Heart Failure is a Growing Economic Burden

<table>
<thead>
<tr>
<th>Year</th>
<th>United States</th>
<th>Hospitalization Costs</th>
<th>Costs of Disease (US$ billions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>2,600,000</td>
<td>30,000</td>
<td>400</td>
</tr>
<tr>
<td>2018</td>
<td>2,400,000</td>
<td>30,000</td>
<td>400</td>
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</tbody>
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Despite advances in medical therapies to treat heart failure, the hospitalization rate has not changed significantly from year to year. As a result, heart failure continues to be a significant economic burden.

Goal of Heart Failure Management:

SLOW DISEASE PROGRESSION BY PREVENTING DECOMPENSATION

- Early detection and management of heart failure
- Prevention of hospitalization

Long-term Mortality Risk Increases with Multiple Hospitalizations

Decompensation Events Requiring More Intensive Therapy are Associated with Higher Mortality Risk
Monitoring for Increased Filling Pressures is Proactive and Actionable, and Predictive of Acute Decompensation

Monitoring Pulmonary Artery Pressures, Proactive and Actionable

INTRODUCTION TO CARDIOMEMS™ HF SYSTEM
A Personalized, Proactive Approach to Manage HF by Monitoring PA Pressure

CardioMEMS™ HF System Offers New Promise

CardioMEMS™ HF System for the Management of HF

Microelectrical Mechanical System (MEMS)
No local battery, no need for replacement
All Secondary Endpoints Met

Part 1: Randomized Access

<table>
<thead>
<tr>
<th>Endpoint</th>
<th>Treatment</th>
<th>Control</th>
<th>p-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change from baseline in PA pressure (mmHg)</td>
<td>-0.6</td>
<td>0.5</td>
<td>0.08</td>
</tr>
<tr>
<td>Change in fraction of patients with palpable plantar arteries</td>
<td>55 (90%)</td>
<td>50 (87%)</td>
<td>0.39</td>
</tr>
<tr>
<td>Change in rate of hospitalization (per 100 patient-years)</td>
<td>17 (4.4)</td>
<td>20 (5.3)</td>
<td>0.21</td>
</tr>
<tr>
<td>Change in rate of death among patients with diabetes (per 100 patient-years)</td>
<td>8.3 (4.5)</td>
<td>15 (7.1)</td>
<td>0.12</td>
</tr>
</tbody>
</table>

Monitoring with CardioMEMS™ HF System Leads to Reduction in Mean PA Pressure from Baseline

Part 2: Randomized Access

Randomized and Open Access Periods Also Led to Significant Reduction in HF Hospitalization

Perspective Subgroup Analysis: Improving Patients’ Outcomes through Improved HF Care

Retrospective Subgroup Analysis: Improving Patients’ Outcomes through Improved HF Care

Managing GDMT Based on PA Pressures Alone

Led to Significant Reduction in HF Hospitalization
The CHAMPION Trial Sub-analysis: PATIENTS WITH CHRONIC KIDNEY DISEASE (CKD)

**PLASMA**
- Compared CKD HF patients with Chronic Kidney Disease (CKD) managed with P-free pressure vs. those managed with Revitaloid (sodium sulfate) (s = w/1)

**REDUCTION**
- In HF hospitalizations for HF patients with EMR systems (sensitivity + specificity + sensitivity + specificity) is 62% vs. 52%

**SUB-ANALYSIS**
- 42% reduction in hospitalizations for HF patients with CKD. The reduction in hospitalizations was driven by a decrease in the number of patients who required hospitalization.

**COMMENTS**
- The CKD patients who received potassium-sparing diuretics had a better outcome than those who did not.

The CHAMPION Trial Sub-analysis: PATIENTS WITH PULMONARY HYPERTENSION

**PLASMA**
- Evaluate the effect of P-free pressure monitoring in HF patients with severe pulmonary hypertension (PH-CT, mean P-free pressure = 10 mmHg, n = 12).

**REDUCTION**
- 36% reduction in hospitalizations for HF patients with PH-CT. The reduction was driven by a decrease in the number of patients who required hospitalization.

**SUB-ANALYSIS**
- In HF hospitalizations for HF patients with PH-CT, mean P-free pressure = 12 mmHg, n = 12.

**COMMENTS**
- The PH-CT patients who received potassium-sparing diuretics had a better outcome than those who did not.

The CHAMPION Trial Sub-analysis: PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE

**PLASMA**
- Evaluate the impact of pulmonary hypertension on hospitalizations for HF patients with chronic obstructive pulmonary disease (COPD).

**REDUCTION**
- 41% reduction in hospitalizations for HF patients with COPD. The reduction was driven by a decrease in the number of patients who required hospitalization.

**SUB-ANALYSIS**
- In HF hospitalizations for HF patients with COPD, mean P-free pressure = 12 mmHg, n = 12.

**COMMENTS**
- The COPD patients who received potassium-sparing diuretics had a better outcome than those who did not.

Analyzing the CardioMEMS™ HF System in a Commercial Setting

**COMMERCIAL EXPERIENCE**
- The CardioMEMS™ HF System is being used in a commercial setting to monitor and manage heart failure.

**NNT to Prevent One HF Hospitalization for PA Pressure Monitoring and Medical Intervention Alone**

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<tr>
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<th>Significant</th>
<th>Decreased</th>
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<tbody>
<tr>
<td>20</td>
<td>30 months</td>
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<td>2</td>
<td>7</td>
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<tr>
<td>30</td>
<td>90 months</td>
<td>526</td>
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<td>360 months</td>
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**FIRST COMMERCIAL EXPERIENCES FOR THE CARDIOMEMS™ HF SYSTEM**

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INDICATIONS

The CardioMEMS™ HF System is indicated for HF patients who are NYHA Class III, regardless of ejection fraction, who have been hospitalized for heart failure in the previous year.
APPENDIX IV
CardioMEMS™ HF System Patient Case Examples

CASE 1: HfPEF-PAH
CASE 2: HfPEF WITH ADVANCED CKD
APPENDIX V
Additional Supporting Slides

HEART FAILURE CLASSIFICATION
INDICATION BACKGROUND: WHY NYHA CLASS III?
MEDICARE READMISSION REDUCTION PROGRAM - COMPARISON
FURTHER DETAILS ON MEDICATION MANAGEMENT WITH PA PRESSURES
FURTHER DETAILS ON THE CARDIOMEMS™ HF SYSTEM PATIENT FLOW
EVIDENCE OF CARDIOMEMS™ HF SYSTEM ACCURACY

Heart Failure Classification Based on Severity of Symptoms

CardioMEMS™ HF System Indicated for NYHA Class III - Why?
CONCLUDING SUMMARY

The CardioMEMS™ HF System is safe, reliable and clinically proven in clinical trials and real-world settings.

It provides a proactive, personalized approach to prevent acute decompensation in both HFrEF and HFpEF patients.

APPENDIX I

Additional Slides for The Challenge

NEUROHORMONAL CASCADE GRAPHIC
TELE-HF TRIAL
TIM-HF TRIAL
DOT-HF TRIAL
IMPEDANCE MONITORING DATA

APPENDIX II

The CHAMPION Trial Results

TRIAL DESIGN
DEVICE/SYSTEM

THE CHAMPION TRIAL RESULTS

Evidence That PA-Pressure Guided Therapy Reduces HF Hospitalizations

The CHAMPION Trial Design