

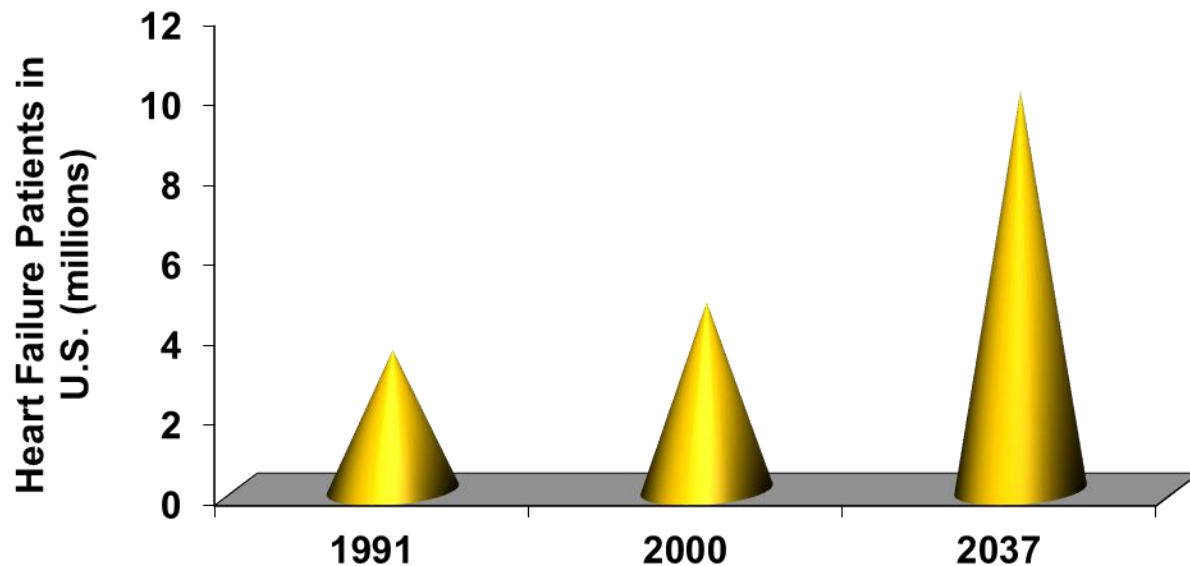
# The Value of Multidisciplinary Heart Failure Programs

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Professor of Medicine  
Division of Cardiology  
Duke University

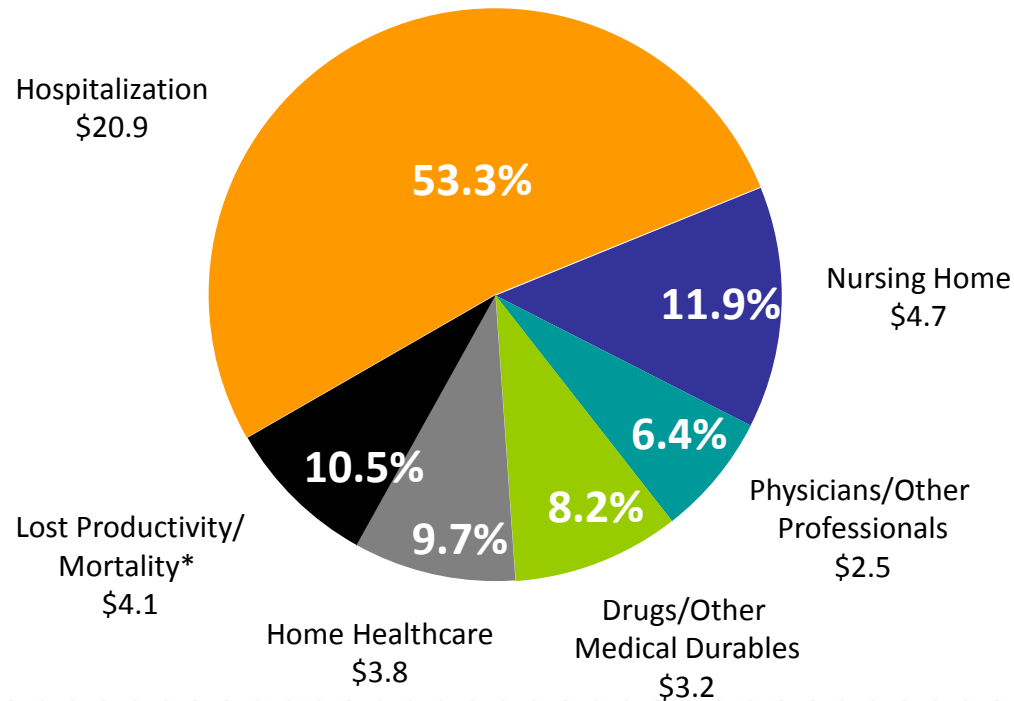


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# The Epidemiology of Heart Failure in the United States



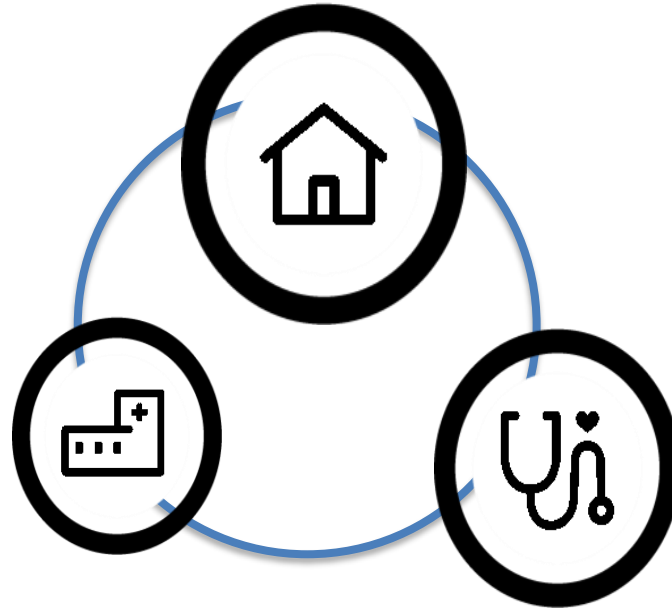
# Estimated Direct and Indirect Costs of HF in US



**Total Cost**  
**\$39.2 billion**

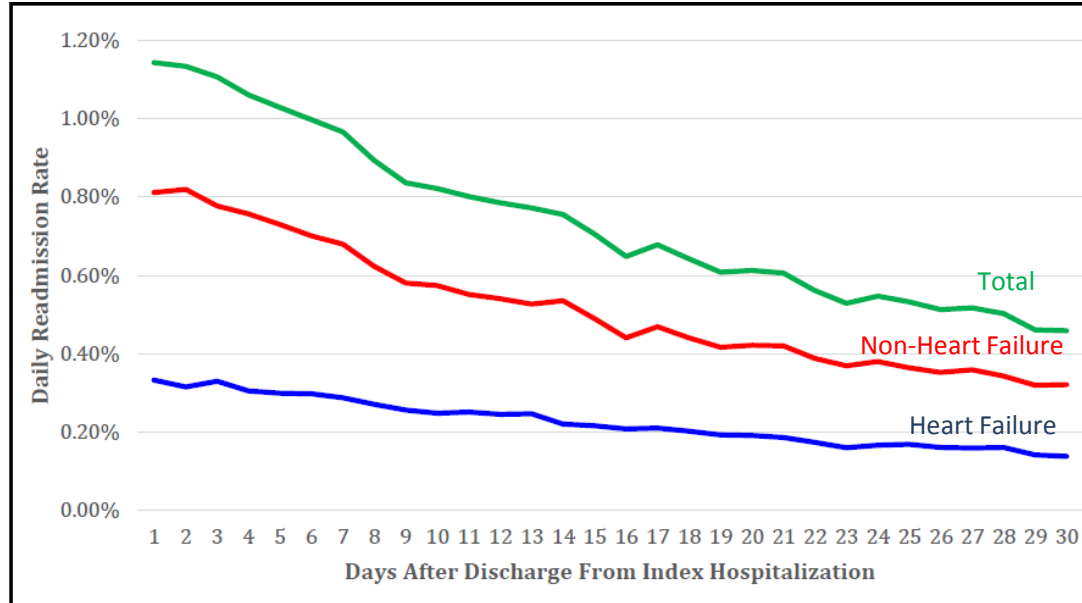


# Redesigning Heart Failure Care



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# Readmissions Following Heart Failure Admission

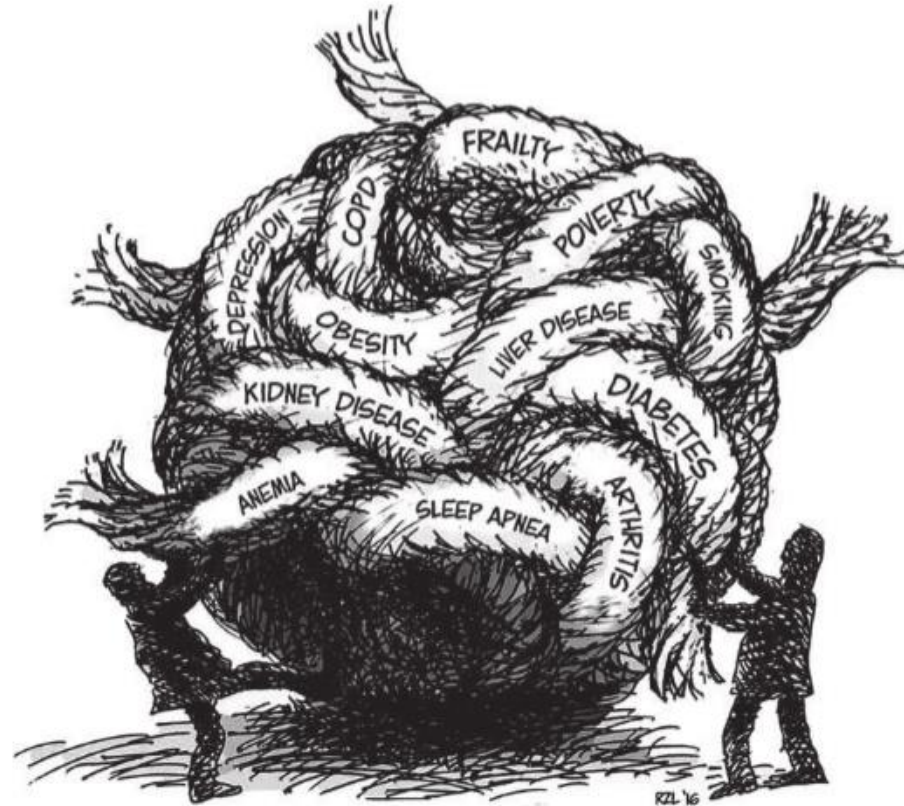


# Multidisciplinary Care

- How will I afford my medications?
- Will I be able to work?
- Can I exercise?
- Who should I call if I have trouble?

- Am I using the best medications?
- What co-morbidities should I treat?
- Does he need to see a surgeon?
- How often should I see him?





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Eur J Heart Fail 2016;18:759-61

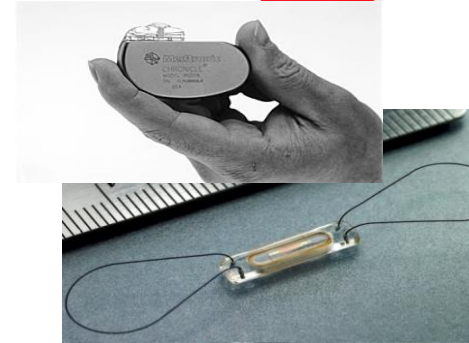
# Advances in Heart Failure Monitoring



Low Tech



High Tech



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# Question

The CHAMPION trial demonstrated the following:

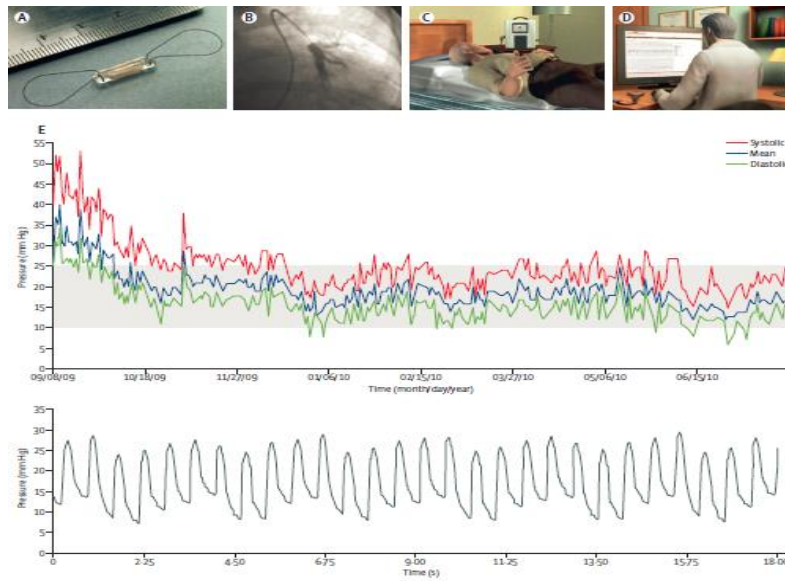
- A. Patients with an implanted hemodynamic monitor did not derive benefit because of device and implant related complications
- B. Patients with an implanted hemodynamic monitor actually experienced more frequent hospitalizations because of heightened monitoring
- C. Patients with hemodynamic monitoring had fewer hospitalizations than those whose hemodynamics were not monitored
- D. The trial was stopped prematurely because of device failures



# Pulmonary Artery Pressure Monitoring

## CHAMPION

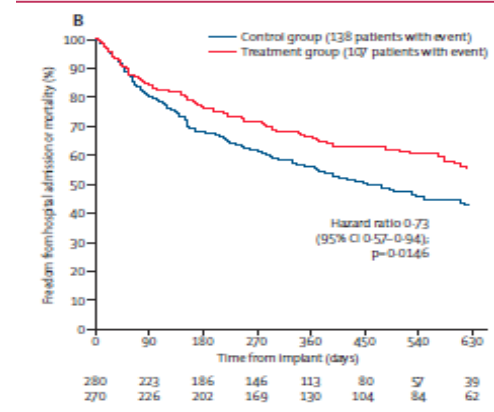
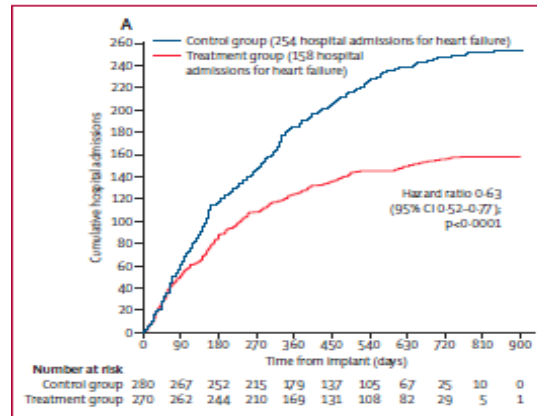
- 550 patients with chronic heart failure
- GDMT
- NYHA Class III
- One HF hospitalization in the past 12 months
- All received Cardiomems
- Randomized to active intervention or standard care
- Preserved or reduced EF



# Champion

|  | Not enrolled<br>(n=25) | Treatment<br>group (n=270) | Control group<br>(n=280) | All patients<br>(n=575) | Risk<br>(95% CI)      | p value | NNT |
|--|------------------------|----------------------------|--------------------------|-------------------------|-----------------------|---------|-----|
| <b>Primary efficacy endpoints*</b>   |                        |                            |                          |                         |                       |         |     |
| Heart-failure-related hospitalisations up to 6 months (number; events per patient per 6 months)            | NA                     | 84 (0.32)                  | 120 (0.44)               | NA                      | 0.72†<br>(0.60-0.85)  | 0.0002  | 8   |
| <b>Primary safety endpoints‡</b>   |                        |                            |                          |                         |                       |         |     |
| Device-related or system-related complications   | 2 (8%)                 | 3 (1%)                     | 3 (1%)                   | 8 (1%)                  | §                     | <0.0001 | NA  |
| Pressure-sensor failures   | 0                      | 0                          | 0                        | 0                       | §                     | <0.0001 | NA  |
| <b>Prespecified supplementary efficacy endpoints¶</b>  |                        |                            |                          |                         |                       |         |     |
| Heart-failure-related hospitalisations during entire randomised follow-up                                  | NA                     | 158                        | 254                      | NA                      | 0.63†<br>(0.52-0.77)  | <0.0001 | 4   |
| <b>Secondary efficacy endpoints</b>  |                        |                            |                          |                         |                       |         |     |
| Change from baseline in pulmonary artery mean pressure at 6 months (mm Hg×days; mean area under the curve) | NA                     | -156                       | 33                       | NA                      | NA                    | 0.008   | NA  |
| Patients admitted to hospital for heart failure at 6 months  | NA                     | 55 (20%)                   | 80 (29%)                 | NA                      | 0.71  <br>(0.53-0.96) | 0.03    | NA  |
| Days alive outside hospital at 6 months (mean, SD)   | NA                     | 174.4 (31.1)               | 172.1 (37.8)             | NA                      | NA                    | 0.02    | NA  |
| Minnesota Living with Heart Failure Questionnaire at 6 months (mean, SD)                                   | NA                     | 45 (26)                    | 51 (25)                  | NA                      | NA                    | 0.02    | NA  |

ICER report: “exceeds value-based price”  
September 11, 2015



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Lancet 2011;377:658-66

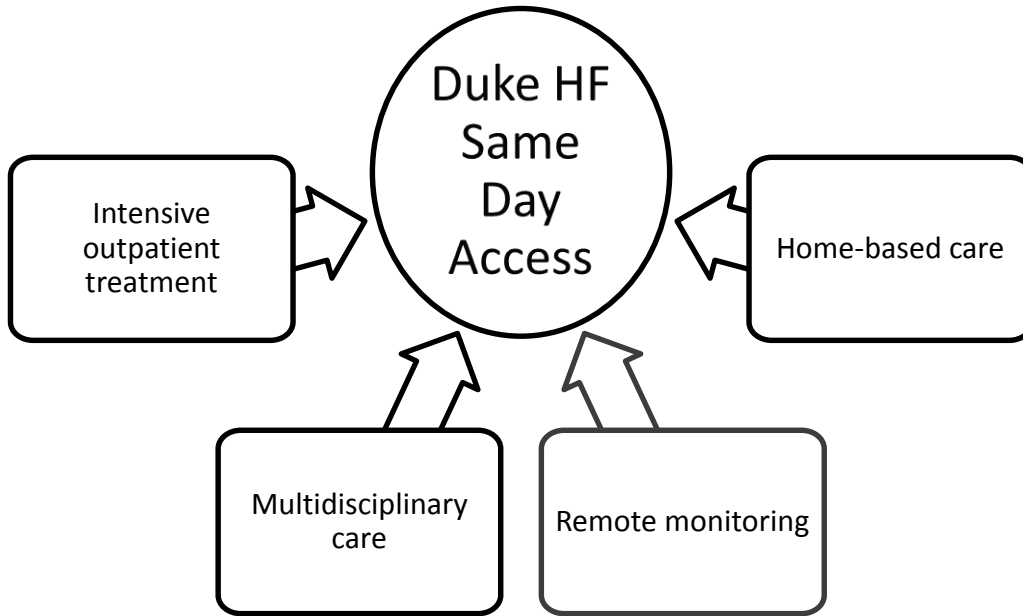
# Care Delivery Innovations

## Apple HealthKit



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# High Touch and Accessible Care



- IV therapy protocols
  - Lasix
  - Magnesium
  - Potassium
- Telephonic triage protocols
- Telephonic follow up scripts
- Emergency department triage protocol
- Triage and disposition workflows
- Nursing competency modules
- Consultative expertise



# Summary and Conclusions

- The heart failure epidemic will force us to consider new strategies to treat this patient population
- Co-morbidity management is critical
- Increased integration of implantables and wearables
- Access, Access, Access

