

When Calgary resident Patrick Shouldice collapsed on an Arizona golf course, his trusted cardiac health team assessed his heart from 2,500 km away.

Retirement was good. The day was beautiful. Patrick Shouldice was enjoying a round of golf with a friend on an Arizona golf course when, without warning, he collapsed unconscious.

technology overview

Remote monitoring for cardiac devices allows patients to receive high quality care no matter where they are located. It can increase clinic efficiencies and reduce patient costs associated with clinic visits.

Implanted medical devices transmit diagnostic, therapeutic and technical data to an external receiver which, in turn, sends it to a secure server. Healthcare professionals can then access the information securely, from virtually anywhere in the world, in order to provide accurate, timely analysis of the patient's condition and advice on follow up care.

After regaining consciousness, Patrick called the Foothills Arrhythmia clinic back in Calgary. Some years earlier, he had been diagnosed with a heart condition and fitted with an implantable medical device that monitored his heart, helped pace it at a normal rate and delivered therapy for life-threatening arrhythmias, if required. Patrick had also enrolled in a remote monitoring service that allowed him to replace in-office follow-up visits with remote device checks from home or while traveling.

That remote monitoring capability proved its worth as Patrick transmitted data from his implanted device to his care team 2,500 km away. A healthcare professional in Calgary, already familiar with Patrick's medical history, reviewed the data and confirmed Patrick had experienced an episode of "Ventricular Flutter." His heart had lost its normal rhythm and had been beating too quickly to circulate his blood properly. However, the device had delivered appropriate therapy and Patrick's heart was again beating normally. There was no need to go to hospital. He could continue his stay in Arizona without having to return to Calgary prematurely.

"Their knowledge of my health problem and the information provided to them (from the data upload) meant I got expert advice and comfort quickly even though I was far away," says Patrick.

If Patrick hadn't had the remote monitoring service, he would likely have gone to the nearest hospital emergency room or heart clinic. There, health professionals would have taken a detailed medical history, conducted an examination, ordered blood tests, ECG and x-rays, etc., before providing medical advice that may or may not be consistent with the treatment Patrick was receiving at home.

Implanted cardiac devices must be checked regularly to make sure they are functioning properly. Traditionally,

this involves a clinic-visit that can cost patients and their caregivers a few hours and time off work. For patients who live great distances from these specialized cardiac clinics, this may mean a few days, as well as travel and hotel charges. Patrick, however, simply uploads his device data from home – or while traveling – and his health team at the clinic can review it remotely. No travel to the clinic. No waiting rooms.

"One third of our patient population has to drive over 100 kilometers to our clinics," says Dr. Anne Gillis, Medical Director of Pacing and Electrophysiology for Calgary Health Region. "The ability to monitor patients remotely has been a major advance to patient management. (It) has become a standard follow up practice in the Calgary Health Region."

Remote monitoring reduces the frequency of face to face patient visits while maintaining a high standard of care. Getting accurate, timely data immediately after an incident helps clinicians provide effective treatment decisions. Devices can also provide early warning of clinical conditions including Atrial Arrhythmias and fluid overload.

"This service has added to my independence and peace of mind," says Patrick, "knowing that even while traveling, I can reach my care team at home in Calgary in, literally, minutes."



fast facts

In Clinic versus Remote Monitoring Comparison

Without Remote Monitoring

- Regular clinic visits about every 6 months.
- Visits take 20-30 minutes, plus travel and waiting time.
- Critical events between clinic visits may go undetected.
- Clinic visits may involve long trips, hotel stays, time off work.
- Cardiac "episodes" may require unscheduled emergency room/clinic visits, ambulance transfers.
- Travelling patients must rely on local medical advice.

With Remote Monitoring

- Upload data from home.
- Upload data in less than 10 minutes, no travel, no waiting.
- Can send automatic alerts for critical events/conditions.
- No travel required.
- Patients upload data and receive timely, expert advice on follow-up care as required. Avoids unnecessary hospital/clinic visits.
- Patients report increased confidence dealing with their trusted health team.