The Effect of Direct to Patient Communication on Patient Compliance with Automated Managed Remote Monitoring (RM) of Cardiac Implantable Electronic Devices (CIEDs)

Kevin Campbell  
Rebecca Revell

**Introduction**: Remote monitoring of CIED patients is accepted as standard of care according and this has been published in consensus statements in 2015. Prior studies have indicated that comprehensive remote monitoring of devices can decrease hospitalizations, improve outcomes, and decrease mortality. The amount of data generated by CIEDs can easily overwhelm device clinics and automation of the clinic workflow with software has positively impacted this process and improved patient compliance. However, patients often require reminder phone calls, help with troubleshooting and many prefer a human contact when managing their devices at home. We hypothesize that Software based automated remote monitoring, when utilized with active patient communication via telephone calls, can improve patient compliance and reduce monitor disconnects.

**Methods**: A subset of 5981 patients enrolled in the PaceMate automated remote monitoring system that had CIEDs requiring manual transmissions were considered over a 50-day period. Prior to the initiation of the study, patients were managed with both automation as well as personal telephone support (including transmission reminder calls, calls for missed transmissions, and calls for disconnected monitors) through a centralized communication center. During the 50-day study period, no telephone reminders were made. After 50 days, a roster of non-compliant patients was generated from the vendor lists of disconnected monitors, missed transmissions and “no scheduled” transmissions.

**Result**: In our sample, after 50 days of eliminating human telephonic patient communication from 16 different clinic settings, there was a mean reduction of patient transmission compliance of 41%. Of the 5981 patients enrolled, 2457 patients were found to have missed transmissions at the end of the study period. The Median decrease in compliance was 29% and the IQR for the decrease was 39.5%.

**Conclusion**: These results demonstrate the importance of incorporating direct to patient communication protocols in the management of CIED patients followed with automated remote monitoring software solutions. Automation with software certainly improves workflow and increases the ability of clinicians to process large amounts of data in an efficient and timely fashion. However, direct to patient communication is still needed in order to maximize the potential benefits of remote monitoring. The disruption of remote monitoring data flow can lead to missed alerts involving heart failure diagnostics, clinically actionable arrhythmias or significant device or lead malfunction. Our study suggests that adding direct to patient communication to a robust automated remote monitoring software system can significantly improve patient compliance and likely will lead to improved patient outcomes.