

## Creating Healthy Work Environments VIRTUAL 2021

### Is Thermography an Accurate and Safer Alternative to Mammography for Early Detection of Breast Cancer?

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**Purpose:** In 1982 the FDA approved thermography to be used adjunctly as a tool for breast cancer detection (Morales-Cervantes, 2018). Current screening is expected to decrease breast cancer mortality by 15%, but diagnosing incorrectly and unnecessary treatment is twice that percentage (Gotzsche, Jorgensen, 2013). The need for a screening tool that is safe and accurate especially for denser breast tissue is significant. A prescreening prior to mammography is recommended to catch this disease before it spreads (Lashkari, Pak, Firouzmand, 2016). Evidence reporting different methods of temperature change monitoring and optical/imaging techniques is emerging; however, whether breast thermography can serve as an alternative to breast radiography in the early detection of cancer is not yet fully known.

**Methods:** A systematic search of the scientific literature was conducted from 2015-2020, limited to full text, was conducted by searching the following databases: CINAHL, Medline, Academic Search Ultimate, Complementary Index, and Directory of Open Access Journals. Key words used were: “breast thermography” or “infrared imaging” and “mammography” and “early detection” and “breast cancer.” From these databases, 41 articles were found with 22 duplicates. PubMed and Cochrane Library were also searched from 2013-2020, with no limitations and 3 articles were found, using the key words: “breast thermography.” Fourteen articles were found to meet the study inclusion criteria and were critically evaluated using published appraisal guides (Brown, 2018). Of the fourteen articles: two were level 1, seven were level 3, three level 4, and two level 5.

**Results:** Evidence from the studies included in this review suggest mixed conclusions regarding whether or not thermography should be implemented to replace mammography for breast cancer detection. One meta-analysis concluded that there is a lack of available data from asymptomatic women; therefore, at this time it is not safe to implement thermography in the screening populations (Vreugdenburg, Willis, et. al, 2013). Level one evidence stated that whether or not thermography is the answer, mammography screening causes too many incorrect diagnoses and unnecessary treatments in the asymptomatic population with the evidence available (Gotzsche, Jorgensen, 2013).

**Conclusion:** Evidence suggests there is a place for thermography when screening for breast cancer, but more clinical trials are needed to implement this diagnostic tool.

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#### **Title:**

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#### **Keywords:**

Thermography, breast cancer and early detection

#### **Abstract Summary:**

Although mammography has been the gold standard for breast cancer detection for many years, evidence shows this could be more harmful and less accurate than alternative screening.

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**Author Summary:** Bachelor's prepared registered nurse specialized in adult ICU, pediatric ICU, and Pediatric med/surg. Currently studying a master's of science in nursing. The presenter chose this poster topic for research after her mother was diagnosed for the second time with stage 4 breast cancer.