

Remote Monitoring for Cardiac Conditions: A Review

Key Messages

- Remote monitoring is a type of virtually delivered health care service that can serve as an adjunct to in-person care for patients with chronic cardiac conditions (e.g., heart failure, atrial fibrillation, hypertension) or for patients undergoing cardiac rehabilitation.
- In March 2021, CADTH published an Environmental Scan — informed through a literature review, as well as a pan-Canadian survey — describing remote monitoring programs that currently exist across Canada, as well as operational considerations.
- In December 2021, CADTH published a larger Optimal Use Report on the topic. However, because remote monitoring programs are already being implemented across Canada, the report did not focus on the usual questions of clinical effectiveness and cost-effectiveness. Rather, it focused on implementation considerations through a 3-part analysis including a realist review; a review of perspectives, experiences, and expectations; and an ethics review.
- CADTH's Health Technology Expert Review Panel (or HTERP) then made the following recommendations regarding the implementation of remote monitoring programs:
 - that they be flexible and adaptable to a diverse range of patient circumstances
 - that they become an integral part of the care pathway for chronic cardiac conditions, with supporting processes and policies
 - that jurisdictions keep patient data use and privacy at the forefront of service contract negotiations
 - that digital equity be considered such that remote monitoring programs avoid creating or exacerbating disparities in health care
 - that remote monitoring programs include an evaluation component to ensure that all program aims are met.
- More details on the recommendations and specific implementation considerations is provided in the Results section of this paper.

Context

Remote monitoring is a type of virtually delivered health care service that can serve as an adjunct to in-person care for patients with chronic cardiac conditions (e.g., heart failure, atrial fibrillation, hypertension) or for patients undergoing cardiac rehabilitation. While it is not intended as a substitute for in-person care, it may facilitate an improved quality of care, decrease the need for in-person health care visits, reduce hospitalizations, and improve access for patients living in rural and remote areas. Especially given the significant increase in virtually delivered health care following the COVID-19 pandemic, remote monitoring programs are likely to be of high interest across Canadian jurisdictions.

Technology

At its core, remote monitoring relies on the use of telecommunication technology for the transmission of health data between patients and health care providers. Examples of health data that may be transmitted include readings of physiological activity such as oxygen saturation levels and cardiac rhythm or patient observations such as mental status and medication intake. For example, for patients with hypertension, blood pressure readings could be transmitted to evaluate treatment effectiveness and adherence. For the purposes of this Health Technology Assessment (HTA), CADTH considers a remote monitoring program to be a formal, organized offering from a health authority or health care organization that may employ a variety of technologies (e.g., video conferencing, blood pressure monitors, online portals) to collect and transmit patient data.

Issue

Given that remote monitoring programs are already being implemented in Canada (albeit in various stages of diffusion in different jurisdictions), a review of the factors that contribute to successful implementation will help to inform decision-makers' strategies moving forward.

Methods

This HTA did not focus on the usual questions of clinical effectiveness and cost-effectiveness; rather, it focused on

implementation considerations. The HTA included 3 sections: a realist review (which sought to identify key perceived or actual mechanisms of remote monitoring programs); a review of perspectives, experiences, and expectations (which thematically synthesized primary qualitative research in addition to engaging patients and caregivers directly); and an ethics review (which sought to identify and reflect upon key ethical issues regarding the implementation of remote monitoring programs). CADTH's Health Technology Expert Review Panel (or HTERP) then developed recommendations based on the evidence presented in the HTA.

Results

Based on the findings of CADTH's Health Technology Assessment on remote monitoring programs for patients with chronic cardiac conditions, the CADTH Health Technology Expert Review Panel (or HTERP) recommended that the design and implementation of such programs include a broad range of stakeholder voices, with considerations across several key domains summarized [here](#).

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January 2022