

# ZOLL Patient Management Network System Case Study: Sinus Tachycardia

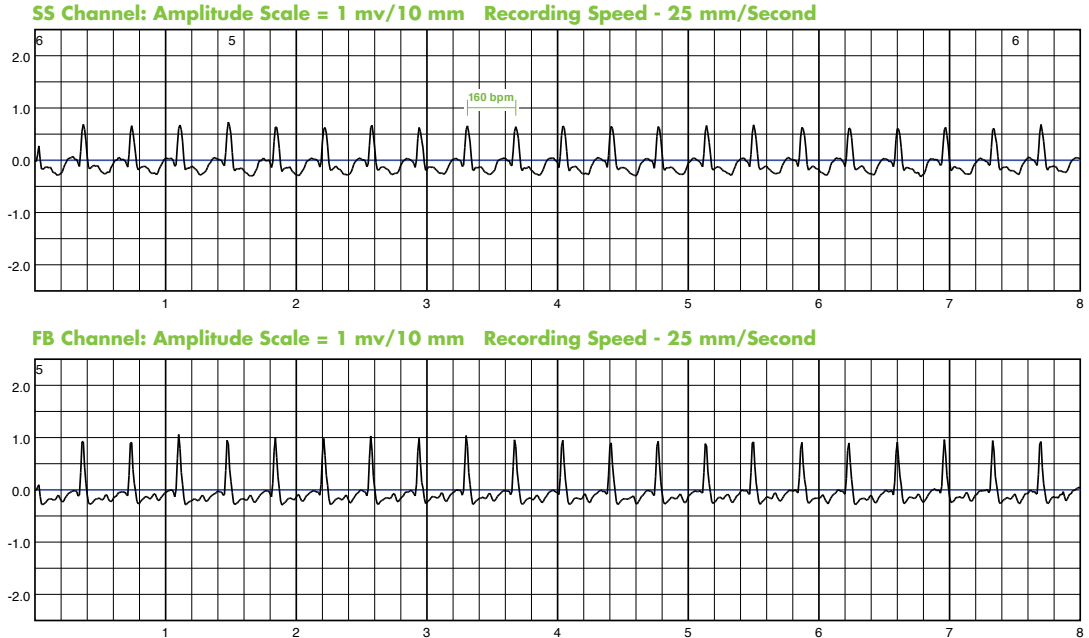


Figure 1. Portion of the patient's ECG automatically downloaded from the device and remotely viewed on the ZOLL Patient Management Network.

## Synopsis

The LifeVest® wearable cardioverter defibrillator (WCD) was prescribed for a patient following an ST Elevated Myocardial Infarction (STEMI) and Percutaneous Coronary Intervention (PCI) with a Left Ventricular Ejection Fraction (LVEF) = 29% for protection from Sudden Cardiac Death (SCD). Data collected from the LifeVest WCD and captured in the ZOLL® Patient Management Network Patient Data Management System revealed recurring sinus tachycardia events that altered the course of treatment for the patient.

## History and Plan

- A 63-year-old male presented to the emergency department with severe chest pain and pressure.
- Significant history of hypertension, hyperlipidemia, chronic kidney disease and tobacco use.
- Coronary Angiography:
  - 80% ostial stenosis of the large first diagonal of the left anterior descending (LAD) artery.
  - 80% bifurcation lesion affecting both the LAD and the ostium of the diagonal branch.
  - Two (2) drug-eluting stents were placed.
- Pharmacy:
  - Patient was prescribed aspirin 81 mg QD, ticagrelor 90 mg BID, lisinopril 10 mg QD and metoprolol succinate 25 mg QD.
- The patient was discharged with the LifeVest WCD for protection from SCD.

## ZOLL Patient Management Network Configuration

The Cardiac Device Clinic Technician configured the ZOLL Patient Management Network to issue orange (mid-level) alerts for events labeled as 'detected but not treated.' A red (high-level) alert was configured to provide notifications when the patient manually captured ECG recordings.

The LifeVest WCD detection algorithm is programmed to initiate a treatment sequence and automatically record an ECG if it meets the programmed rate threshold (default setting of  $\geq 150$  beats per minute (bpm)) and morphology criteria. Once a treatment sequence is initiated, treatments can be prevented by appropriate patient use of the response buttons. Symptomatic events can also be captured by the patient via a manual recording. Manual recordings are initiated by pressing and holding the response buttons for three seconds.



Figure 2. Screenshot of the ZOLL Patient Management Network user's customized Alert settings.

## Results

Two (2) weeks post-discharge, the LifeVest WCD captured several 'detected but not treated' events. The ECG recordings of these events were transmitted to the ZOLL Patient Management Network. Physician review of the ECG recordings revealed sinus tachycardia at rates between 150 and 170 bpm. The patient was then contacted to assess any symptoms and reported that he "felt his heart racing." To control the patient's heart rate, the dose of metoprolol succinate was increased to 50 mg QD with plans for further up-titration as tolerated. In order to assess the intended effect, the physician instructed the patient to complete two manual ECG recordings on the device by pressing the response buttons. Review of the manual ECG recordings revealed the patient's heart rate returned to a normal sinus rhythm with a rate of 83 bpm.

# Trends Patient Data Through the ZOLL Patient Management Network

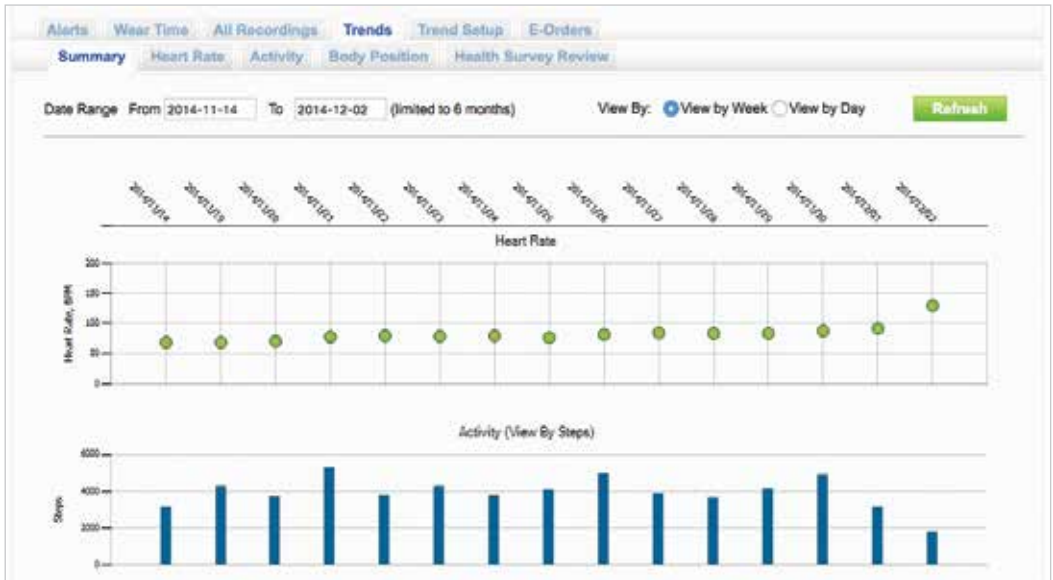


Figure 3. Portion of the patient's ZOLL Patient Management Network Trends Summary displaying average daily heart rate and daily activity in steps per day.

Trends data in ZOLL Patient Management Network showed the patient's average daily heart rate was elevated (130 bpm) and was not correlated with an increase in patient activity (Figure 3). After diagnosing the patient with Sinus Tachycardia and titrating the metoprolol succinate dose, Trends data in ZOLL Patient Management Network showed the patient's average daily heart rate returned to normal levels at 95 bpm (Figure 4). Note, this was previously assessed through calculating heart rate from a manual ECG recording. Trends data in the ZOLL Patient Management Network also provided a detailed daily view displaying the patient's heart rate in 5 minute increments (Figure 5).



Figure 4. Trends Heart Rate Summary for patient displaying average daily heart rate.



Figure 5. Trends Heart Rate details for patient displaying average heart rate in 5 minute increments for an entire day.

## Identification of Sinus Tachycardia Through Remote Patient Monitoring

The clinic regularly reviews notifications and patient recordings on the ZOLL Patient Management Network. Upon review of the ECG recordings, it was determined that the patient experienced several sinus tachycardia events that were detected by the LifeVest WCD but did not result in a treatment shock. The cardiologist was able to remotely review the ECG recordings, make the necessary medication adjustments, and confirm the intended results. Additional Trends features available through the ZOLL Patient Management Network can provide clinicians with valuable information to support remote patient management.

**For additional information on the ZOLL Patient Management Network, including instructions on how to enroll, contact your ZOLL LifeVest representative or visit [www.zoll.com](http://www.zoll.com).**

ZOLL • Pittsburgh, PA 15238  
p 800.543.3267 • f 866.567.7615 • [www.zoll.com](http://www.zoll.com)

© 2021 ZOLL Medical Corporation. All rights reserved.  
ZOLL and LifeVest are trademarks and/or registered trademarks of  
ZOLL Medical Corporation in the United States and other countries.

**ZOLL** LifeVest®

20c0502\_revb