



Wire-Free, Nonradioactive Localization Techniques to Guide Surgical Excision of Nonpalpable Breast Tumours: Recommendation

Final Recommendation

Ontario Health, based on guidance from the Ontario Health Technology Advisory Committee, recommends publicly funding wire-free, nonradioactive localization techniques for the localization of nonpalpable breast tumours.

Rationale for the Recommendation

The Ontario Health Technology Advisory Committee has reviewed the findings of the health technology assessment.¹

The Ontario Health Technology Advisory Committee made the above recommendation after considering the clinical, economic, and patient preference and values evidence. The clinical evidence supports that, compared with conventional localization techniques, wire-free, nonradioactive localization techniques likely result in the same rate or a lower rate of re-excision (i.e., the need for a second surgery to remove residual cancer cells), which is an important outcome for patients and care providers. While the cost-effectiveness of wire-free, nonradioactive localization techniques was not able to be estimated because of limitations in the available data, a budget impact analysis estimated the total cost of publicly funding wire-free, nonradioactive localization techniques. There was consensus that the estimated total cost of \$7.73 million over the next 5 years to publicly fund wire-free, nonradioactive localization techniques is reasonable given the potential of these techniques to reduce the rate of re-excision.

The committee's recommendation reflects the expressed preferences and values of people who had undergone a localization procedure to guide surgical excision of a nonpalpable breast tumour. Those interviewed preferred wire-free, nonradioactive localization techniques, perceiving these as less invasive alternatives to wire-guided and radioactive seed localization. Additionally, they valued that wire-free, nonradioactive localization techniques provided the option to have the localization and surgical procedures on different days, whereas wire-guided localization requires both to be performed on the same day. Participants also reported a preference for the localization and surgical

procedures to be well coordinated and for the length of time between procedures to be kept to a minimum.

The committee also recognized that wire-free, nonradioactive localization techniques may offer health care facilities improved flexibility in coordinating patient care because the localization and surgical procedures can be performed on different days. In particular, this may improve efficiency in the radiology and surgery departments. Wire-free, nonradioactive localization techniques also remove the burden from health care facilities of adherence to the regulatory and safety requirements inherent in handling, using, and disposing the radioactive material used in radioactive seed localization.



Decision Determinants for Wire-Free, Nonradioactive Localization Techniques to Guide Surgical Excision of Nonpalpable Breast Tumours

Overall Clinical Benefit

Effectiveness

How effective is the health technology/intervention likely to be (taking into account any variability)?

Compared with wire-guided or radioactive seed localization of nonpalpable breast tumours, wire-free, nonradioactive localization techniques likely reduce re-excision rates or result in similar re-excision rates (GRADE [Grading of Recommendations, Assessment, Development and Evaluations]: Moderate/Low).

Safety

How safe is the health technology/intervention likely to be?

Compared with wire-guided or radioactive seed localization of nonpalpable breast tumours, wire-free, nonradioactive localization techniques likely result in similar rates of postoperative complications (GRADE: Moderate).

Burden of Illness

What is the likely size of the burden of illness pertaining to this health technology/intervention?

More than one-third of all cases of breast cancer tumours diagnosed each year are nonpalpable. The estimated incidence of female breast cancer in Ontario in 2020 was 11,945 cases.

Need

How large is the need for this health technology/intervention?

Wire-free, nonradioactive localization techniques overcome the limitations of wire-guided and radioactive seed localization of nonpalpable breast tumours. These techniques allow for greater scheduling flexibility in the radiology and surgery departments, as the localization and surgical procedures can be performed on different days. These techniques also remove the burden from health care facilities of adherence to the regulatory and safety requirements inherent in handling, using, and disposing the radioactive material used in radioactive seed localization.

Patient Preferences and Privacy

Patient Preferences and Values

Do patients have specific preferences, values, or needs related to the health condition, health technology/intervention, or life impact that are relevant to this assessment?

Those interviewed value having broad access to wire-free, nonradioactive localization techniques owing to their perceived clinical effectiveness and minimal invasiveness compared with wire-guided and radioactive seed localization. They also believe that decoupling the localization and surgical procedures may improve care coordination and communication across the care team. Underpinning these preferences was a value for timely access to surgical care. Participants expressed a preference for the time between the localization and surgical procedures to be kept to a minimum.

Autonomy, Privacy, Confidentiality, and/or Other Relevant Ethical Principles as Applicable

Are there concerns regarding accepted ethical or legal standards related to patient autonomy, privacy, confidentiality, or other ethical principles that are relevant to this assessment?

Those interviewed expressed no concerns related to privacy or confidentiality, and they reported valuing having the autonomy to make informed health decisions. Participants valued the importance of shared decision-making and communication with clinicians in mitigating the emotional, physical, and work-life impacts of diagnosis and treatment.

Equity and Patient Care

Equity of Access or Outcomes

Are there disadvantaged populations or populations in need whose access to care or health outcomes might be improved or worsened that are relevant to this assessment?

Compared with urban regions, where radiology and surgical sites often reside in the same facility, in rural Ontario, these sites may reside in different facilities requiring patients undergoing wire-guided localization to travel from one site to the other on the same day. As the wire extends outside the body, travel poses a risk of the wire breaking, kinking, or being displaced. Wire-free, nonradioactive techniques overcome this limitation because the devices used in these techniques are placed fully within the body and can be implanted days or weeks before surgery. Thus, these techniques could support improved planning and patient care.

Patient Care

Are there challenges in the coordination of care for patients or other system-level aspects of patient care (e.g., timeliness of care, care setting) that might be improved or worsened that are relevant to this assessment?

Some of those interviewed reported preferring having the localization and surgical procedures on different days, which wire-free, nonradioactive localization allows. Wire-free, nonradioactive techniques also avoid the risk of the wire used in wire-guided localization breaking, kinking, or being displaced prior to surgery, which is disruptive to patient care.

Cost-Effectiveness**Economic Evaluation**

How efficient is the health technology/intervention likely to be?

Owing to limitations in the available evidence, the cost-effectiveness of wire-free, nonradioactive localization techniques could not be evaluated and is therefore uncertain.

Feasibility of Adoption Into Health System**Economic Feasibility**

How economically feasible is the health technology/intervention?

The cost of a wire-free, nonradioactive localization device (i.e., a marker or seed) was estimated to be \$535.30. The budget impact of publicly funding wire-free, nonradioactive localization techniques is estimated to range from an additional \$0.51 million in year 1 to an additional \$2.61 million in year 5, for a total additional cost of \$7.73 million over the next 5 years. The cost per localization is estimated to be \$773.67 for wire-free, nonradioactive localization; \$381.84 for radioactive seed localization; and \$204.27 for wire-guided localization.

Organizational Feasibility

How organizationally feasible is it to implement the health technology/intervention?

Wire-free, nonradioactive localization techniques have been used in academic and rural centres in Ontario. No major barriers to adopting these techniques were identified during the development of this health technology assessment.

Reference

- 1) Ontario Health. Wire-free, nonradioactive localization techniques to guide surgical excision of nonpalpable breast tumours: a health technology assessment. Ont Health Technol Assess Ser [Internet]. 2023 May;23(2):1–139. Available from: [hqontario.ca/evidence-to-improve-care/health-technology-assessment/reviews-and-recommendations/wire-free-nonradioactive-localization-techniques-to-guide-surgical-excision-of-nonpalpable-breast-tumours](https://www.hqontario.ca/evidence-to-improve-care/health-technology-assessment/reviews-and-recommendations/wire-free-nonradioactive-localization-techniques-to-guide-surgical-excision-of-nonpalpable-breast-tumours)

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