INSIGHTS INTO PACEMAKER AND ICD CLINICS FOR IT PROFESSIONALS

How clinicians use data from devices in clinical practice and the role of the new interface between data from in-clinic/remote monitoring and electronic health records
INTRODUCTION

Pacemakers and other cardiac rhythm management (CRM) devices have always been at the forefront of telemedicine – from transtelephonic device monitoring available to pacemaker patients as early as the 1970s to the most advanced remote patient monitoring services today.
Today’s most advanced pacemakers, implantable cardioverter defibrillators (ICDs), and cardiac resynchronization therapy (CRT) devices with remote monitoring offer:

- The latest device technology to treat cardiac conditions
- Remote follow-up that can be automatic (wireless transmission) or patient-initiated
- Remote monitoring with special alerts sent directly to a secure website for clinic review
- Communication via cellular and broadband networks
- Remote data management to support automation and centralization of records
- Electronic data to support population monitoring for accountable care organizations (ACOs)
Inside the Cardiac Device

CRM devices monitor every single beat of the patient’s heart and are able to “fill in” missing beats as needed; defibrillators can automatically deliver therapy if the patient’s heart stops beating effectively enough to pump blood. These devices do more than just deliver electrical energy to the heart, however; they also:

- Record every single heart beat and generate a variety of reports for clinicians as to how the patient’s heart is functioning
- Store in memory electrical tracings of remarkable cardiac events (pre-programmed by the clinic as triggers)
- Automatically generate alert messages when certain cardiac conditions are met
- Continuously capture and update data on the device and how the patient and device are interacting
- Report all defibrillation therapies delivered and the algorithm decision tree that led to therapy
- Monitor their own battery status, lead impedance, and other hardware values
Devices can be monitored remotely and wirelessly with no patient interaction. A transmitter in the patient’s bedroom can obtain information from the device that is then sent to a secure server for downloading by the clinic.

The device monitors the patient’s disease status and DirectAlerts™ notifications are sent to the clinic if an alert criteria has been fulfilled.

Routine follow-up visits can be scheduled online and conducted remotely with no patient interaction.

A patient’s transmitter can be configured remotely from the hospital.

Problems can often be detected by the clinic, before the patient has any symptoms, for early treatment. 2.4 x greater probability of survival for patients who utilize remote monitoring vs. those who do not.1

Cardiac devices collect vast amounts of information, and remote monitoring and remote follow-up options allow these data to move easily and instantly through the continuum of care. An automatic data flow enables information to be imported directly into the clinic’s electronic health record system.
The Clinical Team

Prioritization and organization of data is paramount for any device clinic. Its main concerns are likely to include:

- Importing data from the device directly and efficiently into electronic health records
- Stratifying information so that the most important data are identified helping to put cardiac device information in context with the patient's other health information
- Creating searchable datasets
- Automating patient calling with DirectCall™ messaging
- Tasking various clinical team members with aspects of the follow-up
- Setting up interactive device reporting, such as DirectTrend™ viewer to quickly assess important patterns in the patient's therapy
- Quickly and easily viewing reports, as well as printing and archiving data
- Allowing for seamless patient scheduling
- Designing customizable alerts, via text messages, email or mobile device notifications
- Assuring the integrity and accuracy of the data

The IT and Clinical Team Partnership

Leading-edge connectivity technology from St. Jude Medical has transformed the way clinicians care for device patients and has forged a close relationship between the clinical group and the IT team. Together, the hospital IT department and the clinical team can offer patients:

- Automatic device monitoring to enhance safety and improve patient compliance with clinical treatment
- Convenience, as patients can check in with their clinics from remote locations, including travel destinations
- Enhanced care for device patients in assisted-living or skilled-nursing facilities
- Customizable alerts, so physicians quickly get the most relevant clinical information first
- Remote monitoring options that include landline, cellular or broadband connectivity options
- Integration of St. Jude Medical device data into compatible electronic health records, allowing data to be easily shared with other health care providers
- Peace of mind in knowing all efforts are made to ensure data is stored securely to ensure patient confidentiality

Economic Aspects

As all of American health care transitions to electronic patient records and technology-driven workflow solutions, there are sound economic implications for enhanced connectivity.

- Reimbursement for remote monitoring is in place.
- Remote monitoring can often be set up more systematically and with less manpower than conventional in-clinic visits.
- Information technology integration can permit a clinic to be able to bill more efficiently and more consistently.
- Alert notifications support earlier intervention for serious rhythm disorders and worsening disease states.
- Patients who comply with their remote monitoring actually cost the health care system less over three years than patients without remote monitoring.²
- Remote monitoring with point-of-care pairing is associated with improved patient compliance, which allows for a recurring income stream.³
- Streamlining the clinical workflow may result in economic savings.⁴
- Outpatient implant procedures with remote follow-up are clinically feasible and can result in cost savings versus in-patient procedures.
Summary

St. Jude Medical offers some of the most advanced connectivity options available in the world today, providing new ways to provide the highest levels of care for pacemaker and defibrillator patients, while promoting an efficient, streamlined workflow for the clinical staff.

For further information on security and standards, please refer to *The Programmer Connectivity System-Information Security White Paper*, available from your St. Jude Medical field staff representative or St. Jude Medical directly.

References

1. Mittal et al. Increased Adherence to Remote Monitoring is Associated with Reduced Mortality in Both Pacemaker and Defibrillator Patients. HRS 2014. San Francisco, California. May 7-10, 2014. LB01-05. This was a retrospective data review and has limitations.