



# CCM<sup>®</sup> THERAPY

with the  
**OPTIMIZER<sup>®</sup> SMART MINI**

**BRINGING HOPE TO PATIENTS  
WITH HEART FAILURE**

The Optimizer<sup>®</sup> Smart Mini is a minimally invasive, implantable device that delivers a proprietary therapy called **CCM<sup>®</sup>** to patients with chronic heart failure. **CCM<sup>®</sup>** therapy has been designed to improve overall heart function, and quality of life for patients.

## WHO

For patients with:

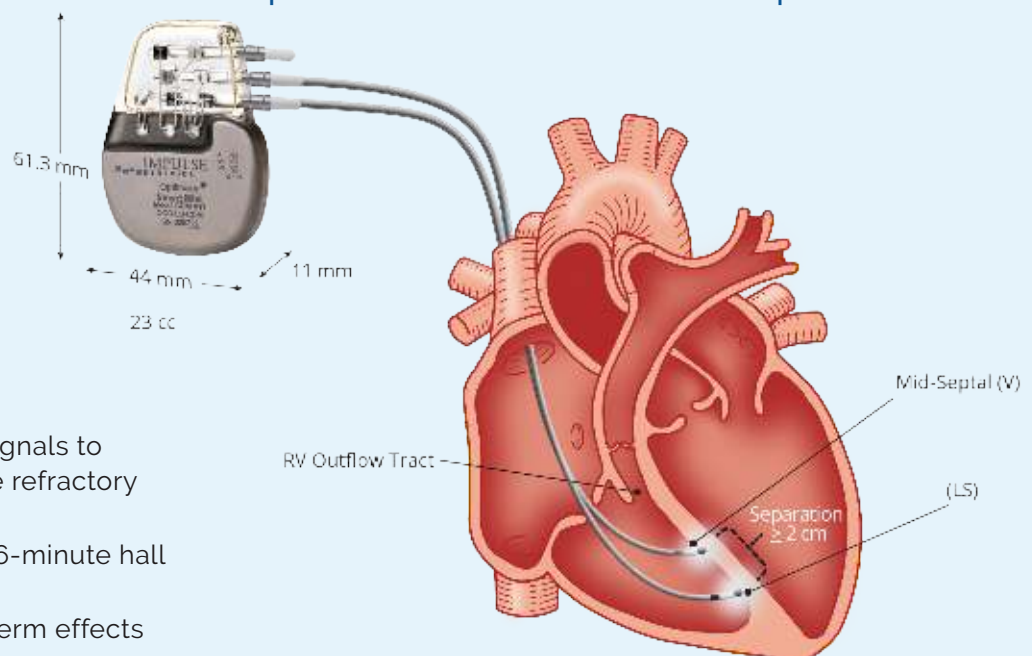
- LVEF 25–45%
- NYHA Class III
- Symptomatic despite guideline directed medical therapy
- Not indicated for Cardiac Resynchronization Therapy

## WHAT

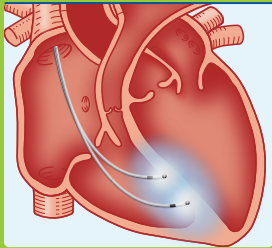
The Optimizer<sup>®</sup> Smart Mini delivers **CCM<sup>®</sup>** therapy, which:

- Applies non-excitatory electrical signals to the RV septum during the absolute refractory period using standard leads
- Improves NYHA functional status, 6-minute hall walk distance and QoL status
- Has rapid, intermediate and long-term effects

## Optimizer<sup>®</sup> Smart Mini Implant



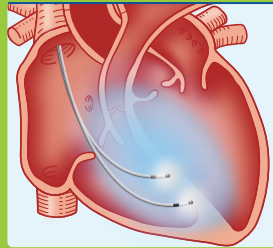
### Rapid



MINUTES TO HOURS

- Local electrotonic spread of signal
- Rapid phosphorylation of key proteins
- Improved calcium cycling and contractile force
- No increased myocardial oxygen consumption

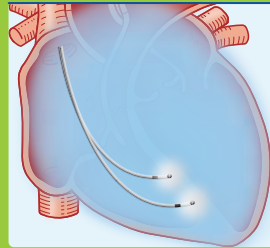
### Intermediate



HOURS TO WEEKS

- Shift of gene program from heart failure to normal
- Local effects improve contraction at global level

### Long-Term



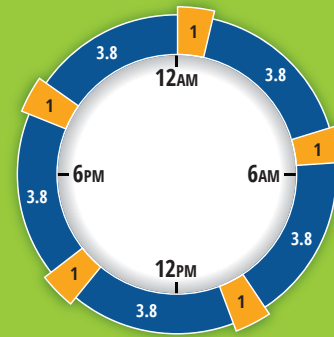
WEEKS TO MONTHS

- Beneficial effect on global ventricular properties

## HOW

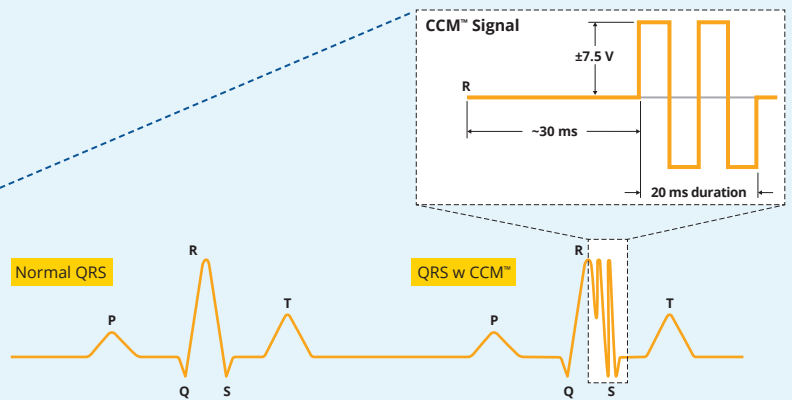
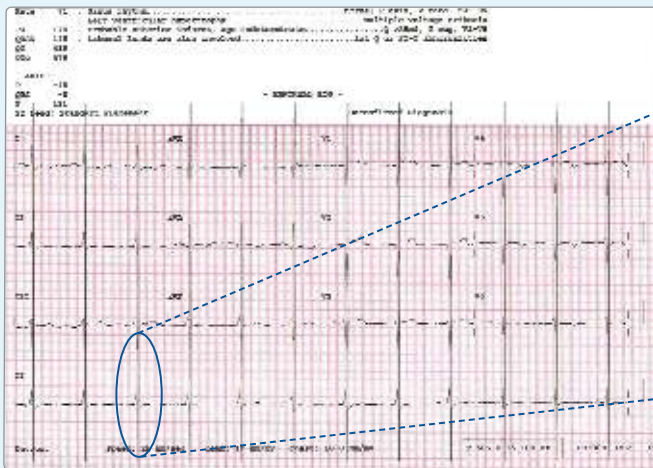
The Optimizer® Smart Mini delivers CCM® therapy in five one-hour therapy delivery phases separated by 3.8-hour rest periods<sup>1</sup>

- Device recharged weekly for one-hour period
- Device longevity 20 years



24 Hour Therapy Clock

## Patient EKG During CCM® Therapy



CCM® waveform is biphasic, with duration ~ 20 ms and amplitude  $\pm 7.5$  V. Therapy is never delivered on T wave.

Optimizer® Smart Mini System and its predecessors have been implanted in over 7,000 patients and is currently available in the U.S., Europe, China, Brazil, India and more than 40 other countries around the world.

For more information, visit our website at [ImpulseDynamics.com](http://ImpulseDynamics.com) or contact us at 856-642-9933.

*Indications for Use: The Optimizer® Smart Mini System, which delivers CCM® therapy, is indicated to improve 6 minute hall walk, quality of life, and functional status of NYHA Class III heart failure patients who remain symptomatic despite guideline directed medical therapy, are not indicated for CRT, and have a left ventricular ejection fraction ranging from 25% to 45%.*

<sup>1</sup> Campbell CM, Kahwash R, & Abraham WT. Optimizer Smart in the treatment of moderate-to-severe chronic heart failure. *FutureCardiol.* 16(1), 13-25 (2020)