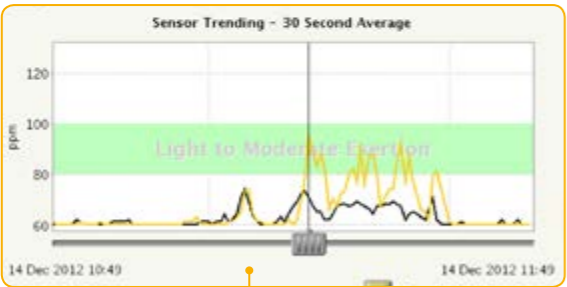


- Step 1

Assess Chronotropic Competence
- Step 2

Prepare Calibration and Sensor Baseline
- Step 3

Optimize Sensor Trending Data



### Rate Adaptive Pacing

A motion-based accelerometer may not always detect when the patient is exercising, potentially resulting in inadequate rate response.

- Riding a bicycle
- Holding a grandchild
- Carrying groceries
- Working in the garden
- Using a walker
- Swimming
- Lifting weights

### RightRate™

- RightRate is a physiologic minute ventilation sensor that is highly correlated with breathing.
- The only sensor clinically proven to restore chronotropic competence.<sup>1</sup>
- VISIONIST X4 is labeled for up to **13.1 years**<sup>2</sup> projected longevity even when RightRate is turned ON.



1. Chronotropic competence is defined by the Model of the Cardiac Chronotropic Response to Exercise. Wilkoff B, Corey J, Blackburn G. A mathematical model of the cardiac chronotropic response to exercise. Journal of Electrocardiology. 1989;3:176-180.  
 2. Assumes: 2.0V RA/RV/LV, RA 500Ω, RV/LV 700Ω, No LATITUDE, 0.4ms pulse width, 100% BIV pacing, 15% atrial pacing, 70 ppm LRL.

All cited trademarks are the property of their respective owners.  
 CAUTION: Law restricts these devices to sale by or on the order of a physician. Indications, contraindications, warnings and instructions for use can be found in the product labeling supplied with each device. Information for the use only in countries with applicable health authority product registrations. Information not intended for use or distribution in France.



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 DINCRM0985EA

## RightRate™

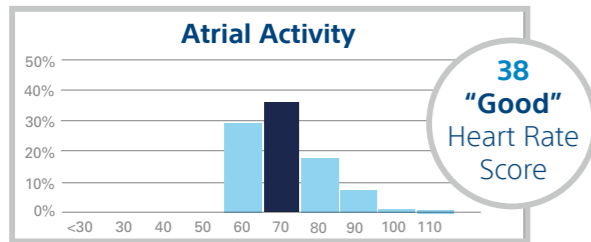
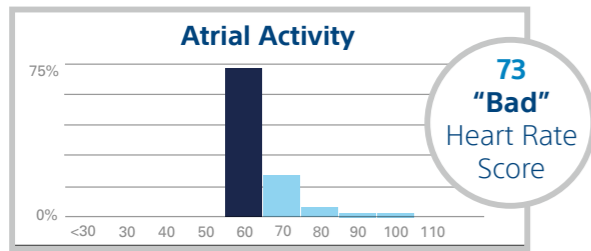
Respiration-Based Pacing



**A Change of Pace**

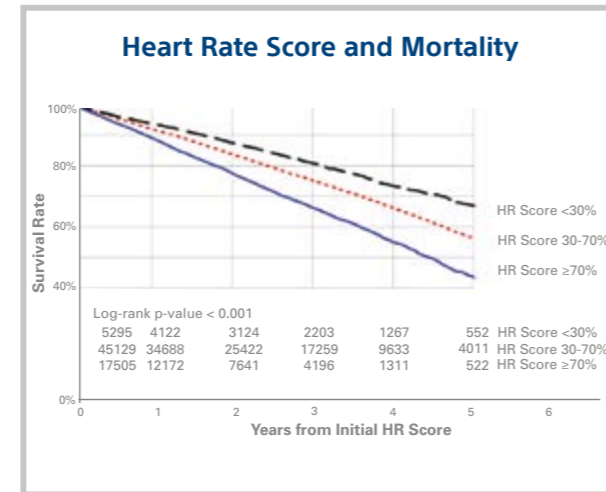
# RightRate™ and Heart Rate Score Clinical Data

**Heart Rate Score** is defined as the height of the tallest atrial histogram bin.



A broader range of HR is typically better for the patient. Therefore, a lower HR Score is preferred.

**Heart Rate Score** was an independent predictor of **mortality**.<sup>3</sup>



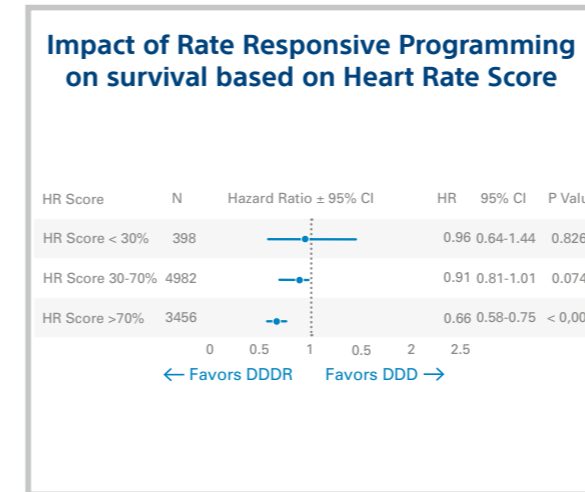
## LATITUDE™ analysis of 67,929 CRT-D patients

Patients with a HR Score  $\geq 70$  had a 43% 5-year survival rate.

Patients with a HR Score  $< 30$  had a 68% 5-year survival rate.

3. Wilkoff et al., A Device Histogram based Simple Predictor of Mortality Risk in ICD and CRT-D Patients: The Heart Rate Score. Pace 2017.

**Mortality** improved with DDDR.<sup>4</sup>



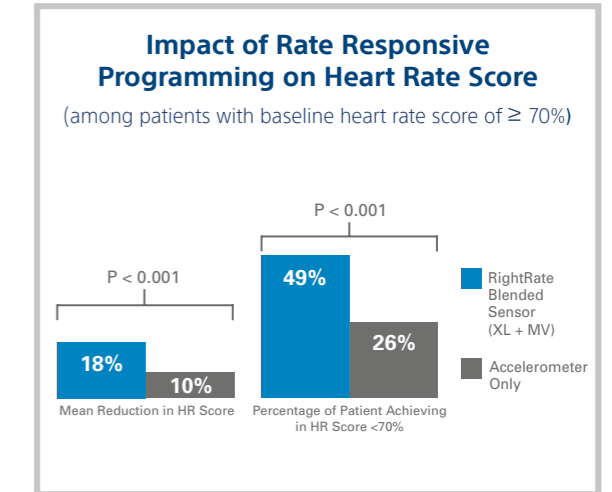
## LATITUDE™ analysis of 6,164 patients

For patients with Heart Rate Score  $\geq 70$ , switching to DDDR was associated with improved survival.

Patients with baseline Heart Rate Score  $\geq 70\%$  significantly improved their Heart Rate Score, with DDDR (from  $88 \pm 9\%$  to  $78 \pm 15\%$ ;  $P < 0.001$ ).

4. Olshansky, et al., Survival After Rate-Responsive Programming in Patients With Cardiac Resynchronization Therapy-Defibrillator Implants Is Associated With a Novel Parameter: The Heart Rate Score. Circ Arrhythm Electrophysiol. 2016;9:.

**RightRate™ Blended Sensor** was shown to **improve Heart Rate Score** more than accelerometer alone.<sup>5</sup>



## Analysis of 501 patients from the LIFE Study

RightRate Blended sensor (MV+XL) resulted in:

- Heart Rate Score reduction of 18%.
- Converted almost twice as many patients to Heart Rate Score  $< 70\%$  when compared to XL only.

5. Richards, et al., The Addition of Minute Ventilation to Rate Responsive Pacing Improves Heart Rate Score More than Accelerometer Alone. Heart Rhythm 2018. <https://doi.org/10.1016/j.hrthm.2018.06.021>.