WHY IS AN EXTERNAL DEFIBRILLATOR NEEDED?
The risk of sudden cardiac death post-MI is the highest in the first 30 days\textsuperscript{1,2}.
- Post-MI patients with heart failure are at 4-6 times greater risk of sudden cardiac death in the first 30 days after MI.

Patient condition can improve from the benefits of optimized medical therapy\textsuperscript{3}.
- Significant improvements in EF are observed over the initial 8-10 weeks post-MI.
- REFINE Study average relative improvement in EF was 18% at 8-10 weeks.

\textsuperscript{1}Adabag AS, et al. Sudden Death After Myocardial Infarction. JAMA 2008; 300: 2022-2029.
\textsuperscript{2}Solomon SD, et al. Sudden Death in Patients with Myocardial Infarction and Left Ventricular Dysfunction, Heart Failure, or Both. NEJM 2005; 352: 2581-2588.
VALIANT TRIAL  HIGH EARLY RISK OF SCA
PATIENTS WITH HEART FAILURE ARE AT 4-6 TIMES GREATER RISK OF SCA IN THE FIRST 30 DAYS POST-MI

83% of SCA occurred after hospital discharge.

74% of those resuscitated in the first 30 days were alive at 1 year

1Solomon SD, et al. Sudden Death in Patients with Myocardial Infarction and Left Ventricular Dysfunction, Heart Failure, or Both. NEJM 2005; 352: 2581-2588.
NICM  HIGH EARLY MORTALITY
MEDICAL THERAPY OPTIMIZATION REQUIRED PRIOR TO MANAGING LONG-TERM ARRHYTHMIC RISK

- Medical Optimization and stabilization can take 3 months or more
- Beta blocker doses effective in HF are generally achieved in 8 to 12 weeks and do not impart any mortality benefit until at least 3 months

OUT OF HOSPITAL SCD
LOCATION

Chart 17-1. Location of out-of-hospital cardiac arrest, 2013. Data derived from 2013 Cardiac Arrest Registry to Enhance Survival National Summary Report.10

AHA Statistical Update, Heart Disease and Stroke Statistics, 2015 Update from the AHA, Circulation 2015
OUT OF HOSPITAL SCD

VISIBILITY

Chart 17-2. Out-of-hospital cardiac arrest witness status, 2013. EMS indicates emergency medical services. Data derived from 2013 Cardiac Arrest Registry to Enhance Survival National Summary Report.2

- AHA Statistical Update, Heart Disease and Stroke Statistics, 2015 Update from the AHA, Circulation 2015
98% first shock success rate*
96% event survival at 1 year +
Most (73%) treated within 60 seconds
(remaining delayed from response button use or VT programming) *

*Kutyifa V et al. Use of Wearable Cardiodefibrillator in High Risk Patients: Data from the Perspective Registry of Patients Using the Wearable Cardiodefibrillator (WEARIT II Registry) Circulation 2015; 132: 1613-1619.
LIFEVEST 4000 SYSTEM

**ECG Electrodes**
- Dry & non-adhesive
- 4 electrodes providing 2 channels of monitoring

**Garment**
- Two provided per patient
- They come in 5 sizes and can fit a wide range of body types
- Garment is to be laundered every other day

**Self-Gelling Defibrillation Electrodes**
- Release blue gel prior to delivering a treatment shock

**Response Buttons**
- Allow conscious patients to override a shock by pressing these buttons when alarm sounds

**Monitor**
- 150 joules biphasic
- Stores ECG, compliance, heart rate, body position, physical activity, sleep information and survey questions
DRY ELECTRODES
FOR PATIENT COMFORT

Defibrillation Pad

ECG Electrode

Gel Capsules
SENSITIVITY AND SPECIFICITY

- LifeVest is 97% sensitive to VT and 100% sensitive to VF
- LifeVest is 100% specific to VT and VT
ALARM SEQUENCE

1. Arrhythmia detected, activating vibration alert (continues throughout sequence).
2. Siren alerts begin (continues throughout sequence).
3. Siren alerts get louder.
5. Gel release.
7. Treatment shock.
ADDITIONAL FEATURES OF THE LIFEVEST
TRENDS
FEATURES OVERVIEW - NEW 5 MINUTE INCREMENTS

- Heart Rate
  - Avg daily heart rate
  - Avg heart rate in 5 min increments for each day

- Activity
  - Total steps per day
  - Steps in 5 min increments for each day

- Body Position
  - Overall body position (movement, upright, reclined, lying)
  - Body angle while reclined or lying
  - Body position while reclined or lying (prone, supine, left, right)

- Health Survey
  - Clinicians can select up to 12 questions for patients to answer on a daily or weekly basis
Based on the WEARIT II registry results, if your next 100 patients were prescribed the WCD:

- 2 patients will experience a sustained VT/VF event – 1 of which will require a treatment and the other will self-terminate and the patient will likely be a candidate for an ICD.
- 1 patient will have non-sustained VT, is likely a candidate for an EP study, and, if inducible, is a candidate for an ICD.
- 4 patients will experience supraventricular arrhythmias which will likely lead to more evaluation. In the majority of cases, those will likely require ablation.
- 1 patient may survive asystole or severe bradycardia and will likely require pacing therapy.
CASE STUDY

- February 10, 2017, 12:50 AM
- 71 YO Male
- Nonischemic Cardiomyopathy
- Dilated Ventricle
- EF 20%
- In LifeVest 24 Days