LifeVest® Patient Data Management
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 defibrillator 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 and captured in the LifeVest 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® wearable defibrillator 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

![Graph showing changes in heart rate, activity, and time spent lying.]

Figure 2. Portion of the patient’s LifeVest Trends Summary displaying average increased heart rate, decreased activity, and increased time spent lying.
The patient was discharged to home with the LifeVest 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 for protection against SCD.

The 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 LifeVest 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 LifeVest 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 directly impacted the patient’s care path.

For additional information on the LifeVest Network, including instructions on how to enroll, contact your ZOLL LifeVest representative or visit www.zoll.com.