damage or disease. Types of sensory testing include current perception threshold testing, pressure-specified sensory testing (PSST), vibration perception testing (VPT), and thermal sensory testing. Information on sensory deficits identified using QST has been used in research settings to better understand neuropathic pain. It could be used to diagnose conditions linked to nerve damage and disease, and improve patient outcomes by impacting management strategies.

QST systems measure and quantify the amount of physical stimuli required for sensory perception to occur. As sensory deficits increase, the perception threshold of QST will increase, which may be informative in documenting the progression of neurologic damage or disease. QST has not been established for use as a sole tool for diagnosis and management but has been used with standard evaluative and management procedures (eg, physical and neurologic examination, monofilament testing, pinprick, grip and pinch strength, Tinel sign, and Phalen and Roos test) to enhance the diagnosis and treatment-planning process, and to confirm physical findings with quantifiable data. Stimuli used in QST includes touch, pressure, pain, thermal (warm and cold), or vibratory stimuli.

Several QST devices have been cleared for marketing by the U.S. Food and Drug Administration (FDA) through the 510(k) process.

# **POSITION STATEMENT:**

Quantitative sensory testing, including but not limited to current perception threshold testing, pressurespecified sensory device testing, vibration perception threshold testing, and thermal threshold testing, is considered **experimental or investigational**. The evidence is insufficient to determine the effects of the technology on health outcomes.

# **BILLING/CODING INFORMATION:**

## **CPT Coding:**

0106T	Quantitative sensory testing (QST), testing and interpretation per extremity; using
	touch pressure stimuli to assess large diameter sensation (Investigational)
0107T	Quantitative sensory testing (QST), testing and interpretation per extremity; using
	vibration stimuli to assess large diameter fiber sensation (Investigational)
0108T	Quantitative sensory testing (QST), testing and interpretation per extremity; using
	cooling stimuli to assess small nerve fiber sensation and hyperalgesia (Investigational)
0109T	Quantitative sensory testing (QST), testing and interpretation per extremity; using heat-
	pain stimuli to assess small nerve fiber sensation and hyperalgesia (Investigational)
0110T	Quantitative sensory testing (QST), testing and interpretation per extremity; using other
	stimuli to assess sensation (Investigational)

#### **HCPCS Coding:**

G0255	Current perception threshold/sensory nerve conduction test, per limb, any nerve	
	(Investigational)	

# **REIMBURSEMENT INFORMATION:**

Refer to section entitled **POSITION STATEMENT**.

# **PROGRAM EXCEPTIONS:**

Federal Employee Program (FEP): Follow FEP guidelines.

State Account Organization (SAO): Follow SAO guidelines.

#### Medicare Advantage products:

The following National Coverage Determination (NCD) was reviewed on the last guideline reviewed date: Sensory Nerve Conduction Threshold Tests (sNCTs) (160.23) located at cms.gov.

The following Local Coverage Determination (LCD) was reviewed on the last guideline reviewed date: Nerve Conduction Studies and Electromyography (L34859) located at fcso.com.

If this Medical Coverage Guideline contains a step therapy requirement, in compliance with Florida law 627.42393, members or providers may request a step therapy protocol exemption to this requirement if based on medical necessity. The process for requesting a protocol exemption can be found at <u>Coverage</u> <u>Protocol Exemption Request</u>

## **DEFINITIONS:**

**Current perception threshold testing:** involves the quantification of the sensory threshold to transcutaneous electrical stimulation. Typically 3 frequencies are tested: 5 Hz, designed to assess C fibers; 250 Hz, designed to assess A delta fibers; and 2000 Hz, designed to assess A beta fibers. Results are compared with those of a reference population.

**Pressure-specified sensory testing:** used to assess large myelinated sensory nerve function by quantifying the thresholds of pressure detected with light, static, and moving touch.

**Thermal sensory testing:** used to evaluate pathology of small myelinated and unmyelinated nerve fibers; they can be used to assess heat and cold sensation, as well as thermal pain thresholds.

## **RELATED GUIDELINES:**

None applicable.

## **OTHER:**

None applicable.

# **REFERENCES:**

- Abraham A, Albulaihe H, Alabdali M, et al. Elevated Vibration Perception Thresholds in CIDP Patients Indicate More Severe Neuropathy and Lower Treatment Response Rates. PLoS One. 2015;10(11):e0139689.
- 2. American Academy of Neurology. Quantitative Sensory Testing, 2003 (reaffirmed 2022); accessed at aan.com.
- American Association of Electrodiagnostic Medicine, American Academy of Neurology, and American Academy of Physical Medicine and Rehabilitation. Recommended policy for Electrodiagnostic Medicine, updated 2004.
- 4. Anand P, Privitera R, Yiangou Y et al. Trench foot or non-freezing cold injury as a painful vasoneuropathy: clinical and skin biopsy assessments. Front Neurol. Sep 2017;8:514.
- 5. Blue Cross Blue Shield Association Evidence Positioning System<sup>®</sup>. 2.01.39 Quantitative Sensory Testing, 07/22.
- 6. Centers for Medicare & Medicaid Services (CMS). National Coverage Determination (NCD) for Sensory Nerve Conduction Threshold Tests (sNCTs) (160.23), accessed cms.gov.
- 7. ClinicalTrials.gov. Early Detection and Prevention of Neuropathy and Cognitive Impairment Following Treatment for Haematological Malignancies (the NOVIT Study); accessed August 2022.
- 8. Cruccu G, Sommer C, Anand P, et al. EFNS guidelines on neuropathic pain assessment: revised 2009. Eur J Neurol. Aug 2010;17(8):1010-1018.
- 9. England JD, Gronseth GS, Franklin G, et al. Distal symmetrical polyneuropathy: definition for clinical research. Muscle Nerve. Jan 2005;31(1):113-123.
- 10. Fabry V, Gerdelat A, et al. Which Method for Diagnosing Small Fiber Neuropathy? Front Neurol. 2020 May 5;11:342. PMID: 32431663.
- 11. Ferdousi M, Kalteniece A, et al. Corneal confocal microscopy compared with quantitative sensory testing and nerve conduction for diagnosing and stratifying the severity of diabetic peripheral neuropathy. BMJ Open Diabetes Res Care. 2020 Dec;8(2):e001801. PMID: 3355206.
- 12. First Coast Service Options, Inc. (FCSO). Local Coverage Determination (LCD): Nerve Conduction Studies and Electromyography (L34859), accessed at fcso.com.
- 13. Forstenpointner J, Ruscheweyh R, et al. No pain, still gain (of function): the relation between sensory profiles and the presence or absence of self-reported pain in a large multicenter cohort of patients with neuropathy. Pain. 2021 Mar 1;162(3):718-727. PMID: 32868752.

- Goel A, Shivaprasad C, Kolly A, et al; Comparison of electrochemical skin conductance and vibration perception threshold measurement in the detection of early diabetic neuropathy. PLoS One. 2017 Sep 7;12(9):e0183973.
- 15. Hendriks E, Voogt L, et al. Convergent Validity of the Central Sensitization Inventory in Chronic Whiplash-Associated Disorders; Associations with Quantitative Sensory Testing, Pain Intensity, Fatigue, and Psychosocial Factors. Pain Med. 2020 Sep 16;pnaa276.PMID:32935129.
- Junad K, Ruchika S, et al. Duloxetine for the management of sensory and taste alterations, following iatrogenic damage of the lingual and chorda tympani nerve. Scand JPain. 2020 Sep 18;/j/sjpain.ahead-of-print/sjpain-2020-0066/sjpain-2020-0066.xml.PMID:32950967.
- 17. Koulouris AE, Edwards RR, et al. Reliability and Validity of the Boston Bedside Quantitative Sensory Testing Battery for Neuropathic Pain. Pain Med. 2020 Sep 8;pnaa192.PMID: 32895703.
- 18. Papanas N, Pafili K, et al. The Diagnostic Utility of VibraTip for Distal Symmetrical Polyneuropathy in Type 2 Diabetes Mellitus. Diabetes Ther. 2020 Jan;11(1):341-346. PMID: 31782049.
- 19. Reimer M, Forstenpointner J, et al. Sensory bedside testing: a simple stratification approach for sensory phenotyping. Pain Rep.2020 May 21;5(3):e820.PMID:32903958.
- Shy ME, Frohman EM, So YT, et al. Quantitative sensory testing: report of the Therapeutics and Technology Assessment Subcommittee of the American Academy of Neurology. Neurology. Mar 25 2003;60(6):898-904.
- van Helmond N, Aarts HM, et al. Is Preoperative Quantitative Sensory Testing Related to Persistent Postsurgical Pain? A Systematic Literature Review. Anesth Analg.2020 Oct;131(4):1146-1155.PMID:32925335.

# **COMMITTEE APPROVAL:**

This Medical Coverage Guideline (MCG) was approved by the Florida Blue Medical Policy and Coverage Committee on 12/08/23.

## **GUIDELINE UPDATE INFORMATION:**

11/15/01	Medical Coverage Guideline 01-95805-02 Nerve Conduction Studies; F-wave Studies; H-
	reflex Studies reformatted and revised.
12/15/02	Added coverage information for current perception threshold testing (G0255).
10/15/03	Annual Review; developed separate MCG for Current Perception Threshold Testing.
10/15/04	Scheduled review and revision; consisting of updated references.
10/15/05	Scheduled review and revision; consisting of updated references.
09/15/06	Scheduled review and revision; consisting of updated references and maintaining
	investigational statement. MCG name changed from Current Perception Threshold
	Testing to Quantitative Sensory Testing.
07/15/07	Annual review; investigational status maintained, reformatted guideline, references
	updated.
07/15/08	Review and revision; consisting of updated references.
06/15/09	Annual review: position statement maintained, and updated references.
05/11/14	Revision: Program Exceptions section updated.
11/01/15	Revision: ICD-9 Codes deleted.
08/15/17	Review; investigational status maintained; description section and references updated.

08/15/18	Review; position statement maintained; description, program exception, and references
	updated.
11/15/20	Review; Position statement maintained and references updated.
10/15/22	Review: Position statement maintained; references updated.
05/22/23	Update to Program Exceptions section.
01/01/24	Position statements maintained.