

ZOLL Patient Management System Case Study: NICM Patient Trends



Figure 1. Portion of the patient's LifeVest Trends Summary displaying average daily heart rate, daily activity (steps per day), and body position

Synopsis

The LifeVest® wearable cardioverter defibrillator (WCD) was prescribed for protection from sudden cardiac death (SCD) for a patient with non-ischemic cardiomyopathy (NICM) and a left ventricular ejection fraction (LVEF) = 20%. Data collected from the LifeVest WCD and captured in the ZOLL® Patient Management Network Patient Data Management System revealed an increase in heart rate, decreased patient activity, and increased time spent lying that resulted in patient admission for the current decompensation and eventual pacemaker upgrade to a CRT-D.

History and Plan

- 78-year-old female referred for cardiac consult with complaints for shortness of breath and dyspnea on exertion
- Relevant History:
 - Diabetic
 - Long-standing paroxysmal atrial fibrillation
 - Hypertension
 - Syncope
 - Sick sinus syndrome
 - Dual chamber pacemaker implanted 2 years prior
 - CHADSVASC Score 5
- Consult:
 - Echo revealed an ejection fraction of 20%
 - Cardiac catheterization revealed normal coronary arteries
 - Lab results revealed slight elevation in serum creatinine levels
- Pharmacy:
 - Continue carvedilol, aldactone, and apixiban and begin angiotensin receptor blocker if renal function stabilizes.
- The patient was diagnosed with new left ventricle systolic dysfunction with low LVEF of 20%. Electrophysiology was consulted and discharged the patient with the LifeVest WCD for protection from SCD while being medically optimized, with a plan to re-evaluate LVEF in 3 months.

Results: Identification of Deteriorating Patient Condition through Remote Patient Monitoring

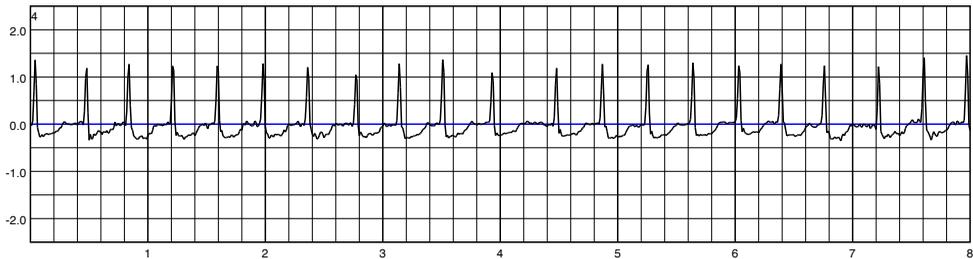


Figure 2. Portion of the patient's LifeVest Trends Summary displaying average increased heart rate, decreased activity, and increased time spent lying.

Detected Not Treated

Date	Time	Length
2015-09-10	10:26:28 AM	48 secs

SS Channel: Amplitude Scale = 1 mv/10 mm Recording Speed - 25 mm/Second



FB Channel: Amplitude Scale = 1 mv/10 mm Recording Speed - 25 mm/Second

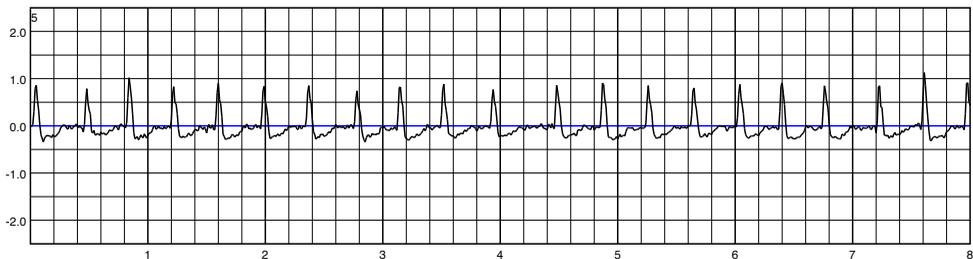


Figure 3. Portion of the patient's ECG automatically downloaded from the device and remotely viewed on the ZOLL Patient Management Network.

The patient was discharged to home with the LifeVest WCD while being medically optimized. Three months after her initial diagnoses, her LVEF had improved to 30%. It was hoped that the patient's condition would continue to improve with continued medical optimization. The patient continued to wear the LifeVest WCD wearable defibrillator for protection against SCD.

LifeVest captured the patient's average daily heart rate, step activity, and body position. Upon remote review of the patient's Trends data on the ZOLL Patient Management Network during the 4 months of LifeVest use, it was determined that the patient had an increase in heart rate, decline in activity, and increased time spent lying over the past 7 days. ECG recordings captured on the days when heart rate was elevated and available on the ZOLL Patient Management Network revealed episodes of atrial fibrillation with rapid ventricular response. Following review of the Trends data, the physician assistant called the patient, confirmed her deteriorating condition, and had her admitted to the hospital. Medications were optimized, the patient converted back to a normal sinus rhythm and went on to receive a CRT-D. The information captured by the LifeVest wearable defibrillator directly impacted the patient's care path.

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.

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