

## Is thermography an appropriate screening modality?

Thanks to [@Michèle Thomasse](#) for asking this question and to [@Steve Garry](#) for posting the link to Health Canada's 2012 recall on thermography. Health Canada even posted a [reminder that thermography is not an appropriate screening modality](#) in 2017.

Breast thermography is sometimes called digital breast thermography or DBT, but is not to be confused with digital breast tomosynthesis, also called DBT. Thermography uses an infrared camera to map the breast surface temperature. It is based on the theory that temperature changes in the breast reflect increased blood flow in the underlying tissues, allowing detection of cancer and precancerous changes.

Thermography is not new. It was developed in the 1950s and has been well researched. Multiple high quality studies have confirmed that breast thermography is not useful (see references below).

Unfortunately, alternative healthcare providers prey upon lay radiation fears and sell thermography as a "safer" alternative to mammography. As I mentioned in my first post, radiation dose in mammography is very low, much smaller than annual natural background radiation dose. Maximum allowable dose is 0.3 mSv and most mammograms fall well within that level. In my practice, dose is approximately 0.145 mSv for a full tomosynthesis mammogram. People actually emit more than that per year, themselves! The risk of mammographic radiation is not zero, but the risk benefit ratio of mammography is overwhelmingly in favour of using mammography. For more information on this, check out the [Canadian Nuclear Safety Commission's fact Sheet on natural background radiation](#).

In summary, thermography is not a useful screening modality and Health Canada has posted alerts recommending that thermography not be used for screening in both 2012 and 2017.

Ultimately, thermography is a breast imaging modality. If it worked, breast imagers would use it. Patients should strongly be discouraged from substituting thermography for conventional breast screening modalities. Among other problems with thermography, patients pay large amounts of money to unscrupulous and unscientific alternative health care providers while evidence based mammography, proven to decrease mortality from breast cancer, is covered by health care. Seems like a no-brainer to me.

### References:

Society of Breast Imaging. SBI Position Statement on Breast Thermography, [https://www.sbi-online.org/RESOURCES/PolicyPositionStatements/Breast\\_Thermography.aspx](https://www.sbi-online.org/RESOURCES/PolicyPositionStatements/Breast_Thermography.aspx)

Feig SA, Shaber GS, Schwartz GF, et al. Thermography, mammography, and clinical examination in breast cancer screening. Review of 16,000 studies. Radiology 1977; 122: 123–7.

Gourd E. Breast thermography alone no substitute for mammography. *Lancet Oncol* 2017; 18: e713.

Miglioretti DL, Lange J, van den Broek JJ, et al. Radiation-Induced Breast Cancer Incidence and Mortality From Digital Mammography Screening: A Modeling Study. *Ann Intern Med*. [Epub ahead of print 12 January 2016]164:205–214. doi: 10.7326/M15-1241