LifeVest Network Patient Data Management System
Case Study: Bradycardia

Synopsis
The LifeVest wearable defibrillator was prescribed for a recent NSTEMI patient with a Left Ventricular Ejection Fraction (LVEF) = 30% for protection from Sudden Cardiac Death (SCD). Bradycardia events recorded by the LifeVest and reviewed on the LifeVest Network Patient Data Management System revealed significant underlying cardiovascular disease.

History and Plan
- A 61-year-old woman presented to the ER with complaints of acute chest pain x2 hours radiating to the left side of chest that improved with nitroglycerin.
- Significant history of rheumatoid arthritis, hypertension, hyperlipidemia, and osteoporosis.
- No known surgical history.
- Cardiac enzymes and ECG were both negative for STEMI.
- ECG indicated RBBB.
- Cardiac echo:
  - Mild left ventricular hypertrophy
  - Mild mitral annular calcification
  - LVEF = 30%
- SPECT imaging showed lack of activity throughout the inferior wall extending into the inferolateral region. Cardiomegaly with large areas of infarction also noted.
- The patient was discharged with the LifeVest wearable defibrillator for protection from SCD.
LifeVest Network Configuration

The nurse configured the LifeVest Network to issue an orange (mid-level) alert for detected but not treated events, asystole events, and at least two patient-initiated recordings per day. The LifeVest detection algorithm is programmed to declare asystole when the heart rate falls below 10 beats per minute (bpm) for 16 seconds and automatically records the event, including 120 seconds of onset.

![Alerts Settings](Figure 2. Screenshot of the LifeVest Network user's customized Alert settings.)

Results

On day 29 post discharge, the LifeVest detected an asystole event and captured an ECG recording. Upon ECG review on the LifeVest Network, the event was determined to be bradycardia. The patient was contacted at home and instructed to seek immediate medical care in the ER. Cardiac catheterization and angiography showed apical and inferior hypokinesia of left ventricle with triple vessel disease involving left anterior descending (LAD) with its first diagonal branch (D1), left circumflex (LCx) with its first diagonal branch, and right coronary artery (RCA). Post-CABG, the patient's LVEF remained ≤35% and the patient was discharged home with instructions to continue LifeVest use.

Identification of Bradycardia Through Remote Patient Monitoring

The patient was diagnosed with ischemic cardiomyopathy following a NSTEMI with a LVEF = 30% and prescribed the LifeVest for primary prevention of SCD. The nurse in this practice reviews the LifeVest Network dashboard weekly, monitoring the practice's active LifeVest patients. The discovery of several bradycardia events in this case revealed a significant underlying ischemic disease requiring CABG, potentially avoiding significant future myocardial injury.

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