

# Remote Programming of Cardiac Implantable Electronic Devices: A Novel Approach to Program Cardiac Devices for Magnetic Resonance Imaging

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## Abstract

Background Magnetic Resonance imaging (MRI) in patients (pts) with MRI-conditional cardiovascular implantable electronic devices (CIED) remain a logistical issue for device programming during the scan. In current practice, a trained person needs to be present on-site to program CIED for MRI scan. This can cause delay in patient care, rescheduling of tests and increase healthcare costs. A novel remote programming (RP) strategy can be utilized to reprogram the CIED remotely. We sought to explore the feasibility and safety of RP of CIED's in pts undergoing MRI scan. Methods We implemented the Medtronic CIED RP software at our institution after ensuring HIPAA compliance. The MRI technician started the session by contacting an off-site remote operator and placing a programmer wand from 2090 Medtronic programmer over CIED. The remote operator logged into a remote access software and provided a unique access code to the MRI technician. After entering the access code into the programmer, the remote operator was able to program the device as needed. We conducted a periodic audit of the first 209 pts who underwent RP of CIED's for MRI. Outcomes analyzed were safety parameters during RP. Results Of the 209 MRI scans, 51 scans were performed urgently. There were no connectivity and programming problems or need for MRI rescheduling. In-person reprogramming was not required for any pt. All scans were completed safely in a timely manner, and there were no reports of CIED malfunction. Conclusions Remote programming of CIED's for MRI scans is a safe and effective strategy.

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