



	Johns Hopkins Health Plans <b>Medical Policy Manual</b> <b>Medical Policy</b>	<i>Policy Number</i>	CMS20.04	
		<i>Effective Date</i>	04/01/2025	
		<i>Approval Date</i>	01/21/2025	
	<i>Subject</i>	<b>Thermography</b>	<i>Supersedes Date</i>	04/01/2024
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- National Coverage Determination (NCD) 220.11 Thermography
- No Local Coverage Determinations (LCD) for Thermography identified (Accessed October 28, 2024)

For Priority Partners (PPMCO) refer to: [Code of Maryland Regulations](#)

- No specific information located in COMAR 10.67.01.01-10.67.06.31 (Accessed October 28, 2024)

For US Family Health Plan (USFHP) refer to: [Tricare Policy Manuals](#)

- TRICARE Policy Manual 6010.63-M, April 1, 2021, Chapter 5, Section 5.1 Thermography

#### **IV. POLICY CRITERIA**

Unless specific benefits are provided under the member's contract, JHHP considers Thermography experimental and investigational as it does not meet the Technology Evaluation Criteria (TEC) as defined in [CMS01.00 Medical Policy Introduction](#).

#### **V. DEFINITIONS**

**Thermography:** Thermography is a procedure which relies upon measurement of infrared radiation from the body for diagnostic purposes. It is used for pathology of the female breast, peripheral vascular disease, musculoskeletal injuries and for detecting cervical lesions. Thermography can include various types of the telethermographic infrared detectors/imagers or heat sensitive cholesteric liquid crystal systems that are applied to the skin (Tricare Policy Manual, 2021).

#### **VI. BACKGROUND**

Thermography is a non-invasive imaging technique intended to measure temperature distribution within various organs and tissues. Thermography has been investigated for many purposes, including, but not limited to, breast cancer screening, neuro-musculoskeletal conditions (e.g., thoracic outlet syndrome, fibromyalgia, small fiber peripheral neuropathy, inflammatory arthritis), perforator and vascularization assessment for reconstructive and plastic surgery, diagnosis of temporomandibular joint disorders, peripheral arterial disease, and deep and superficial venous disorders (AAT, 2024).

Breast thermography uses ultra-sensitive infrared cameras and computers to detect, analyze and produce high resolution diagnostic images of these temperature and vascular changes. The use of thermography to detect occult breast cancer was based on the observation that patients have elevated breast skin temperatures over their breast cancers. It was first investigated for screening in the Breast Cancer Detection Demonstration Project in the 1970s and was found to have poor test characteristics, with a false-positive rate of 25% and a false-negative rate of more than 60%. In 2004, a breast thermography device received approval from the US Food and Drug Administration (FDA) on the basis of prior approval for infrared imaging technology because of demonstrated safety but not necessarily efficacy. The specificity of thermography remains very low, even with modern equipment. No major organizations making screening recommendations for breast cancer recommend thermography. Of those commenting on it, the American Cancer Society states, "No study has ever shown that it is an effective screening tool for finding breast cancer early," and the American College of Radiology specifically states it does not endorse thermography for detecting clinically occult breast cancer (Elmore, 2023).

The FDA reported there is no valid scientific data to demonstrate that thermography devices, when used on their own or with another diagnostic test, are an effective screening tool for any medical condition including the early detection of breast cancer or other diseases and health conditions. According to the FDA, mammography is the most effective breast cancer screening method and the only method proven to increase the chance of survival through earlier detection (FDA, 2019).

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Thermography has also been investigated for conditions affecting circulatory, integumentary, and musculoskeletal systems with little evidence that the use of thermal studies improves health outcomes for these conditions. Berner et al. conducted a systematic review and meta-analysis on the accuracy of infrared thermography for perforator mapping for reconstructive and plastic surgery. The authors concluded that further well-designed and adequately reported diagnostic accuracy studies are required to ascertain the specificity of this technology for perforator detection (Berner et al., 2021). Wermelink et al. published the results of a systematic review evaluating the efficacy of multiple techniques used to analyze real-time tissue perfusion changes during endovascular or surgical revascularization procedures for patients with peripheral arterial disease. The systematic review provided an overview of 10 tissue perfusion assessment techniques, including plantar thermography, and concluded that it is too early to appoint one of them as a reference standard (Wermelink et al., 2021).

Albuquerque & Lopes, in their systematic review evaluating the utilization of thermography in pain medicine argued that it can be an objective tool for monitoring the effectiveness of treatment for back and neck syndrome by identifying deviations from a healthy state; however, the number of high-quality studies of the role of infrared thermography in patients with back and neck syndromes remains limited (Albuquerque & Lopez, 2021). Similarly, Dang et al. stated that the results of their systematic review of the utilization of thermography in burn care for wound assessment suggest this tool appears to be an accurate, simple, and cost-effective method for burn wound assessment; however, the sample size of published peer reviewed literature is rather small (Dang et al., 2021). Another systematic review which looked at thermography as a screening tool for differentiating benign and malignant skin lesions in the head and neck found low certainty of evidence and varying results when using infrared thermography as a screening tool, citing the need for more research to be conducted on this subject (Silva et al., 2024).

A scoping review which looked at thermography as a point-of-care technology for patients to monitor wounds at home did not find that current evidence supports this use of thermography, stating additional research would be necessary before determining how thermography may potentially be used as a bed-side diagnostic tool for wound infection detection (Fridberg et al., 2024). Another scoping review by Petrigna et al. attempted to identify how infrared thermography could be used to identify a thermal threshold for knee osteoarthritis; this review identified a value which could serve as a starting point for future research, but at this point with no clear standardization between studies, more research needs to be conducted before a definitive threshold can be established (Petrigna et al., 2024). Finally, Hayes, in a Clinical Research Response, conducted a review of full-text clinical practice guidelines and position statements and found no or unclear support for thermography in assessing risk for the development of pressure injuries (Hayes, 2024).

## VII. CODING DISCLAIMER

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*Note:* All inpatient admissions require preauthorization.

*Adherence to the provision in this policy may be monitored and addressed through post-payment data analysis and/or medical review audits*

Advantage MD: Regulatory guidance supersedes JHHP Medical Policies. If there are no statutes, regulations, NCDs, LCDs, or LCAs, or other CMS guidelines, apply the Medical Policy criteria.

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Employer Health Programs (EHP): Specific Summary Plan Descriptions (SPDs) supersedes JHHP Medical Policy. If there are no criteria in the SPD, apply the Medical Policy criteria.

Johns Hopkins Health Plan of Virginia LLC (JHHPVA): Regulatory guidance supersedes JHHP Medical Policies. If there are no statutes, regulations, NCDs, LCDs, or LCAs, or other CMS guidelines, apply the Medical Policy criteria.

Priority Partners (PPMCO): Regulatory guidance supersedes JHHP Medical Policy. If there are no criteria in COMAR regulations, or other State guidelines, apply the Medical Policy criteria.

US Family Health Plan (USFHP): Regulatory guidance supersedes JHHP Medical Policy. If there are no TRICARE policies, or other regulatory guidelines, apply the Medical Policy criteria.

## VIII. CODING INFORMATION

### CPT® CODES ARE FOR INFORMATIONAL PURPOSES ONLY

CPT® CODES	DESCRIPTION
93740	Temperature gradient studies

## IX. REFERENCE STATEMENT

Analyses of the scientific and clinical references cited below were conducted and utilized by the Johns Hopkins Health Plans (JHHP) Medical Policy Team during the development and implementation of this medical policy. The Medical Policy Team will continue to monitor and review any newly published clinical evidence and revise the policy and adjust the references below accordingly if deemed necessary.

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## **XI. APPROVALS**

Historical Effective Dates: 10/22/2007, 09/08/2008, 01/07/2011, 05/29/2012, 12/05/2014, 03/03/2017, 08/03/2020, 05/02/2022, 05/01/2023, 04/01/2024, 04/01/2025