Reducing the cost of heart failure through effortless in-home monitoring
Heart disease is the **leading** cause of **death** worldwide
Heart failure\(^1\) costs $34 B with 80% due to hospitalization. More than 45% of patients are readmitted within 90 days.

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1. A type of cardiovascular disease where the heart does not pump enough blood to supply the needs of the body.
Fewer than 10% of heart failure patients monitor themselves for deterioration.

The standard of care results in preventable hospitalizations.

1 American Heart Journal (2005)
ECG the electrical activity of the heart

PPG local blood volume and oxygenation

BCG the mechanical activity of the heart
Comprehensive CLINICAL GRADE MONITORING

Heart Rate
Blood Pressure
Weight

Cardiac Output*
Blood Oxygen
HR Variability

QRS Duration
QTc Interval
Arrhythmias

All measures meet the relevant standards on tested patients

Validated on 300+ human subjects including those with heart failure

Published in 2 peer-reviewed journal articles¹

* No commercial in-home solution exists for monitoring cardiac output

¹ mhealth.jmir.org/2018/5/e120 and mhealth.jmir.org/2019/1/e12419
The Solution
PASSIVE DAILY MONITORING

In-Home Monitoring

Install and Forget
 Completely self-contained
 Fits on a standard toilet

Ensured Patient Adherence
 No change in habit required
 Guaranteed skin contact

ECG: Electrocardiogram  PPG: Photoplethysmogram  BCG: Ballistocardiogram
Reducing Hospitalizations
A COMPLETE SOLUTION

Install and Forget
Automated Detection of Deterioration
HHI Provider-Run Operations Center
Hospital Care Team Facilitated Intervention
# Measurements

## OTHER SOLUTIONS

<table>
<thead>
<tr>
<th>Measurements</th>
<th>HHI System</th>
<th>Smart BP Cuff</th>
<th>Smart Scale</th>
<th>Wearables(^1)</th>
<th>CardioMEMS(^2) (Abbott)</th>
<th>OptiVol (Medtronic)</th>
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<tbody>
<tr>
<td>HR</td>
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<tr>
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1 Requires multiple devices to capture all measurements

2 Acquired for $455M in 2014 by St. Jude
A National Crisis
CARDIOVASCULAR DISEASE

By 2035, nearly half of the U.S. population will have some form of cardiovascular disease.

Prior 2030 predictions were reached 15 years earlier than anticipated.

American Heart Association (2017)
Increasing the effectiveness of adherence interventions may have a far greater impact on the health of the population than any improvement in specific medical treatments

– World Health Organization (WHO)
To stand up to heart failure, we need to sit down.