



# MASSACHUSETTS

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## Medical Policy Thermography

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### Policy Number: 342

BCBSA Reference Number: 6.01.12

NCD/LCD: National Coverage Determination (NCD) for Thermography (220.11)

### Related Policies

None

### Policy

#### Commercial Members: Managed Care (HMO and POS), PPO, and Indemnity

The use of any form of thermography is **INVESTIGATIONAL**.

#### Medicare HMO Blue<sup>SM</sup> and Medicare PPO Blue<sup>SM</sup> Members

BCBSMA does not cover thermography for any indication for Medicare HMO Blue and Medicare PPO Blue members in accordance with CMS NCD.

[National Coverage Determination \(NCD\) for Thermography \(220.11\)](#)

### Prior Authorization Information

#### Inpatient

- For services described in this policy, precertification/preauthorization **IS REQUIRED** for all products if the procedure is performed **inpatient**.

#### Outpatient

- For services described in this policy, see below for products where prior authorization **might be required** if the procedure is performed **outpatient**.

|                                       | Outpatient                            |
|---------------------------------------|---------------------------------------|
| Commercial Managed Care (HMO and POS) | This is <b>not</b> a covered service. |
| Commercial PPO and Indemnity          | This is <b>not</b> a covered service. |
| Medicare HMO Blue <sup>SM</sup>       | This is <b>not</b> a covered service. |
| Medicare PPO Blue <sup>SM</sup>       | This is <b>not</b> a covered service. |

### CPT Codes / HCPCS Codes / ICD Codes

*Inclusion or exclusion of a code does not constitute or imply member coverage or provider reimbursement. Please refer to the member's contract benefits in effect at the time of service to determine coverage or non-coverage as it applies to an individual member.*

*Providers should report all services using the most up-to-date industry-standard procedure, revenue, and diagnosis codes, including modifiers where applicable.*

## **CPT Codes**

There is no specific CPT code for this test.

## **ICD Diagnosis Codes**

Investigational for all diagnoses.

## **Description**

Interpretation of the color patterns is thought to assist in the diagnosis of many disorders such as complex regional pain syndrome (previously known as reflex sympathetic dystrophy), breast cancer, Raynaud phenomenon, digital artery vasospasm in hand-arm vibration syndrome, peripheral nerve damage following trauma, impaired spermatogenesis in infertile men, degree of burns, deep vein thrombosis, gastric cancer, tear-film layer stability in dry-eye syndrome, Frey syndrome, headaches, low back pain, and vertebral subluxation.

Infrared radiation from the skin or organ tissue reveals temperature variations by producing brightly colored patterns on a liquid crystal display. Thermography involves the use of an infrared scanning device and can include various types of telethermographic infrared detector images and heat-sensitive cholesteric liquid crystal systems.

Thermography may also assist in treatment planning and procedure guidance by accomplishing the following tasks: identifying restricted areas of perfusion in coronary artery bypass grafting, identifying unstable atherosclerotic plaque, assessing response to methylprednisone in rheumatoid arthritis, and locating high undescended testicles.

## **Summary**

Thermography is a noninvasive imaging technique that measures temperature distribution in organs and tissues. The visual display of this temperature information is known as a thermogram. Thermography has been proposed as a diagnostic tool for treatment planning and for evaluation of treatment effects for a variety of conditions.

For individuals who have an indication for breast cancer screening or diagnosis who receive thermography, the evidence includes diagnostic accuracy studies and systematic reviews. Relevant outcomes are overall survival, disease-specific survival, and test validity. Using histopathologic findings as the reference standard, a series of systematic reviews of studies have evaluated the accuracy of thermography to screen and/or diagnose breast cancer and reported wide ranges of sensitivities and specificities. To date, no study has demonstrated whether thermography is sufficiently accurate to replace or supplement mammography for breast cancer diagnosis. Moreover, there are no studies on the impact of thermography on patient management or health outcomes for patients with breast cancer. The evidence is insufficient to determine the effects of the technology on health outcomes.

For individuals who have musculoskeletal injuries who receive thermography, the evidence includes diagnostic accuracy studies and a systematic review. Relevant outcomes are test validity, symptoms, and functional outcomes. A systematic review of studies on thermography for diagnosing musculoskeletal injuries found moderate levels of accuracy compared with other diagnostic imaging tests. There is a lack of a consistent reference standard. This evidence does not permit conclusions as to whether thermography is sufficiently accurate to replace or supplement standard testing. Moreover, there are no studies on the impact of thermography on patient management or health outcomes for patients with musculoskeletal injuries. The evidence is insufficient to determine the effects of the technology on health outcomes.

## Policy History

| Date           | Action   |
|----------------|--|
| 10/2018        | BCBSA National medical policy review. Description, summary and references updated. Policy statement unchanged. |
| 10/2017        | New references added from BCBSA National medical policy.   |
| 10/2016        | New references added from BCBSA National medical policy.   |
| 7/2015         | New references added from BCBSA National medical policy.   |
| 6/2013         | New references from BCBSA National medical policy.   |
| 11/2011-4/2012 | Medical policy ICD 10 remediation: Formatting, editing and coding updates. No changes to policy statements.    |
| 7/2011         | Reviewed - Medical Policy Group - Hematology and Oncology. No changes to policy statements.                    |
| 9/2010         | Reviewed - Medical Policy Group - Hematology and Oncology. No changes to policy statements.                    |
| 9/2009         | Reviewed - Medical Policy Group - Hematology and Oncology. No changes to policy statements.                    |
| 4/09           | Updated coding and references based on BCBSA policy # 6.01.12. No changes to policy statements.                |
| 10/08          | Reviewed - Medical Policy Group - Hematology/Oncology. No changes to policy statements.                        |
| 9/07           | Reviewed - Medical Policy Group - Hematology/Oncology. No changes to policy statements.                        |

## Information Pertaining to All Blue Cross Blue Shield Medical Policies

Click on any of the following terms to access the relevant information:

[Medical Policy Terms of Use](#)

[Managed Care Guidelines](#)

[Indemnity/PPO Guidelines](#)

[Clinical Exception Process](#)

[Medical Technology Assessment Guidelines](#)

## References

1. Vreugdenburg TD, Willis CD, Mundy L, et al. A systematic review of elastography, electrical impedance scanning, and digital infrared thermography for breast cancer screening and diagnosis. *Breast Cancer Res Treat.* Feb 2013;137(3):665-676. PMID 23288346
2. Fitzgerald A, Berentson-Shaw J. Thermography as a screening and diagnostic tool: a systematic review. *N Z Med J.* Mar 9 2012;125(1351):80-91. PMID 22426613
3. Omranipour R, Kazemian A, Alipour S, et al. Comparison of the accuracy of thermography and mammography in the detection of breast cancer. *Breast Care (Basel).* Aug 2016;11(4):260-264. PMID 27721713
4. Rassiwalla M, Mathur P, Mathur R, et al. Evaluation of digital infra-red thermal imaging as an adjunctive screening method for breast carcinoma: a pilot study. *Int J Surg.* Dec 2014;12(12):1439-1443. PMID 25448668
5. Sanchis-Sanchez E, Vergara-Hernandez C, Cibrian RM, et al. Infrared thermal imaging in the diagnosis of musculoskeletal injuries: a systematic review and meta-analysis. *AJR Am J Roentgenol.* Oct 2014;203(4):875-882. PMID 25247955
6. Han SS, Jung CH, Lee SC, et al. Does skin temperature difference as measured by infrared thermography within 6 months of acute herpes zoster infection correlate with pain level? *Skin Res Technol.* May 2010;16(2):198-201. PMID 20456100
7. Park J, Jang WS, Park KY, et al. Thermography as a predictor of postherpetic neuralgia in acute herpes zoster patients: a preliminary study. *Skin Res Technol.* Feb 2012;18(1):88-93. PMID 21605168

8. Romano CL, Logoluso N, Dell'Oro F, et al. Telethermographic findings after uncomplicated and septic total knee replacement. *Knee*. Jun 2012;19(3):193-197. PMID 21441031
9. Oliveira AL, Moore Z, T OC, et al. Accuracy of ultrasound, thermography and subepidermal moisture in predicting pressure ulcers: a systematic review. *J Wound Care*. May 02 2017;26(5):199-215. PMID 28475447
10. Nakagami G, Sanada H, Iizaka S, et al. Predicting delayed pressure ulcer healing using thermography: a prospective cohort study. *J Wound Care*. Nov 2010;19(11):465-466, 468, 470 passim. PMID 21135794
11. Wu CL, Yu KL, Chuang HY, et al. The application of infrared thermography in the assessment of patients with coccygodynia before and after manual therapy combined with diathermy. *J Manipulative Physiol Ther*. May 2009;32(4):287-293. PMID 19447265
12. Hara Y, Shiraishi A, Yamaguchi M, et al. Evaluation of allergic conjunctivitis by thermography. *Ophthalmic Res*. Mar 5 2014;51(3):161-166. PMID 24603108
13. Singer AJ, Relan P, Beto L, et al. Infrared thermal imaging has the potential to reduce unnecessary surgery and delays to necessary surgery in burn patients. *J Burn Care Res*. Nov/Dec 2016;37(6):350-355. PMID 26720102
14. Wozniak K, Szyszka-Sommerfeld L, Trybek G, et al. Assessment of the sensitivity, specificity, and accuracy of thermography in identifying patients with TMD. *Med Sci Monit*. May 23 2015;21:1485-1493. PMID 26002613
15. Dong F, Tao C, Wu J, et al. Detection of cervical lymph node metastasis from oral cavity cancer using a non-radiating, noninvasive digital infrared thermal imaging system. *Sci Rep*. May 8 2018;8(1):7219. PMID 29739969
16. Agazzi A, Fadanelli G, Vittadello F, et al. Reliability of LoSCAT score for activity and tissue damage assessment in a large cohort of patients with Juvenile Localized Scleroderma. *Pediatr Rheumatol Online J*. Jun 18 2018;16(1):37. PMID 29914516
17. Jones B, Hassan I, Tsuyuki RT, et al. Hot joints: myth or reality? A thermographic joint assessment of inflammatory arthritis patients. *Clin Rheumatol*. Apr 20 2018. PMID 29679167
18. Gatt A, Falzon O, Cassar K, et al. The application of medical thermography to discriminate neuroischemic toe ulceration in the diabetic foot. *Int J Low Extrem Wounds*. Jun 2018;17(2):102-105. PMID 29947290
19. Gatt A, Falzon O, Cassar K, et al. Establishing differences in thermographic patterns between the various complications in diabetic foot disease. *Int J Endocrinol*. 2018;2018:9808295. PMID 29721019
20. Balbinot LF, Robinson CC, Achaval M, et al. Repeatability of infrared plantar thermography in diabetes patients: a pilot study. *J Diabetes Sci Technol*. Sep 2013;7(5):1130-1137. PMID 24124938
21. Hazenberg CE, van Netten JJ, van Baal SG, et al. Assessment of signs of foot infection in diabetes patients using photographic foot imaging and infrared thermography. *Diabetes Technol Ther*. Jun 2014;16(6):370-377. PMID 24690146
22. Sardanelli F, Aase HS, Alvarez M, et al. Position paper on screening for breast cancer by the European Society of Breast Imaging (EUSOBI) and 30 national breast radiology bodies from Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Israel, Lithuania, Moldova, The Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Spain, Sweden, Switzerland and Turkey. *Eur Radiol*. Jul 2017;27(7):2737-2743. PMID 27807699
23. Mainiero MB, Lourenco A, Mahoney MC, et al. ACR Appropriateness Criteria breast cancer screening. *J Am Coll Radiol*. Nov 2016;13(11s):R45-r49. PMID 27814813
24. National Comprehensive Cancer Network (NCCN). NCCN Clinical Practice Guidelines in Oncology: Breast Cancer Screening and Diagnosis. Version 2.2018. 2018; [https://www.nccn.org/professionals/physician\\_gls/pdf/breast-screening.pdf](https://www.nccn.org/professionals/physician_gls/pdf/breast-screening.pdf). Accessed July 19, 2018.
25. U.S. Preventive Services Task Force. Breast Cancer: Screening. 2016; <http://www.uspreventiveservicestaskforce.org/Page/Document/RecommendationStatementFinal/breast-cancer-screening1>. Accessed July 19, 2018.
26. Centers for Medicare & Medicaid Services (CMS). National Coverage Determination for Thermography (220.11). 1992; <https://www.cms.gov/medicare-coverage-database/details/ncd-details.aspx?NCDId=164&ncdver=1&DocID=220.11&SearchType=Advanced&bc=IAAAABAAAA&>. Accessed July 19, 2018.