

# Evolution of Heart Failure Disease Management at a Large VA Medical Center

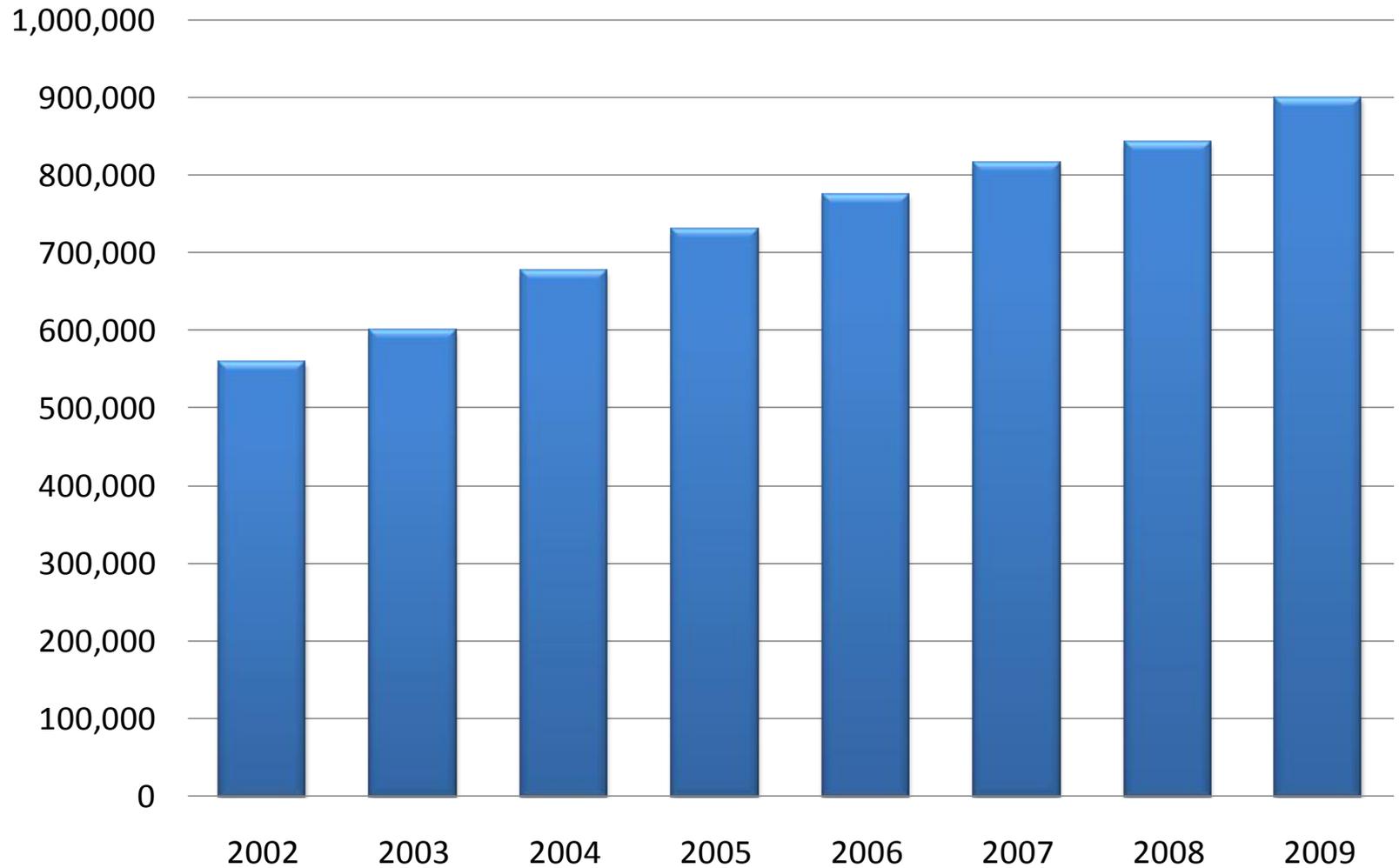
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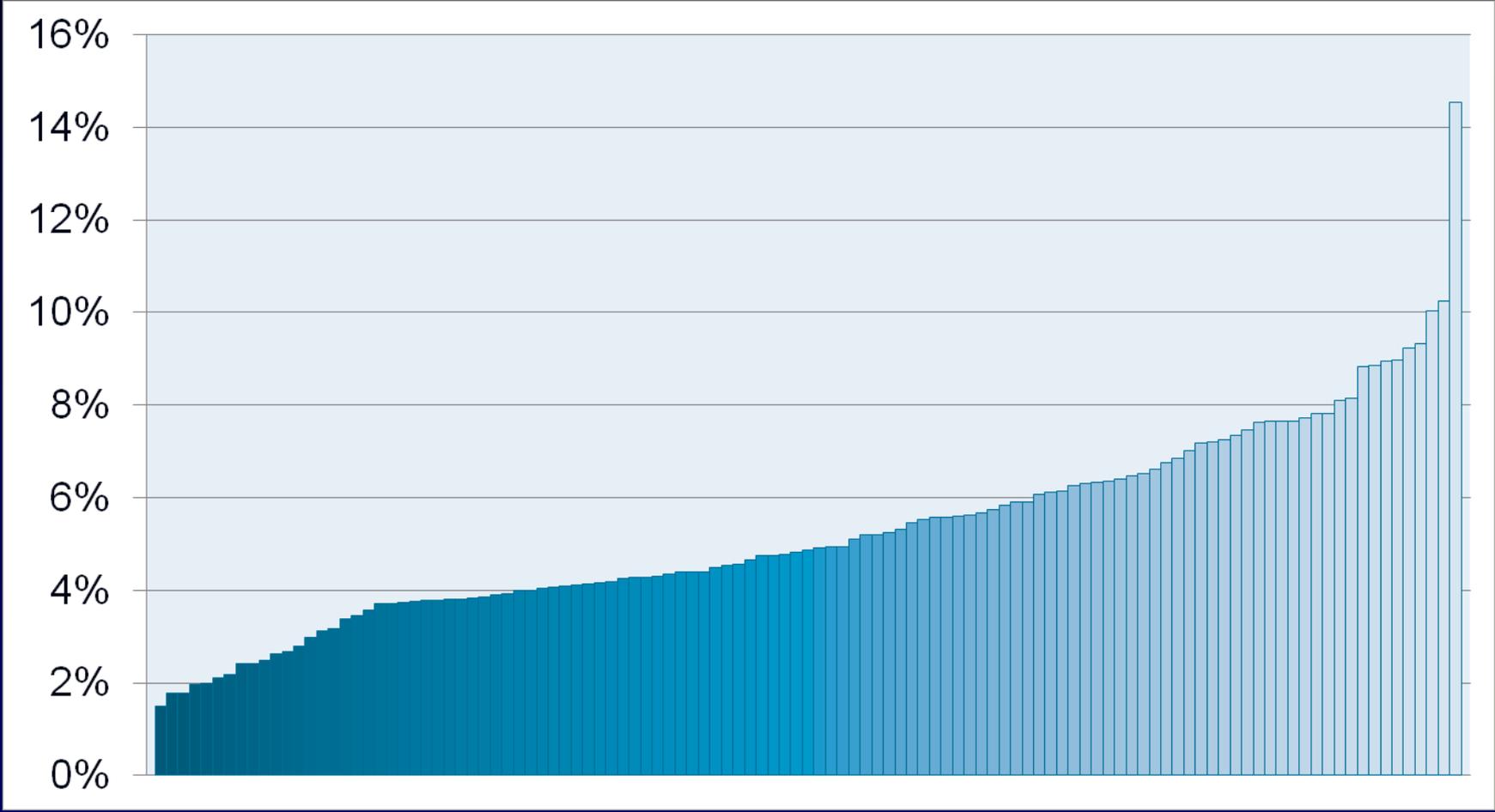
# Disclosures

- None

## Increasing VA Burden: Outpatient Encounters for Heart Failure

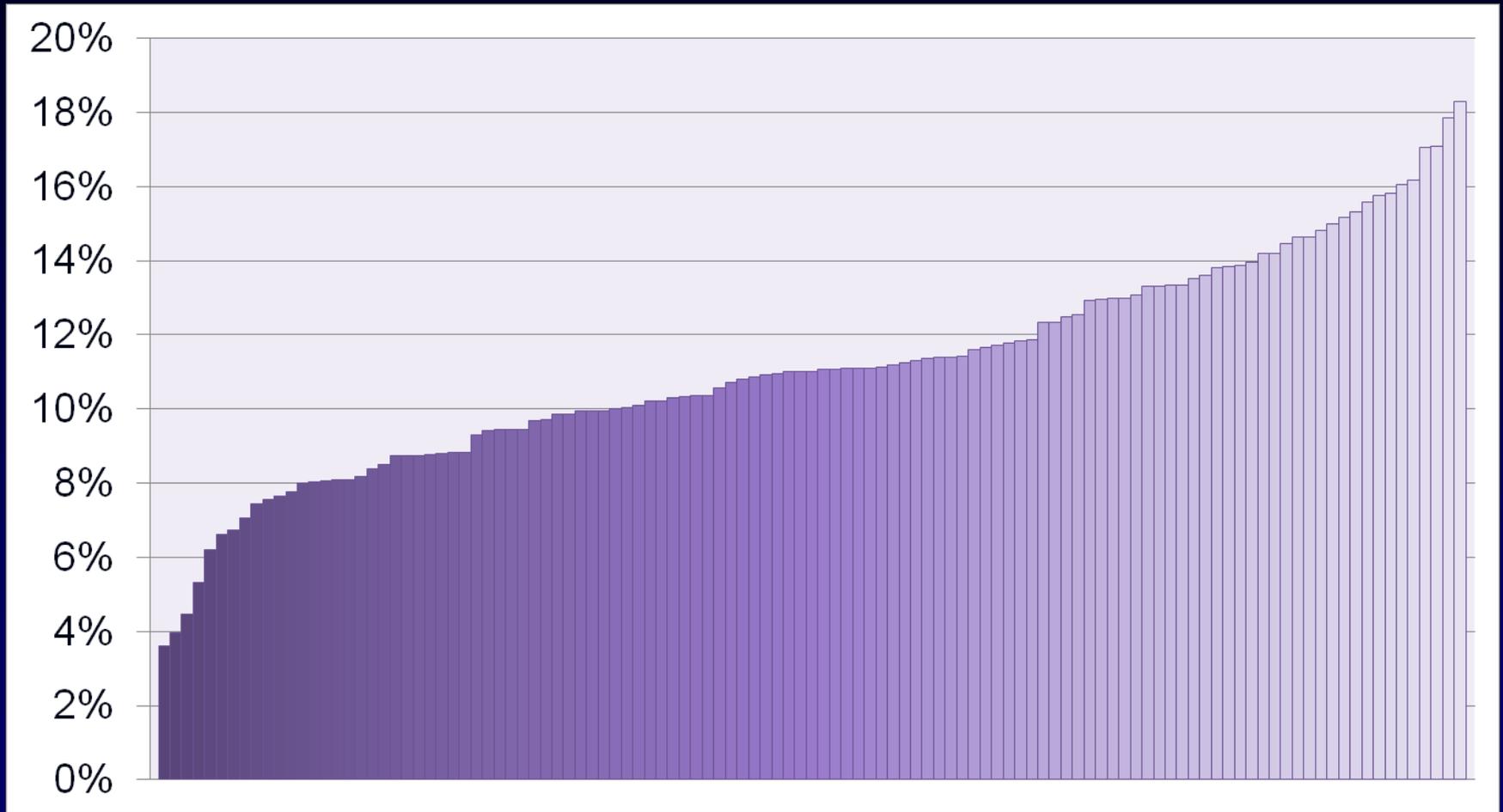


# 30 Day Mortality Distribution for VA Facilities



4 Excludes Facilities with < 100 HF discharges over 2 years.

# 30 Day Readmission Distribution for VA Facilities



Excludes Facilities with < 100 HF discharges over 2 years.

# SAIL Report: Strategic Analytics for Improvement and Learning

Domain	Rank Weight (%)	SAIL Model Measures	Inpatient or Outpatient	Total Weight
Acute care mortality	5.94	In-hospital risk adjusted mortality (SMR)	Inpatient	11.88
	5.94	30-day risk adjusted mortality (SMR30)	Inpatient	
Avoidable Adverse Events	3.96	Risk adjusted in-hospital complication index	Inpatient	11.88
	3.96	Healthcare associated infections for CAUTI, CLAB, VAE, MRSA	Inpatient	
	3.96	Risk adjusted patient safety index (PSIs)	Inpatient	
CMS measures	2.5	30-day risk standardized mortality rate for CHF and Pneumonia	Inpatient	5.0
	2.5	30-day risk standardized readmission rate for AMI, CHF and Pneumonia	Inpatient	
Adjusted length of stay	11.88	Severity adjusted length of stay	Inpatient	11.88
Performance measures	5.94	Inpatient core measure mean percentage	Inpatient	5.94
	5.94	HEDIS outpatient core measure mean percentage	Outpatient	5.94
Customer satisfaction	3.96	HCAHPS score (patient rating of overall hospital performance)	Inpatient	7.92
	3.96	Best Places to Work (AES version)	Inpt & Outpt	
	3.96	RN turnover	Inpt & Outpt	
Ambulatory care	11.88	Ambulatory Care Sensitive Condition hospitalizations	Outpatient	11.88
Access	2.97	Primary care completed wait time for new patients /PCMH Survey Access composite	Outpatient	11.88
	2.97	Specialty care completed wait time for new patients	Outpatient	
	2.97	Mental health completed wait time for new patients	Outpatient	
	2.97	Call pick up speed and telephone abandonment rate	Outpatient	
Mental health	3.96	Mental health population coverage	Inpt & Outpt	11.88
	3.96	Mental health continuity of care	Inpt & Outpt	
	3.96	Mental health experience of care	Inpt & Outpt	
Efficiency	NA	SFA overall efficiency (=1/SFA)	Inpt & Outpt	NA

# Early Physician Follow Up and 30-day Outcomes (OPTIMIZE-HF and GWTG-HF)

**Table 3.** Rates of Mortality, Readmission, and Mortality or Readmission at 30 Days by Quartile of Hospital Rate of Early Follow-up

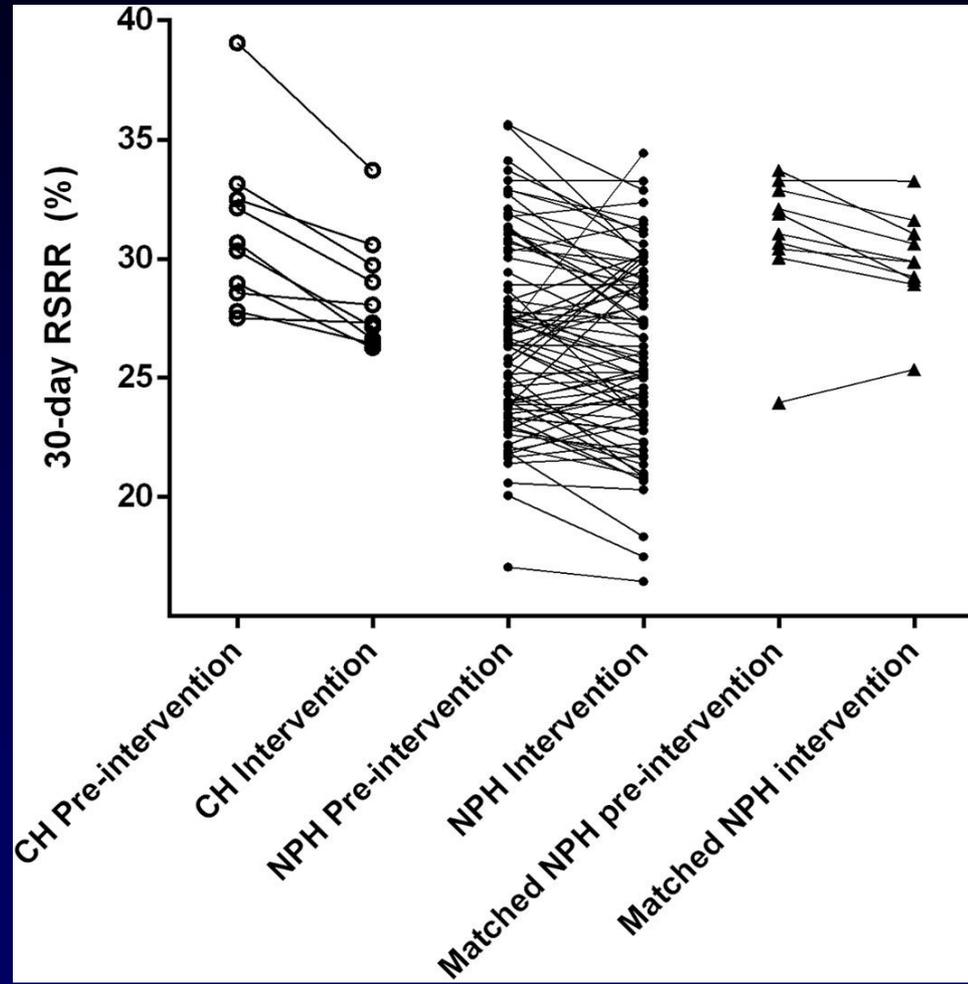
Variable	Percentage Rate of Early Follow-up by Quartile, No. (%)				P Value
	1 (<32.4)	2 (32.4-37.9)	3 (38.3-44.5)	4 (>44.5)	
No. of patients	7081	8662	7812	6581	
Event, 30 d					
Mortality <sup>a</sup>	353 (5.0)	417 (4.8)	352 (4.5)	297 (4.5)	.44
Readmission <sup>b</sup>	1658 (23.3)	1787 (20.5)	1606 (20.5)	1377 (20.9)	<.001
Mortality or readmission <sup>a</sup>	1849 (26.1)	2015 (23.3)	1813 (23.2)	1544 (23.5)	<.001

<sup>a</sup>Based on proportion of events.

<sup>b</sup>Based on cumulative incidence function.

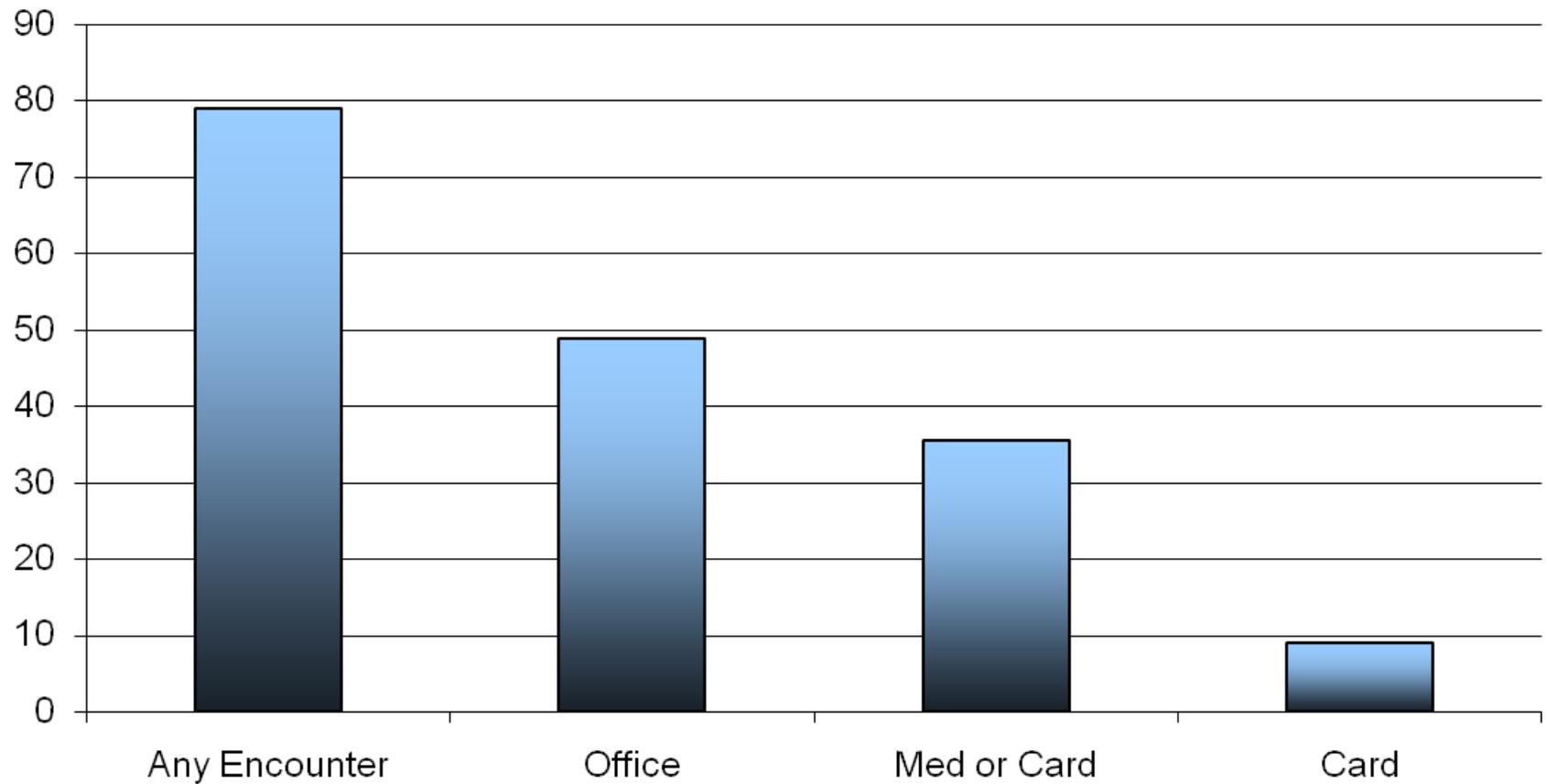
- JAMA 2010;303(17):1716

# Changes in 30-day HF RSRR with 7-Day Post Discharge Follow Up: “See You in 7”



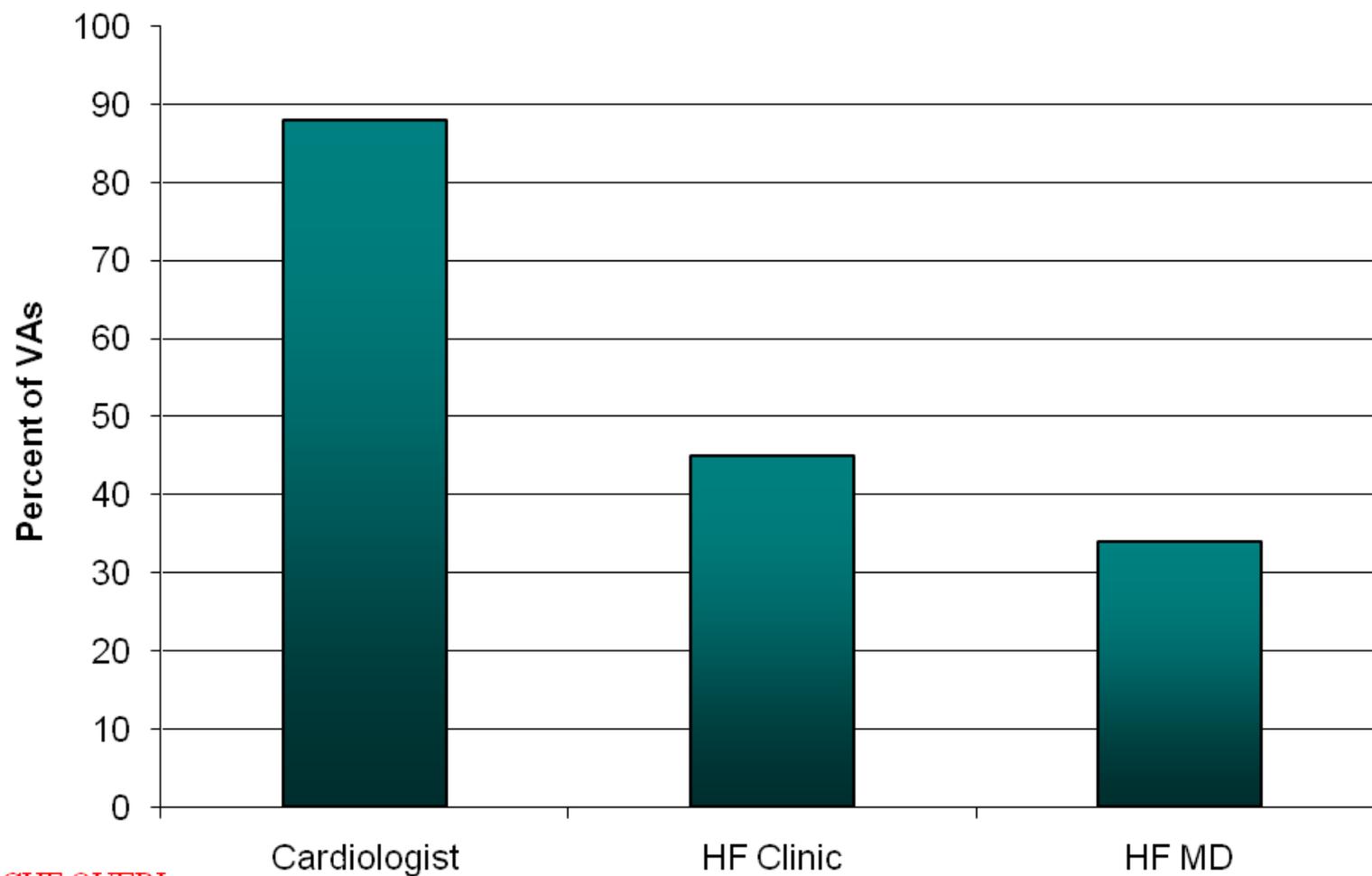
- JACC Heart Failure 2015;3:765

## VA Data - 14 day Outpatient Encounters Following HF Discharge (1999-2005)



CHF QUERI

## VA Heart Failure Practice Survey 2008: Physician Resources

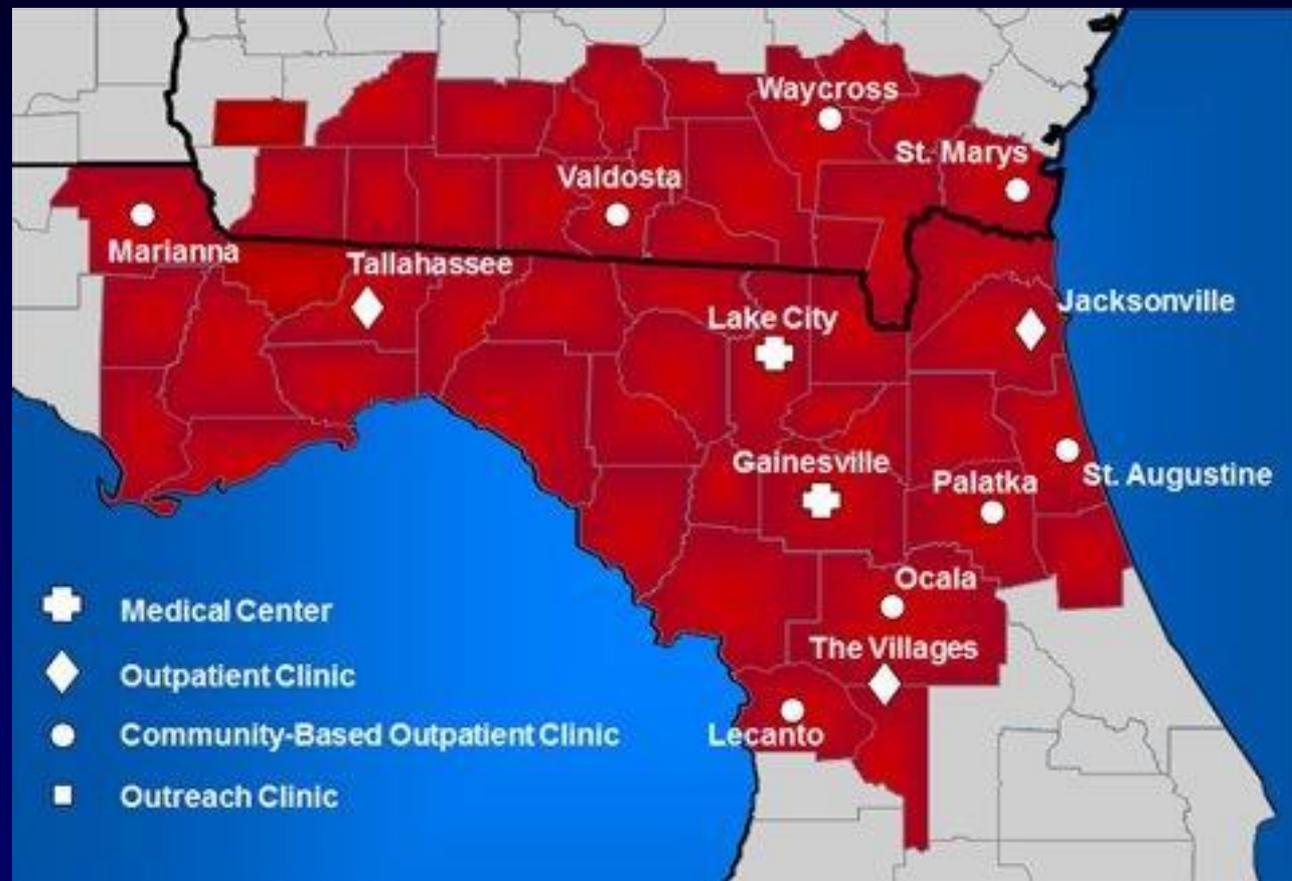


CHF QUERI

# Overview: North Florida/South Georgia Veterans Health System

- 2 hospitals, 11 outpatient clinics, 2 nursing homes
- 138,000 patients enrolled for care
- 5,274 employees
- 13,608 inpatient admissions
- 1,594,432 outpatient visits
- 594 total beds (291 hospital beds)
- Average daily census 432 (hospital ADC 203)
- Total medical care budget = \$1 billion
- Ranks #5 in complexity within VA (141 total facilities)

# NF/SG Veterans Health System



- 41,000 square miles
- 2 time zones
- 50 counties
- Size = West Virginia
- 40% pt volume in Jacksonville

# Evolution of HF Focus at our Local VA

- 2005
  - HF patients consuming excessive inpatient bed days of care
- 2015
  - SAIL Metrics
  - ACSC in SAIL
  - CMS Measures in SAIL
    - 30 day HF readmissions
    - 30 day HF mortality

# Evolution in Structure of Our HF Program

- **2005**
  - 1 MD (25% effort)
  - 1 ARNP (shared duties with CCHT), CCHT aligned under Cardiology
  - 2 RN (100% CCHT), CCHT aligned under Cardiology
  - 1 half day clinic/week
  - No inpatient rounding
- **2015**
  - 3 MD (about 1.5 FTE, all with ABIM boards in advanced HF)
  - 3 ARNP (2 CHF, 1 CHF/CCHT)
  - 1 PharmD
  - 1 scheduler
  - 2 RN (100% CCHT)
  - Clinic every day Monday-Thursday, with PRN availability Friday
  - Inpatient CHF consultation available every day Monday-Friday

# Entry Points Into the HF Program

- **2005**
  - Referral from Primary Care or Cardiology
  - Mostly outpatient referrals
  - Mostly stable NYHA class II and III
  - Exclude: HFpEF, non-compliance, substance use, any institutional care
- **2015**
  - Referrals primarily from inpatient ADHF admissions, with additional referrals from Primary Care and Cardiology
  - Mostly NYHA class III and IV with many co-morbidities, and many with frequent admissions
  - HFpEF and HFrEF are now included
  - Trying to work with noncompliant and substance using pts if possible

# Other Key Points

- Walk in clinic availability any day, M-F
- Inpatient consultation availability any day, M-F
- Home telehealth monitoring available for any HF pt, and CCHT data responded to in real time, staff aligned under Cardiology
- Expanded clinical trials (e.g. PARADIGM-HF)
- On site TAVR program (we are a VA TAVR referral center)
- What we lack
  - No dedicated unit for observation or short stay IV diuretic administration
  - No social worker, psychologist or dietician imbedded on the team
  - Closest VA site for advanced therapies = Richmond

# Baseline Characteristics of 321 HF Inpatients with ADHF Referred to CHF Clinic

<b>Variable</b>	<b>Mean (SD)</b>
<b>Age (years)</b>	<b>72 ± 12</b>
<b>Gender (% males)</b>	<b>98</b>
<b>EF</b>	<b>36 ± 14</b>
<b>NYHA score (avg.)</b>	<b>2.9 ± 0.6</b>
<b>Class I (%)</b>	<b>2</b>
<b>Class II (%)</b>	<b>26</b>
<b>Class III (%)</b>	<b>53</b>
<b>Class IV (%)</b>	<b>14</b>
<b>NTpro-BNP</b>	<b>5875 ± 8007</b>
<b>Sodium</b>	<b>138 ± 5</b>
<b>Potassium</b>	<b>4.2 ± 0.6</b>
<b>BUN</b>	<b>39 ± 26</b>
<b>Creatinine</b>	<b>1.6 ± 0.9</b>
<b>Comorbidities (%)</b>	
<b>Coronary artery disease</b>	<b>65</b>
<b>PCI</b>	<b>27</b>
<b>CABG</b>	<b>35</b>
<b>Hypertension</b>	<b>81</b>
<b>PVD</b>	<b>24</b>
<b>CVA</b>	<b>10</b>

# Baseline Characteristics of 321 HF Inpatients With ADHF Referred to CHF Clinic

Variable (continued)	Mean (SD)
<b>Comorbidities (%)</b>	
TIA	5
Diabetes	46
HLD	80
OSA	28
using CPAP	16
COPD	33
Pulmonary hypertension	37
Atrial fibrillation	46
Ventricular tachycardia	3
Ventricular fibrillation	1
Cardiac Arrest	2
Valvular heart disease	61
History of an MI	28
Diastolic dysfunction	14
Systolic dysfunction	72
Right sided heart failure	6
Chronic renal insufficiency	52
Heart transplant	0.31
Palliative care	2
Depression	13

# Baseline Characteristics of 100 ADHF Patients Age $\geq$ 80

<b>Variable</b>	<b>Mean (SD)</b>
<b>Age</b>	<b>85 <math>\pm</math> 4</b>
<b>Gender</b>	
<b>Male</b>	<b>98</b>
<b>Female</b>	<b>2</b>
<b>EF</b>	<b>38 <math>\pm</math> 13</b>
<b>NYHA score (avg.)</b>	<b>2.9 <math>\pm</math> 0.6</b>
<b>Class I (%)</b>	<b>3</b>
<b>Class II (%)</b>	<b>24</b>
<b>Class III (%)</b>	<b>58</b>
<b>Class IV (%)</b>	<b>15</b>
<b>NTpro-BNP</b>	<b>9,325 <math>\pm</math> 9,073</b>
<b>Sodium</b>	<b>139 <math>\pm</math> 6</b>
<b>Potassium</b>	<b>4.2 <math>\pm</math> 0.6</b>
<b>BUN</b>	<b>40 <math>\pm</math> 26</b>
<b>Creatinine</b>	<b>1.8 <math>\pm</math> 1.4</b>

# Current Status

- ~500 pts actively followed in CHF clinic, with about 200 new referrals/year
- 275 HF pts actively followed via CCHT
- ~ 2 pts/year referred for Tx or DT LVAD
- ~15 pts on palliative home inotropes since 2008, longest duration of therapy = 2.5 years
- 2 LVAD pts currently (1 DT, 1 BTT)
- SAIL data:
  - ACSC: 29.2 hospitalizations/1000 pts (VA 50<sup>th</sup> % = 26.1)
  - CHF 30-day RSRR: 21.5% (VA 50<sup>th</sup> % = 19.1%)
  - CHF 30-day RSMR: 8.2% (VA 50<sup>th</sup> % = 7.7%)

# HF Outcomes in North/Central Florida: VA vs Private Sector

<b>Hospital</b>	<b>30-Day HF Readmission Rate</b>	<b>30-Day HF Mortality</b>
UF Health GNV	25.2%	11.3%
UF Health JAX	22.6%	9.6%
NF Regional (HCA)	22.5%	10.7%
Orlando ORMC	19.9%	12.1%
Florida Hospital Orlando	24.8%	11.2%
<b>Gainesville VAMC</b>	<b>21.5%</b>	<b>8.2%</b>
National Average -CMS Hosp. Compare	22.0%	11.6%
National 50 <sup>th</sup> Percentile -VA SAIL	19.1%	7.7%

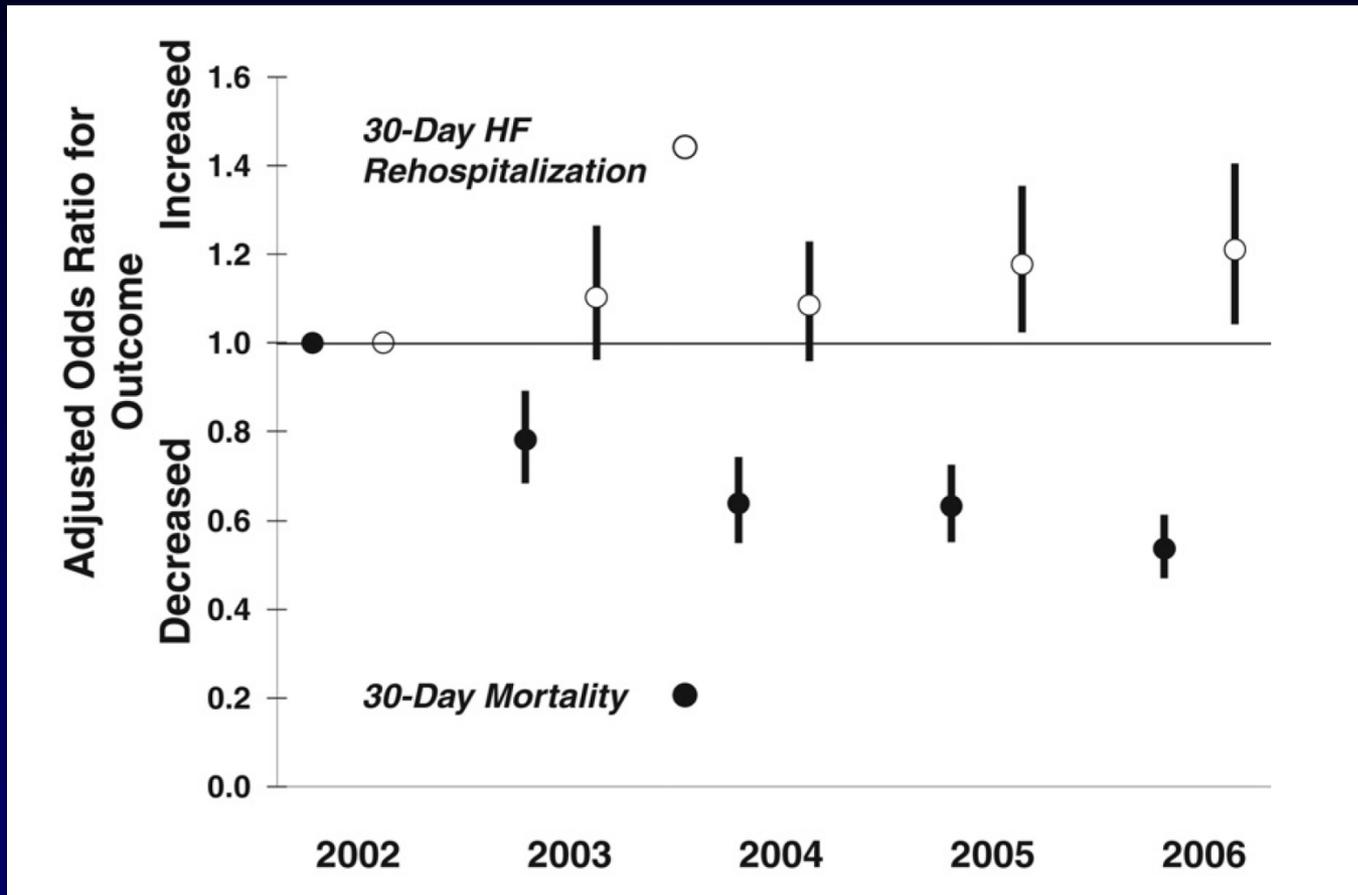
# Team Recognitions

- 2009 V.A. Institute for Healthcare Improvement National Forum
- 2009 V.A. National Quality Forum
- North Florida/South Georgia V.A. Chronic Disease Model
- National presentation to the V.A. Office of Telehealth Services  
2010, 2014, 2015
- 2010 Nursing Excellence Award, American Association of Heart Failure Nurses
- 2010 VISN 8 Nominee for Systems Redesign Award
- 2010 national 2<sup>nd</sup> place award for Systems Redesign, VHA
- Numerous positive patient testimonials
- High satisfaction with CHF management from the Primary Care teams

# Parting Observations

- Focus on ADHF pts yields higher potential for impact but also higher risk, more complex pts, many of which are end-stage
- For the high risk HF cohort, our HF clinic basically takes over pt management from PC, which leads to higher pt satisfaction
- HFpEF pts are common and benefit from HF clinic f/u (Afib management, BP control, ischemic evaluation)
- Early post discharge f/u is key for preventing 30-day readmissions
- Frequent ongoing f/u visits is key for reducing overall admissions
- QoL seems to be improved and sustained with CHF clinic f/u
- Many HF pts meet hospice criteria but are resistant to hospice referral until very end stage
- We have expanded the use of home inotropes which seems to improve outcomes for end-stage pts not candidates for Tx/VAD
- More open HF clinic access + sicker pts (many prefer us to private sector) may not equal fewer admissions...BUT IS THAT REALLY BAD?

# If the Alternative to Readmission is Mortality, then Readmissions are Better



- Heidenreich et al. JACC 2010;56:362-368