

## Remote Monitoring of Implantable Cardioverter-Defibrillators, Cardiac Resynchronization Therapy, and Permanent Pacemakers: Health Quality Ontario Recommendation

### FINAL RECOMMENDATION

- Health Quality Ontario, under the guidance of the Ontario Health Technology Advisory Committee, recommends publicly funding remote monitoring for patients with implantable cardioverter-defibrillators, cardiac resynchronization therapy devices with or without a defibrillator, and permanent pacemakers

### RATIONALE FOR THE RECOMMENDATION

There was consensus among the Ontario Health Technology Advisory Committee members that using remote monitoring improves clinical outcomes without affecting patients' safety, it is good value for money, and patients report positive experiences with using remote monitoring.<sup>1</sup>

## Decision Determinants for Remote Monitoring of Implantable Cardioverter-Defibrillators, Cardiac Resynchronization Therapy, and Permanent Pacemakers

Decision Criteria	Subcriteria	Decision Determinants Considerations
<b>Overall clinical benefit</b> How likely is the health technology/intervention to result in high, moderate, or low overall benefit?	<b>Effectiveness</b> How effective is the health technology/intervention likely to be (taking into account any variability)?	Compared to clinic visits alone, remote monitoring plus clinic visits reduced (1) the number of clinic visits, (2) the time from event onset to both detection by the physician and to clinical action, (3) the number of patients with inappropriate ICD shocks (ICDs/CRT-Ds), and (4) the arrhythmia burden (pacemakers).
	<b>Safety</b> How safe is the health technology/intervention likely to be?	There was no difference in major adverse events between remote monitoring plus clinic visits and clinic visits alone.
	<b>Burden of illness</b> What is the likely size of the burden of illness pertaining to this health technology/intervention?	Approximately 2,000 patients receive new or replacement ICDs/CRT-Ds and about 6,000 patients receive new or replacement permanent pacemakers each year in Ontario. It is unclear how many people will use remote monitoring.
	<b>Need</b> How large is the need for this health technology/intervention?	Remote monitoring may replace some routine clinic visits and may alert the physician's office of important medical events and device issues earlier compared to clinic visits.
<b>Consistency with expected societal and ethical values<sup>a</sup></b> How likely is adoption of the health technology/intervention to be congruent with societal and ethical values?	<b>Societal values</b> How likely is adoption of the health technology/intervention to be congruent with expected societal values?	Patients and their family members reported positive experiences with remote cardiac monitoring. Participants reported that these devices provided important medical and safety benefits in managing their heart condition.
	<b>Ethical values</b> How likely is adoption of the health technology/intervention to be congruent with expected ethical values?	The treatments evaluated are expected to be congruent with ethical values, in particular that patient autonomy may be enhanced through remote monitoring.
<b>Value for money</b> How efficient is the health technology/intervention likely to be?	<b>Economic evaluation</b> How efficient is the health technology/intervention likely to be?	Remote monitoring plus clinic visits offers good value for money for both ICD/CRT-D and pacemaker recipients.
<b>Feasibility of adoption into health system</b> How feasible is it to adopt the health technology/intervention into the Ontario health care system?	<b>Economic feasibility</b> How economically feasible is the health technology/intervention?	Remote monitoring plus clinic visits may be cost saving over time, depending on the current uptake.
	<b>Organizational feasibility</b> How organizationally feasible is it to implement the health technology/intervention?	Remote monitoring is already being used to a certain extent in some hospitals across Ontario and it would be feasible to use this technology more widely.

Abbreviations: CRT-D, cardiac resynchronization therapy with defibrillator; ICD, implantable cardioverter-defibrillator.

<sup>a</sup>The anticipated or assumed common ethical and societal values held in regard to the target condition, target population, and/or treatment options. Unless there is evidence from scientific sources to corroborate the true nature of the ethical and societal values, the expected values are considered.

## REFERENCE

- (1) Health Quality Ontario. Remote monitoring of implantable cardioverter-defibrillators, cardiac resynchronization therapy, and permanent pacemakers: a health technology assessment. Ont Health Technol Assess Ser [Internet]. 2018 Oct;18(7):1–199. Available from <http://www.hqontario.ca/evidence-to-improve-care/journal-ontario-health-technology-assessment-series>

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