Tackling Heart Failure

Heart Failure Program at Piedmont Athens Regional

Presenting Team and Disclosures

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Piedmont Athens Regional
Dr. Marti is the principal investigator for the CardioMEMS HF program for St. Jude Medical.

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PAR Hospitalist Group
Piedmont Athens Regional

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Clinical Outcomes & PI
Piedmont Athens Regional

Dr. Jones, Melinda Jenkins, and Kate Connell have no relevant financial relationships to disclose.

Management of Heart Failure: Where are we now?

Catherine Marti, MD MSc

Heart Failure: Definition

- Heart failure is a *clinical syndrome* caused by various cardiac pathologies
- It is characterized by <u>specific symptoms</u> of *impaired cardiac output*, *venous congestion*, and *fluid retention*
- It results from any structural or functional disorder that impairs the ability of the ventricle to *fill with* or *eject blood*
- *Can be due to HFrEF, HFpEF, infiltrative cardiomyopathy or other cardiac conditions*

Stages of Heart Failure

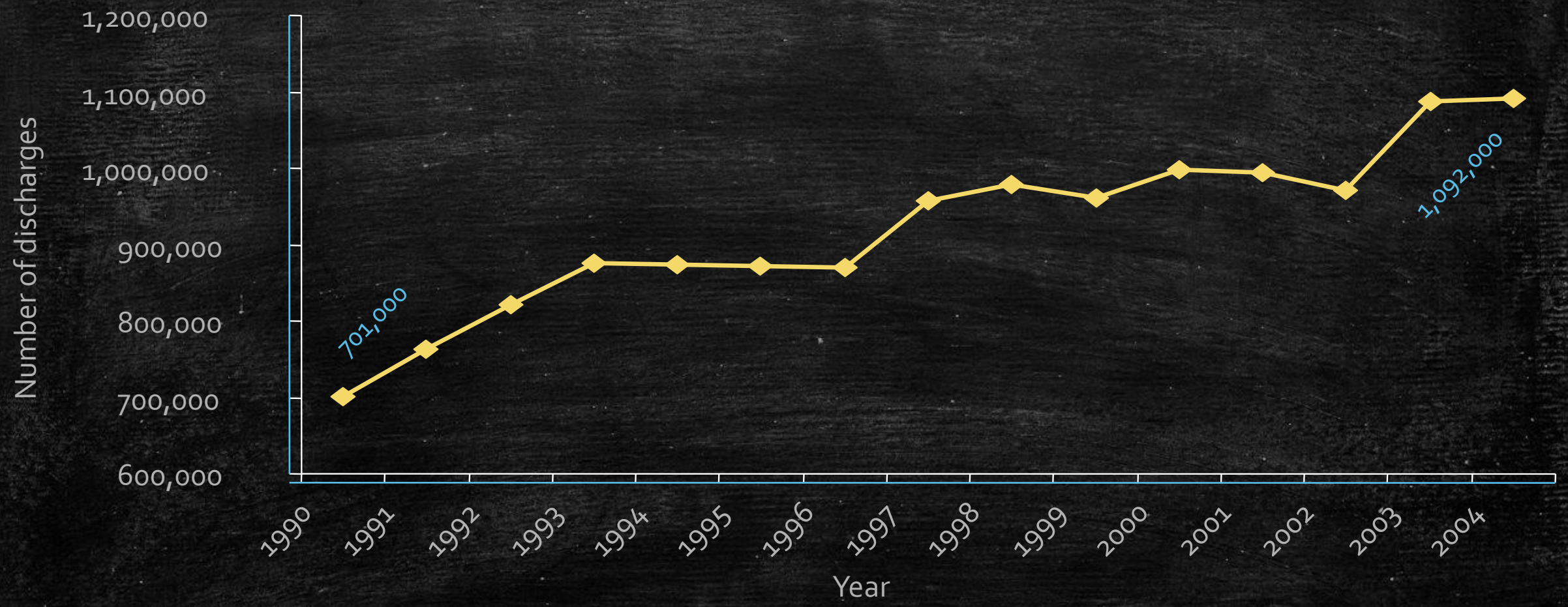
A
- No structural heart disease
- At risk population- HTN, DM, Anthracycline

B
- Minimal structural heart disease
- No symptoms or signs of HF

C
- Moderately severe structural heart disease
- Previous or current symptoms

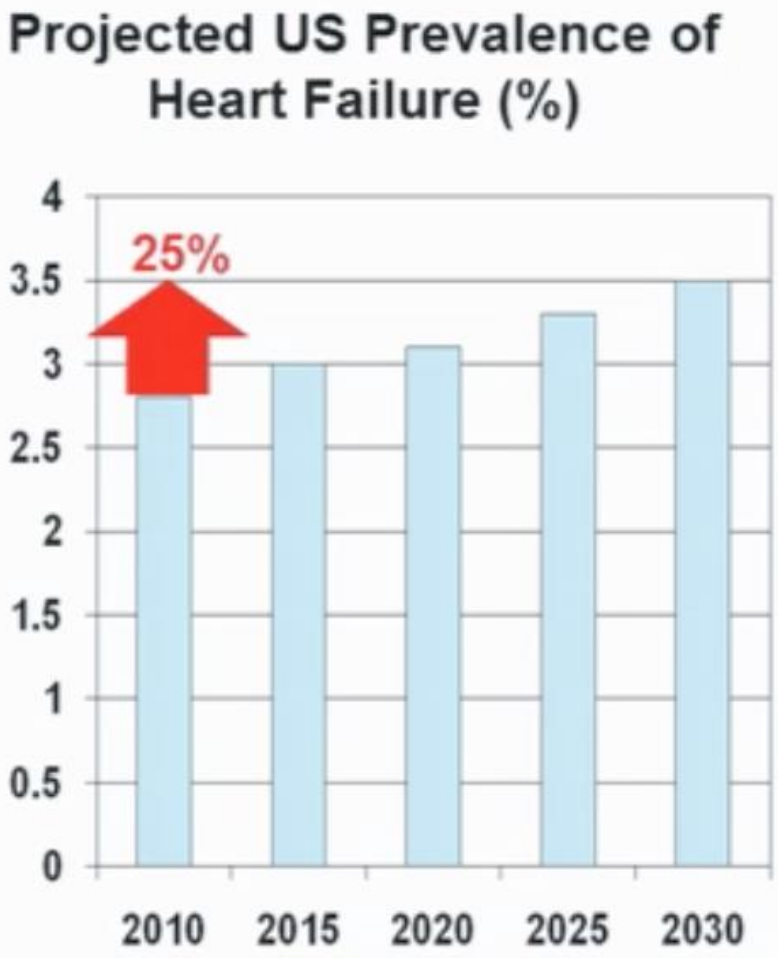
D
- Severe structural heart disease
- Refractory symptoms requiring special RX

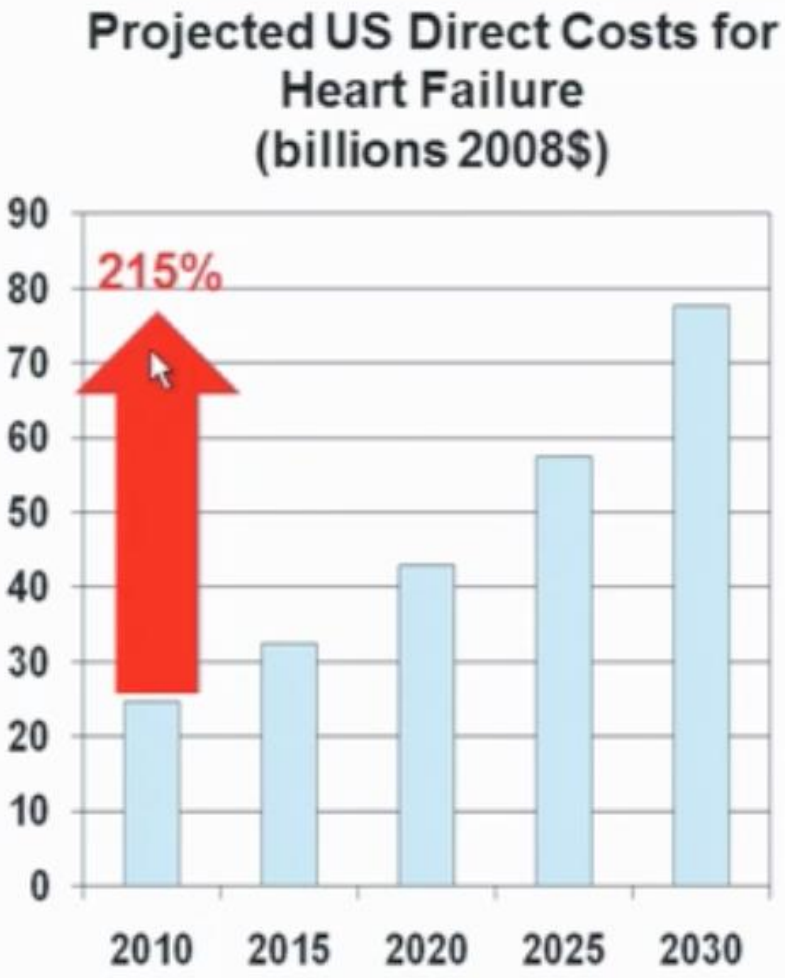
Hospital Discharges for Heart Failure



Advanced Data; National Hospital Discharge Survey 1990-2004;
Available at: http://www.cdc.gov/nchs/about/major/hdasd/listpubs.htm. Accessed: June 27, 2007.

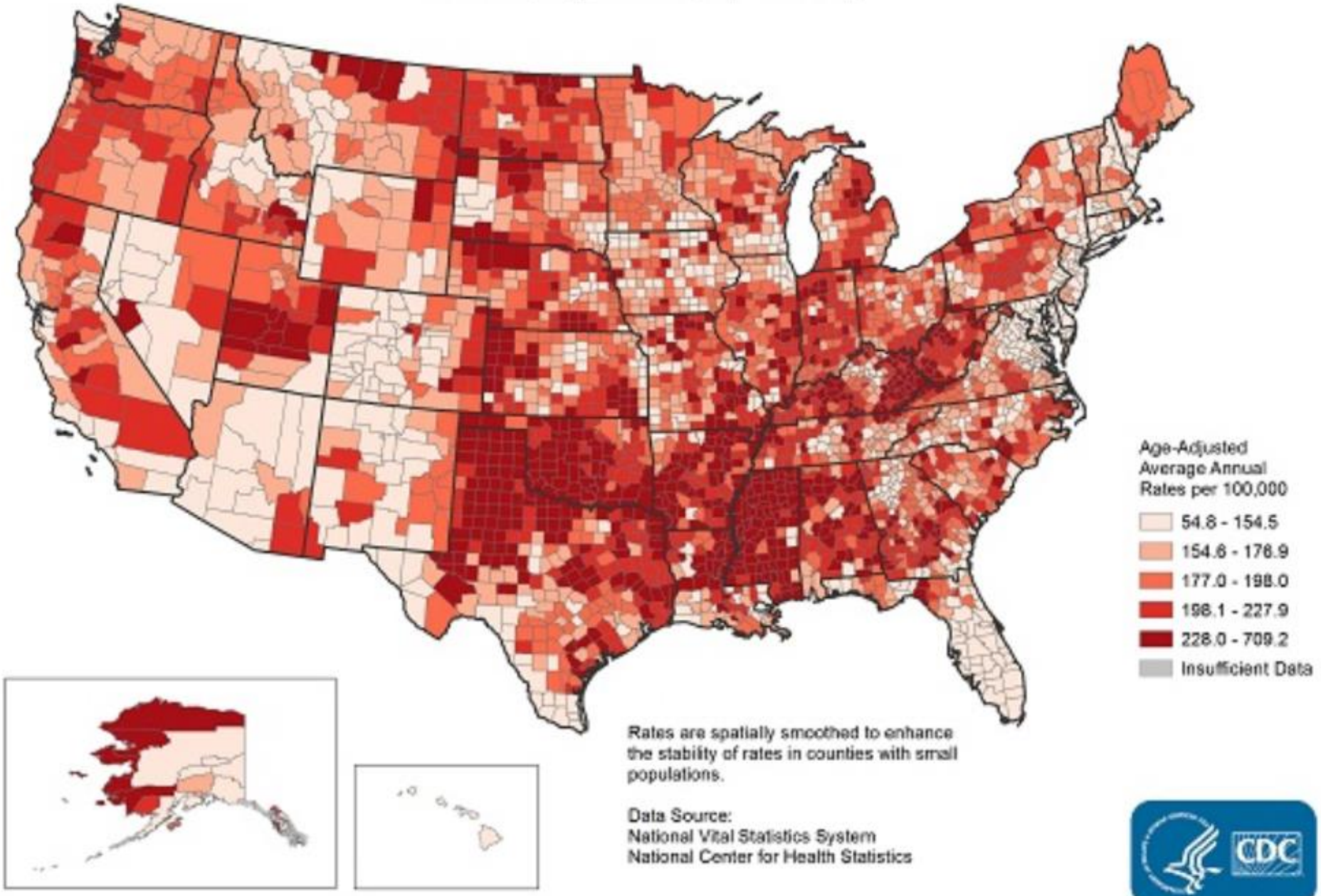
Projected US Heart Failure Prevalence and Direct Cost





Adapted from Heidenreich PA et al. Circulation. 2011;123:933-944
AHA Statement: Forecasting the future of CV disease in US

Heart Failure Death Rates, 2011-2013
Adults, Ages 35+, by County



Guideline-Directed Medical Therapy

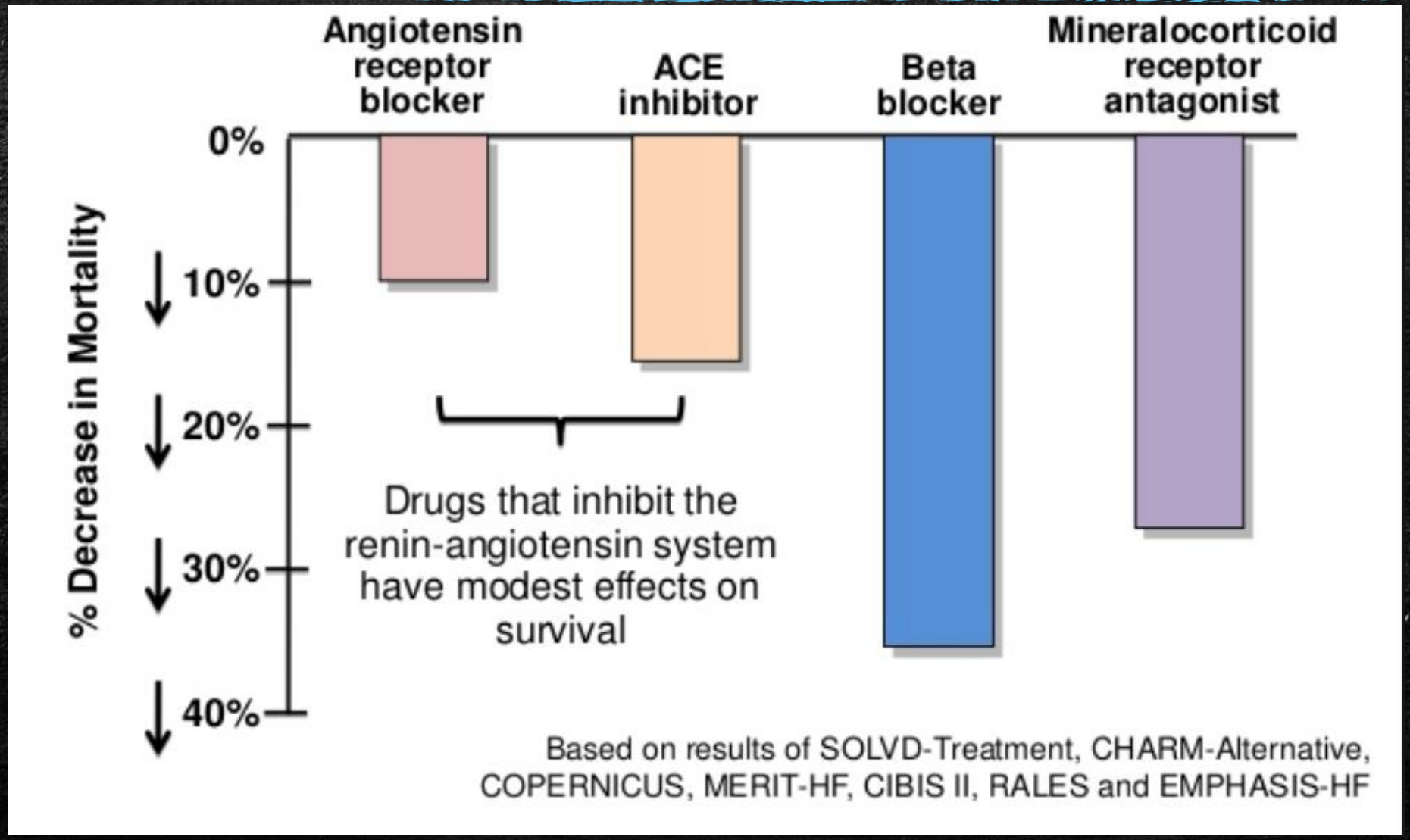
Drugs for Long-term Therapy for Heart Failure with Reduced LVEF

<u>Clinical Trial Benefit</u>

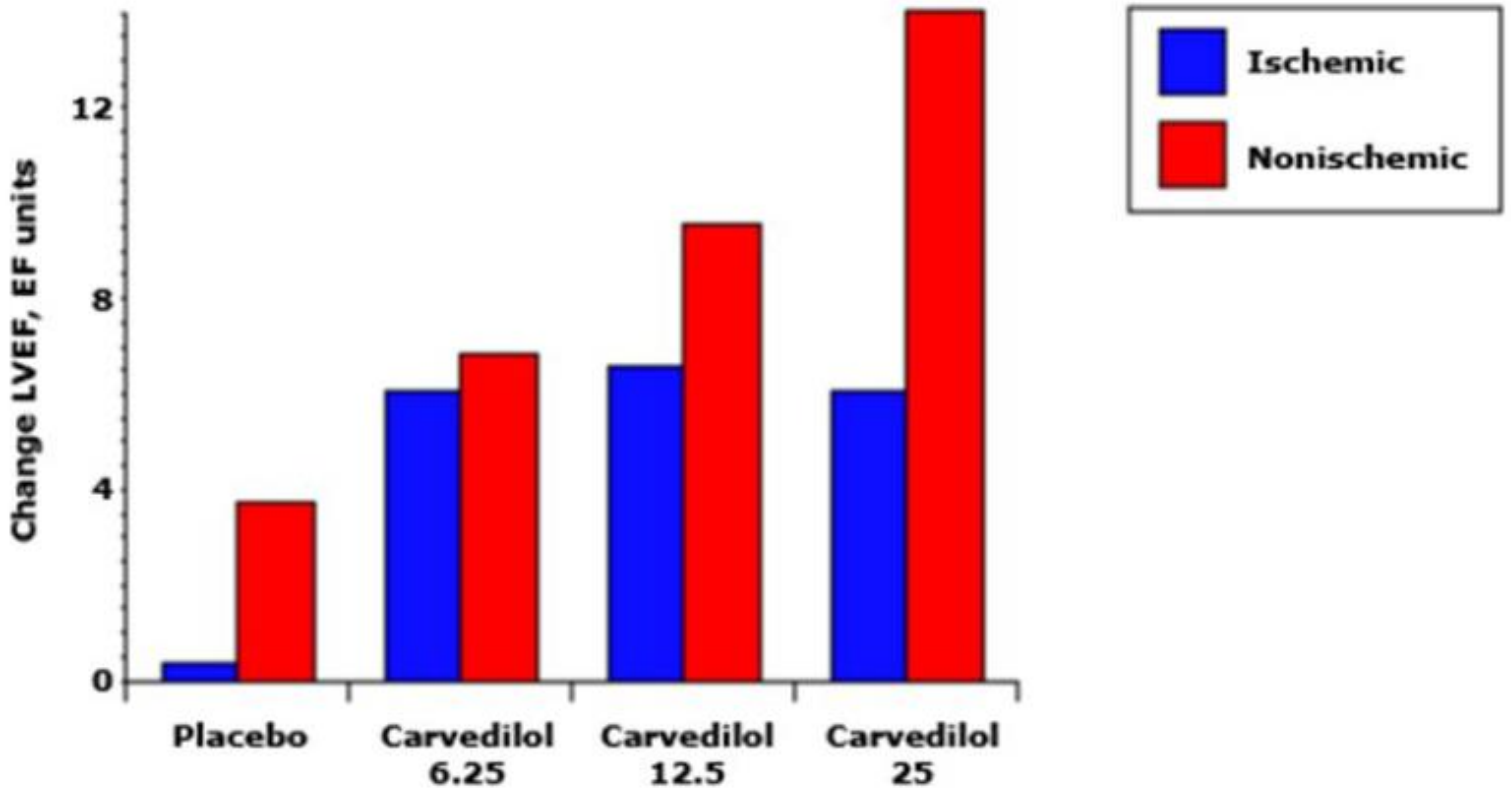
- ✓ ACE inhibitors or

  Angiotensin receptor blockers
- ✓ Beta-blockers
- ✓ Aldosterone blockers
- ✓ Nitrate/Hydralazine
- ✓ Digoxin*

Life Saving Therapy

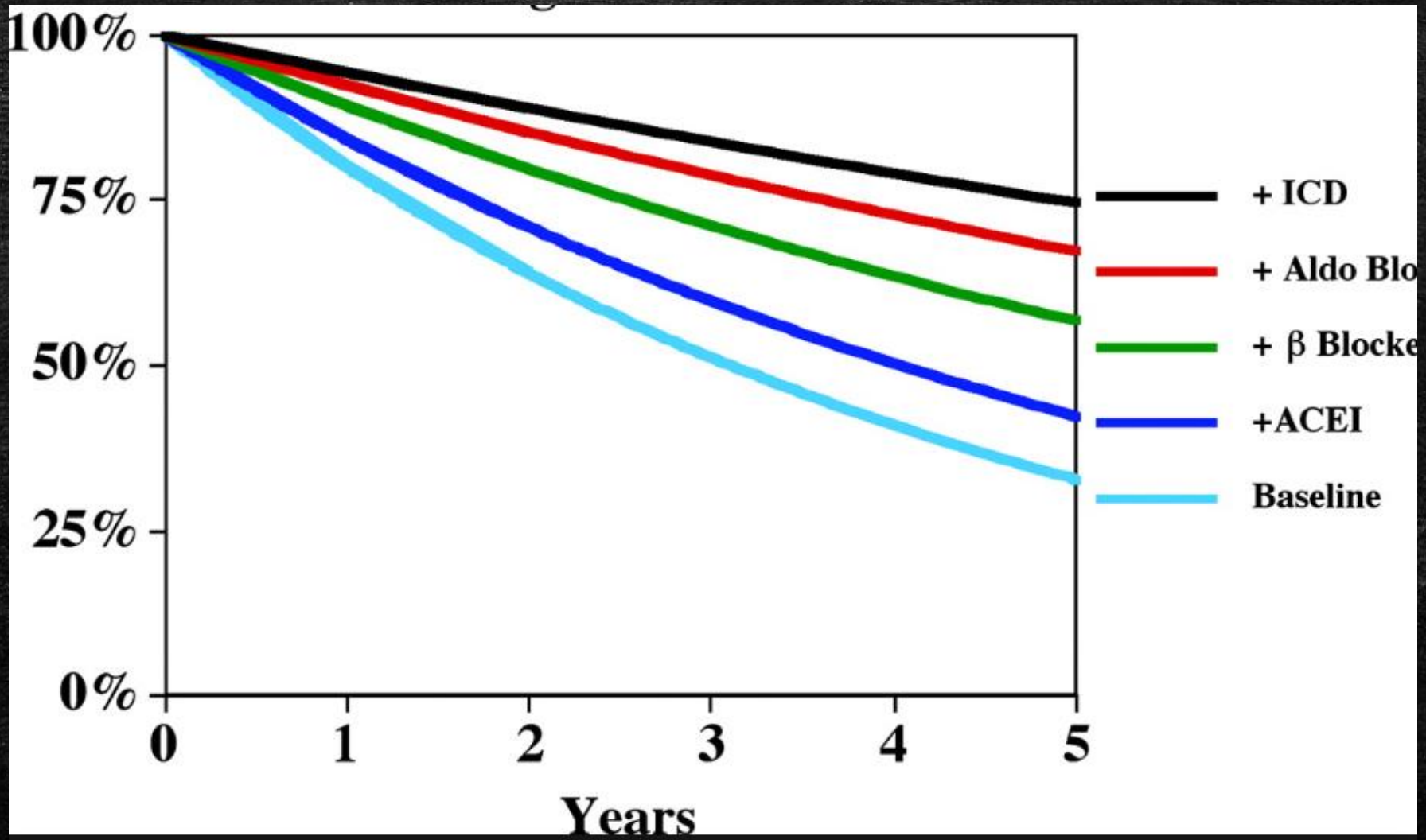


Improvement of Systolic Function is Related to Beta Blocker Dose



Bristow. Circulation, 1996.

Heart Failure Cocktail: Effect of Adding Therapies



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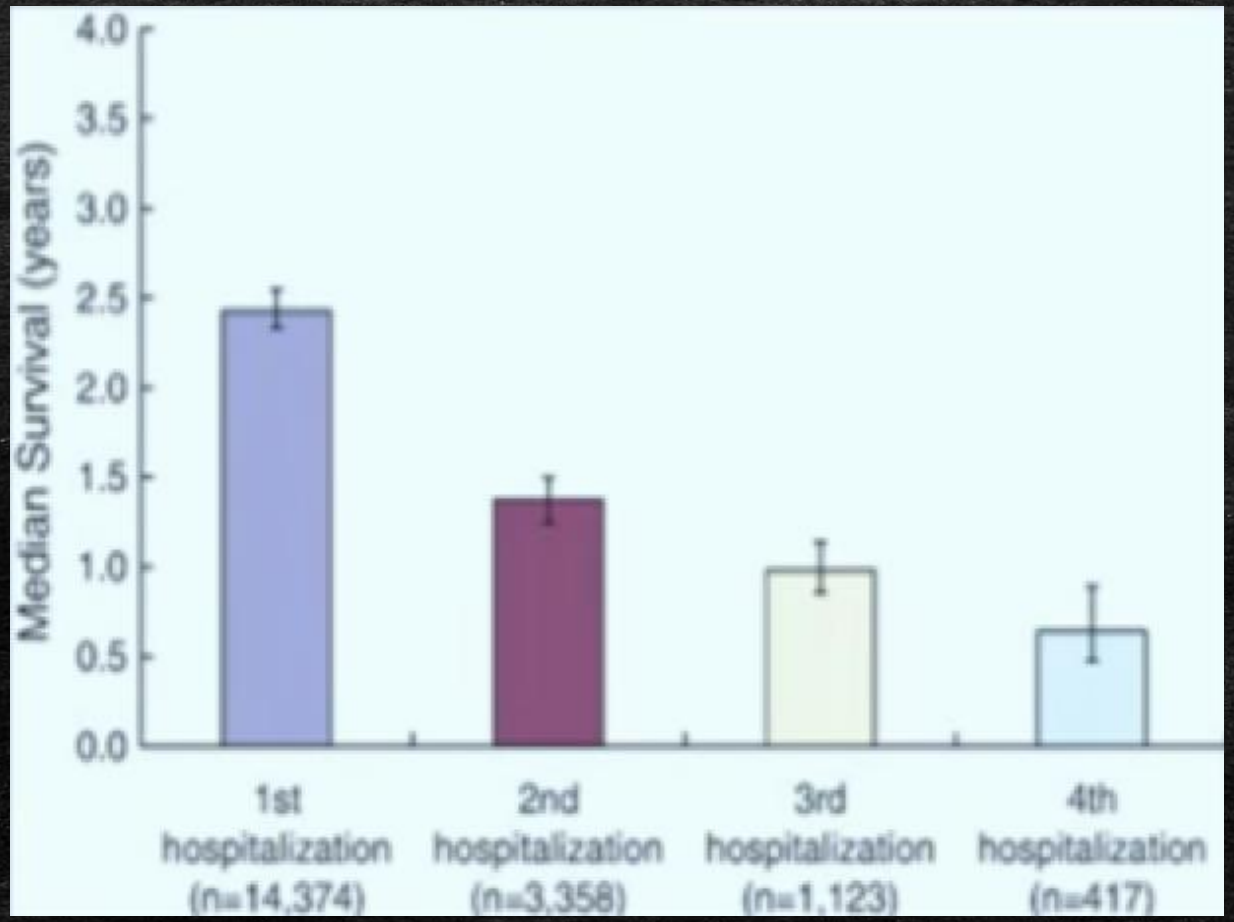
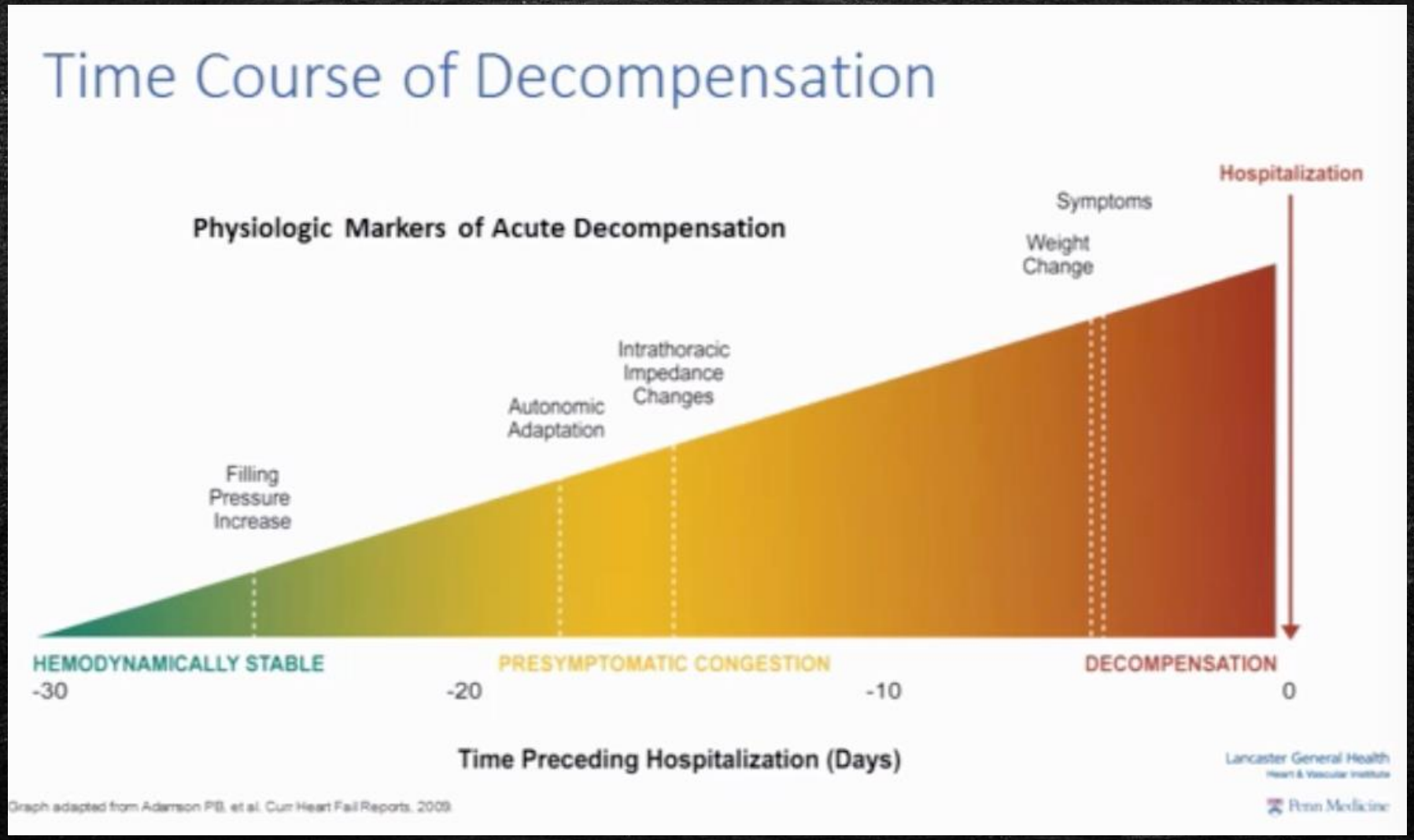
Sacubitril/Valsartan (ENTRESTO)

Heart Failure Hospitalization is Ominous



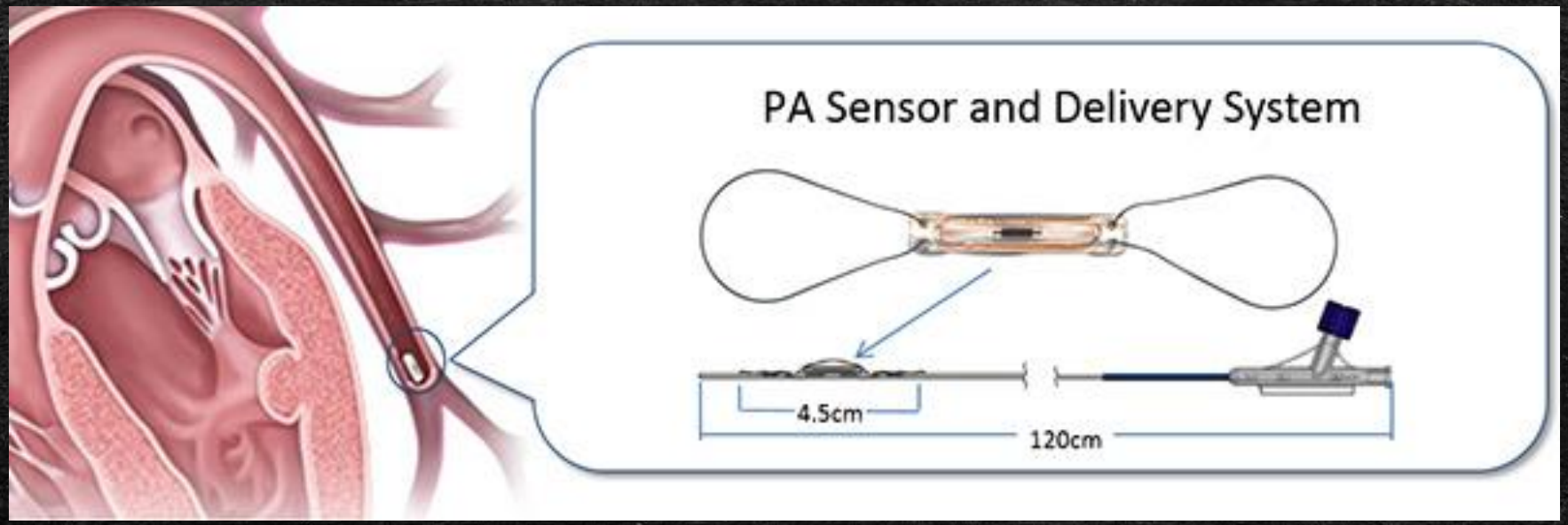
Setoguchi. Am Heart J. 2007

Heart Failure Hospitalization Starts <u>Weeks</u> Before Admission!



Advanced Heart Failure Therapies

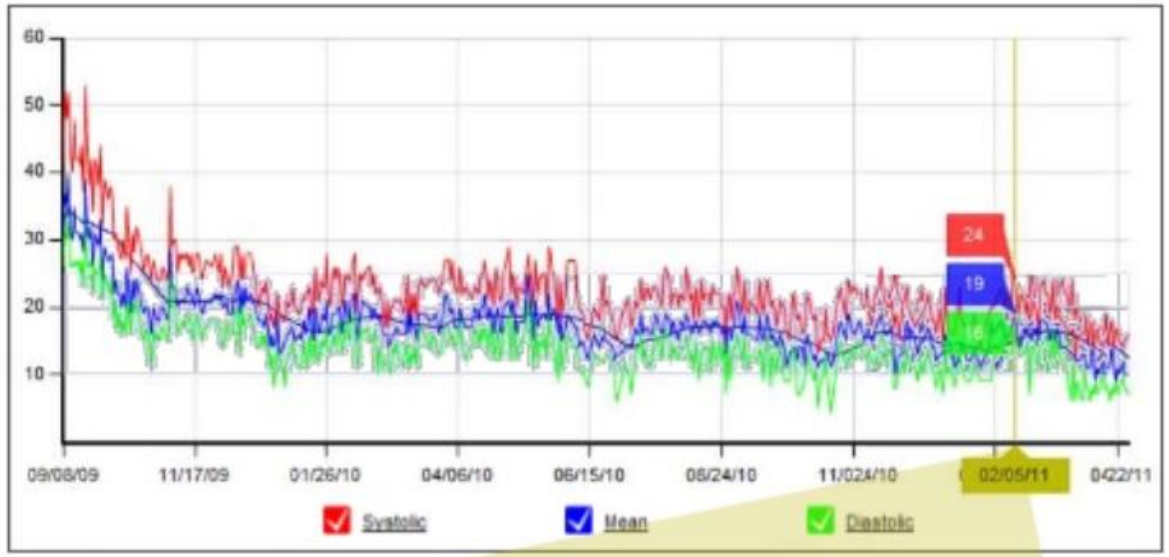
Wireless Pulmonary Hemodynamic Monitoring



Patient Management Database

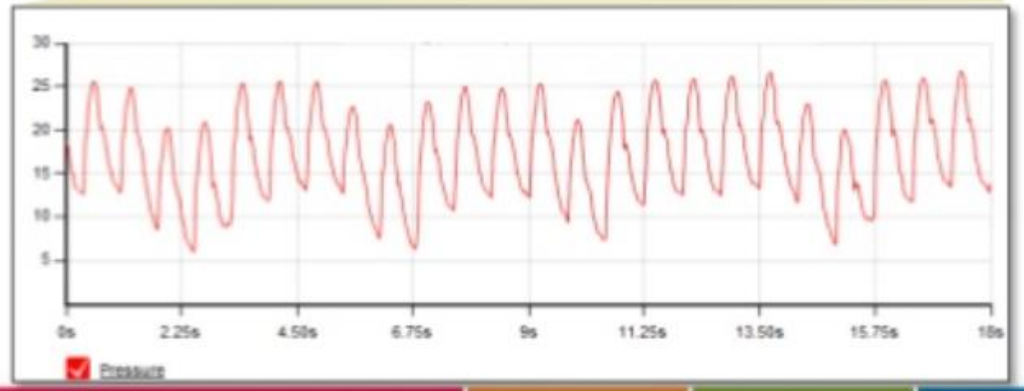
Trend Data

- Easy-to-read
- Physician alerts
- Home transmission
- Secure, encrypted web-based access



Discrete Data

Reading	
Systolic:	24
Mean:	19
Diastolic:	16
Heart Rate:	81



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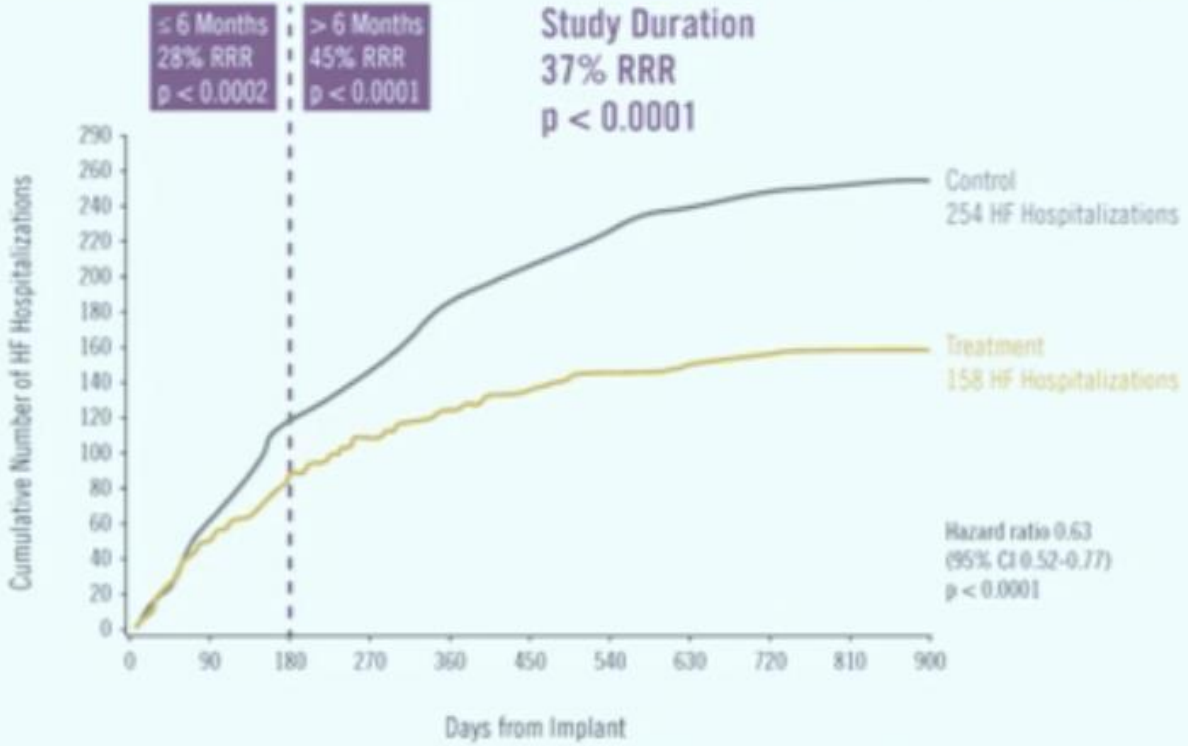
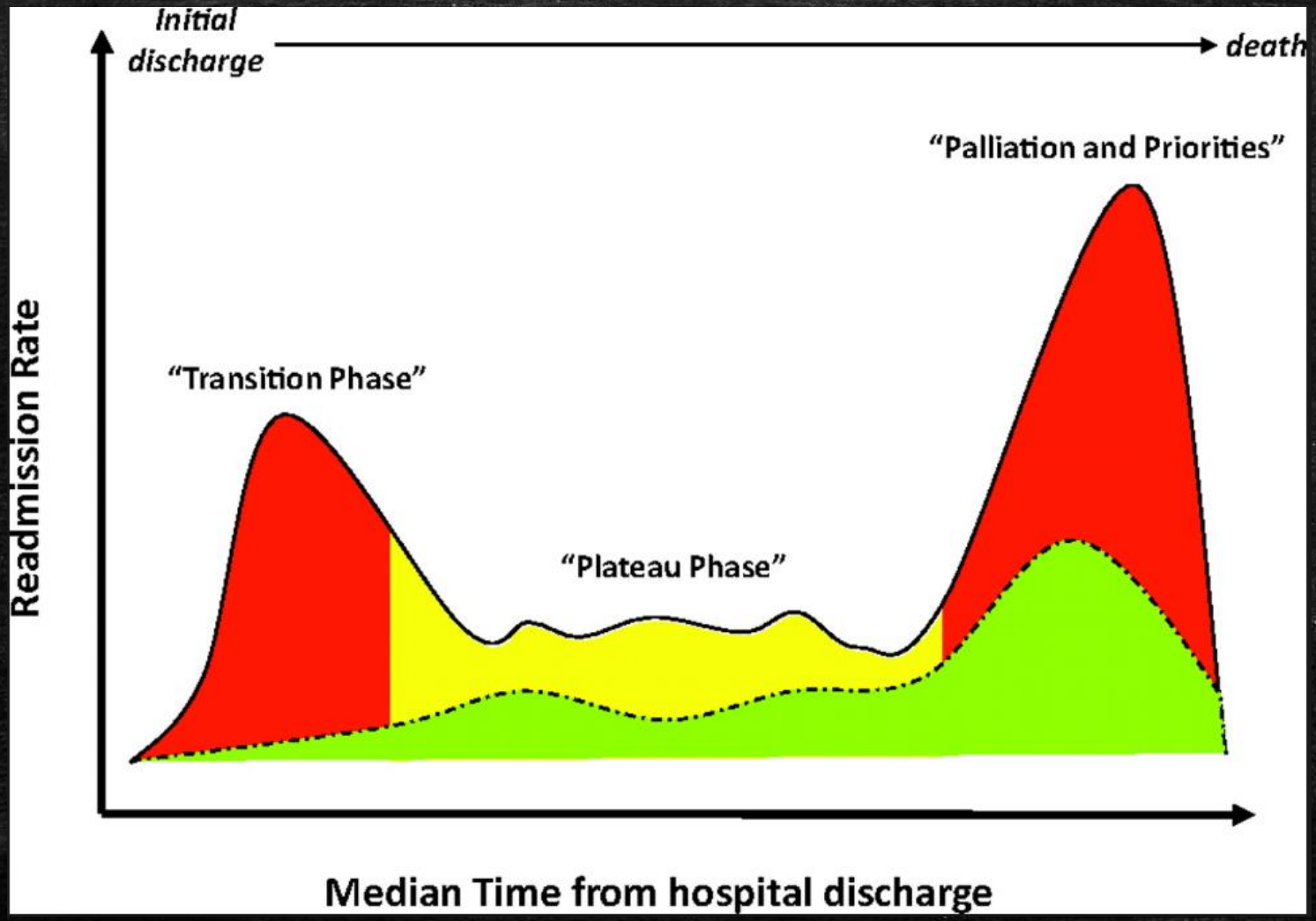
Wireless pulmonary artery haemodynamic monitoring in chronic heart failure: a randomised controlled trial

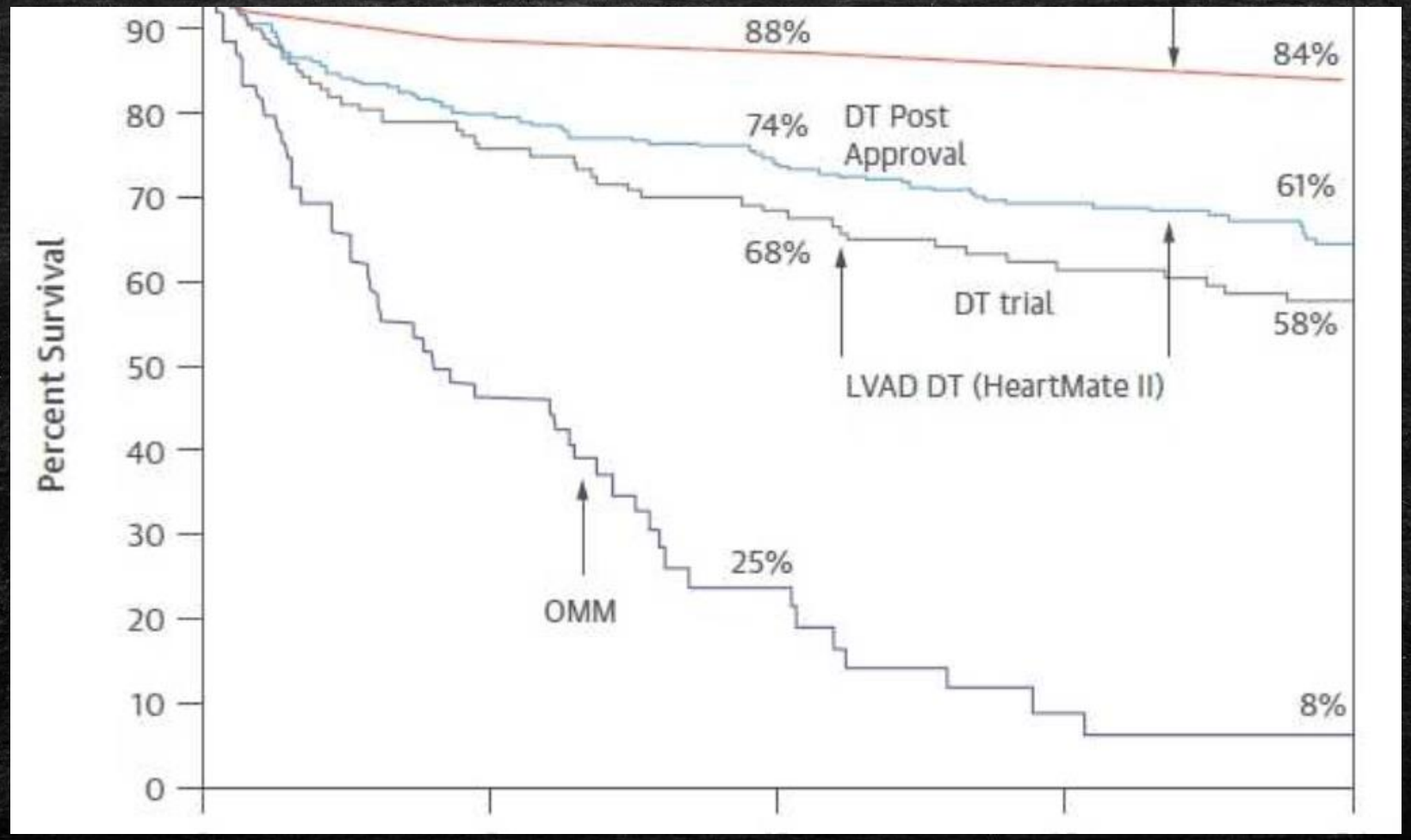


	HR for HF Hsp at 6 Mo	P Value
HFrEF	0.76	0.007
HFpEF	**0.48**	**<0.0001**

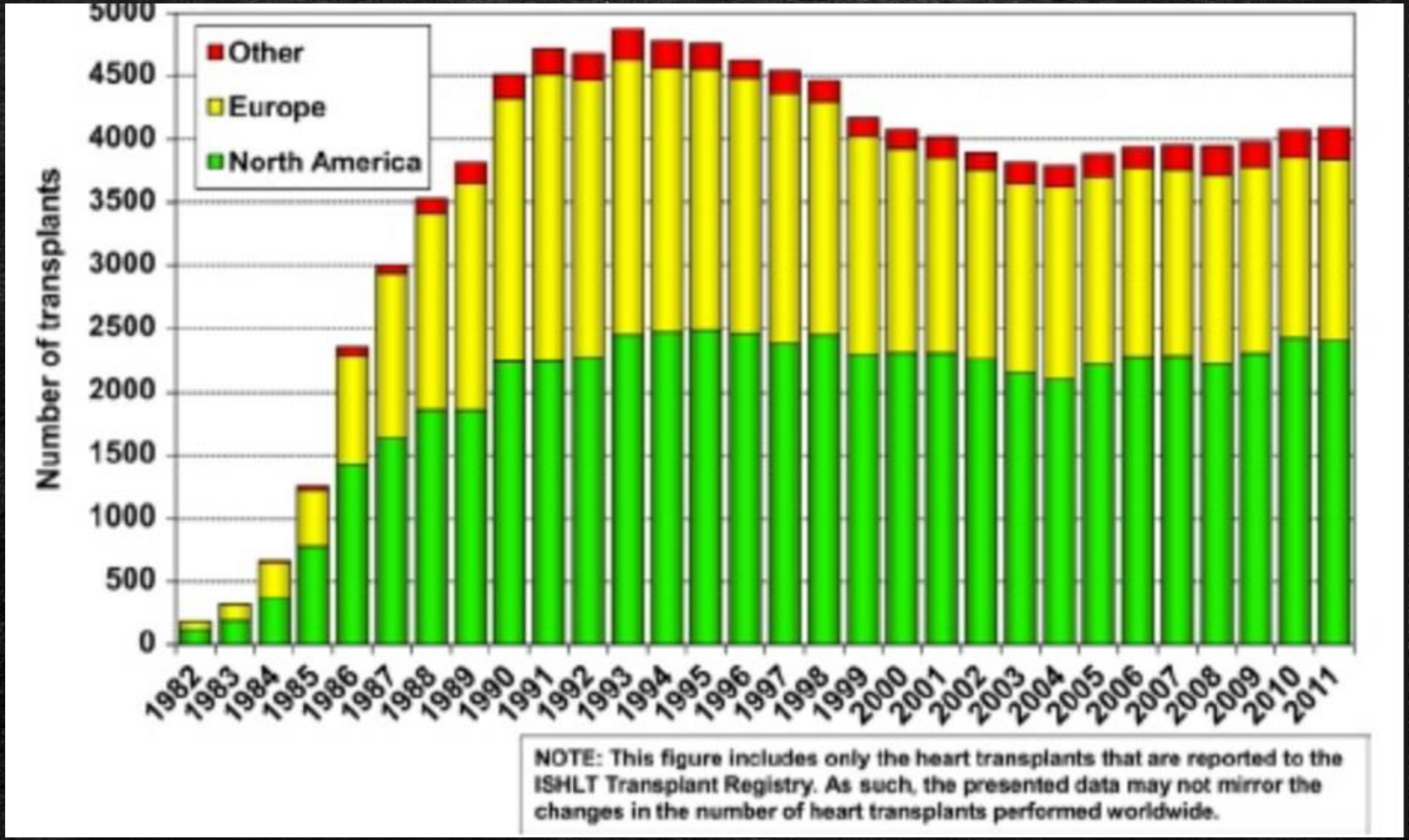
High Risk Patients for Readmission



Improved Outcomes in Stage D with Advanced Therapies for Heart Failure

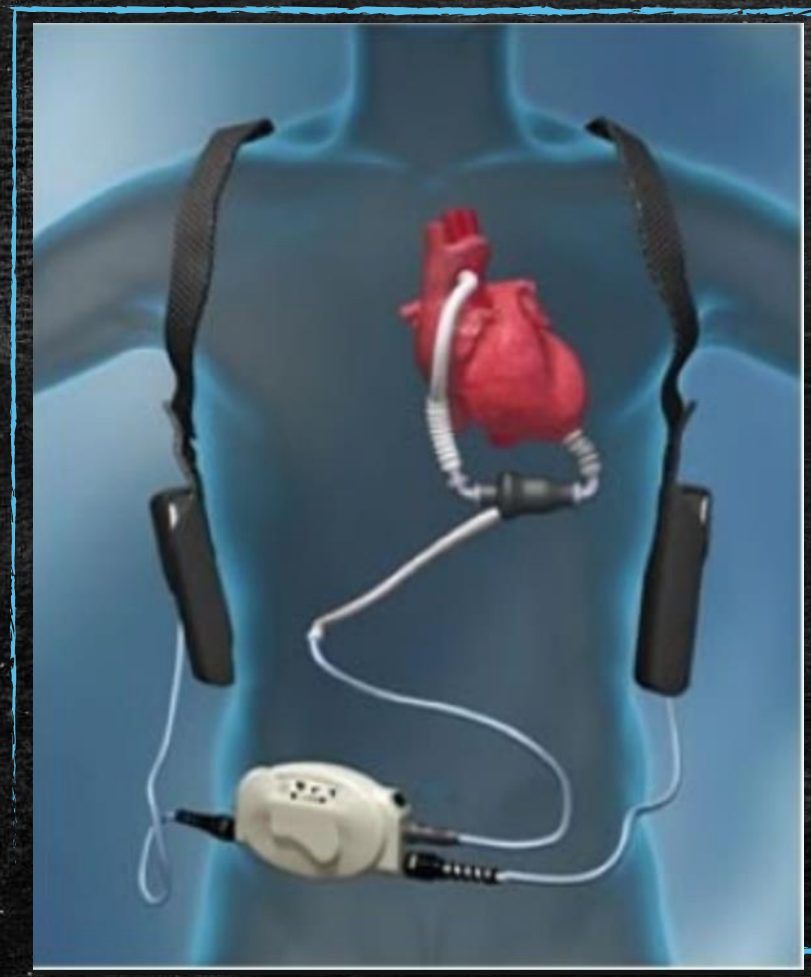


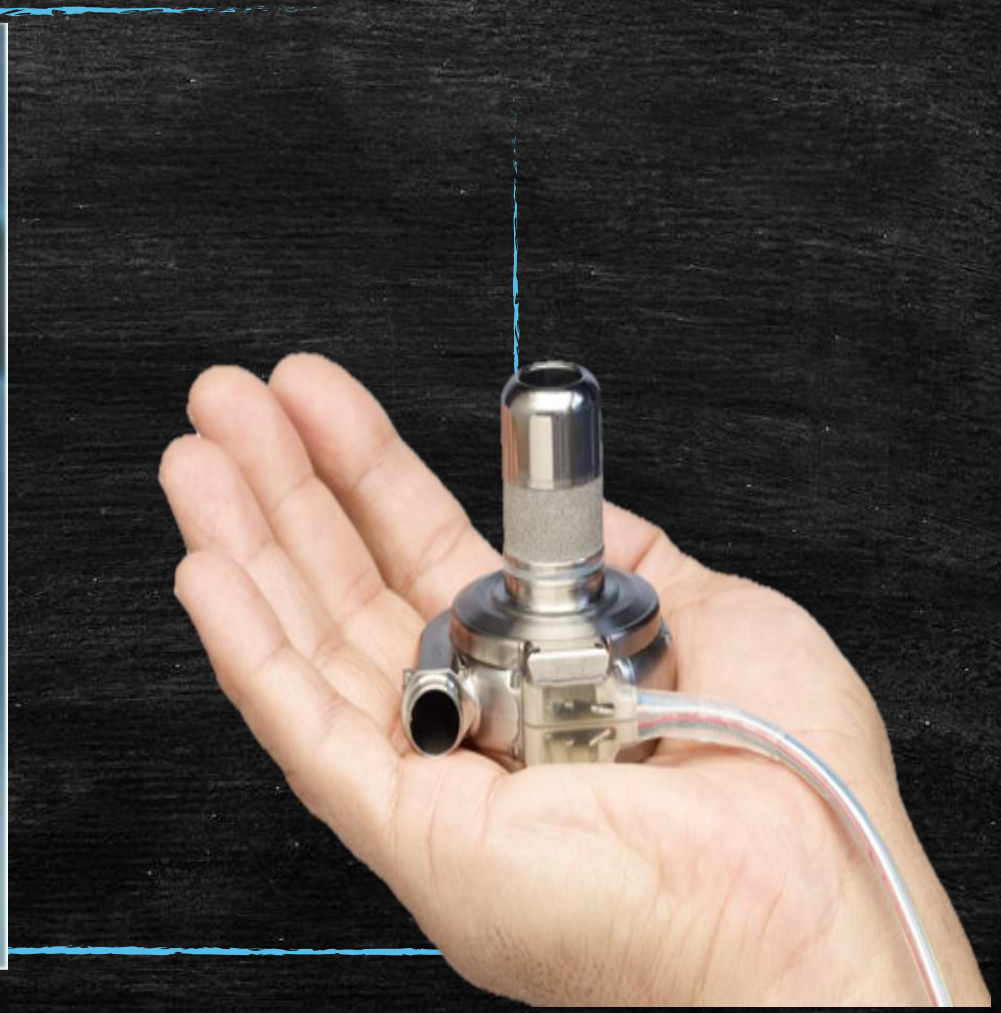
Transplant is Not a Viable Option for Many Patients



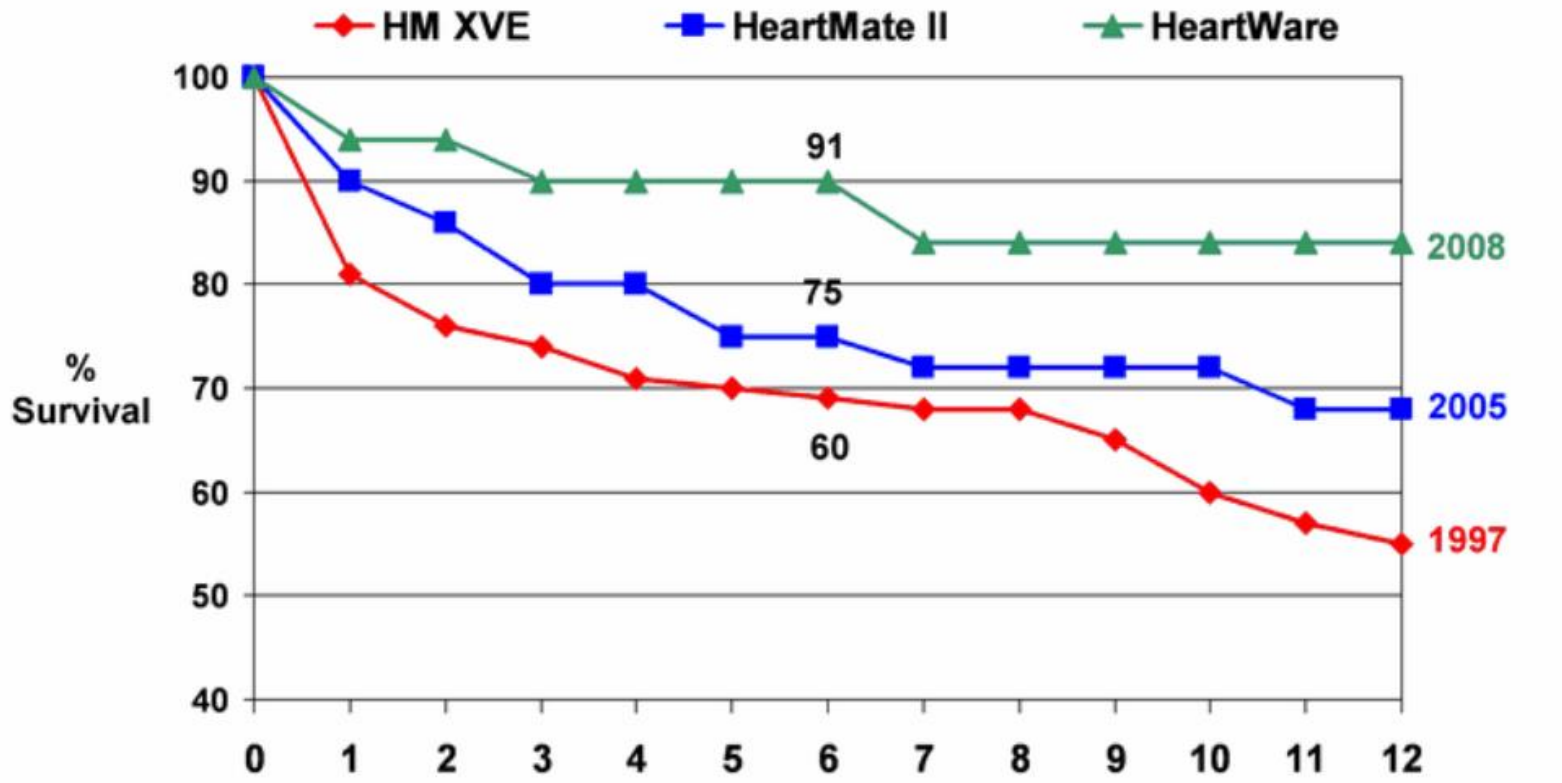
Home Inotropic Therapy

Left Ventricular Assist Device (LVAD)





Improving Outcomes with LVAD



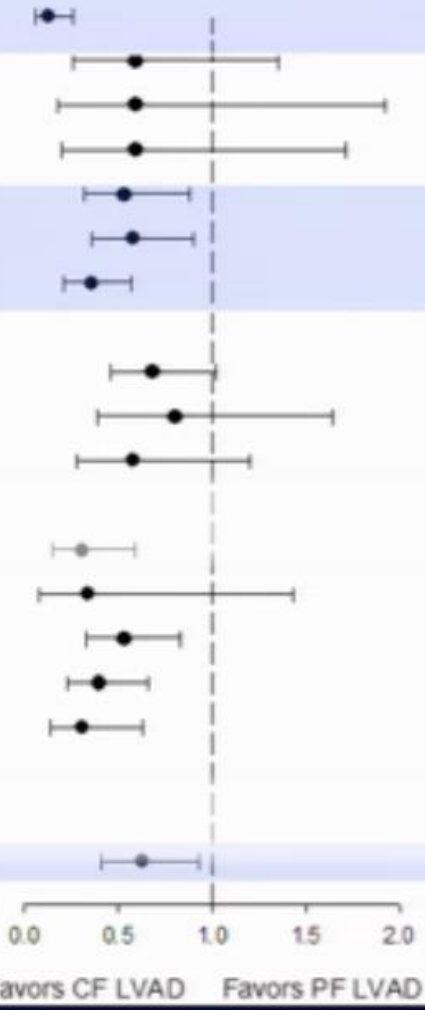
Multicenter clinical evaluation of the HeartMate vented electric left ventricular assist system in patients awaiting heart transplantation. Frazier OH, Rose EA, Oz MC et al. J Thor Cardiovasc Surg 2001:122

Use of a continuous-flow device in patients awaiting heart transplantation. Miller LW, Pagani FD, Russell SD et al. N Engl J Med. 2007 Aug 30.

Adverse Events

HeartMate II Destination Therapy Trial

	CF LVAD (n=133) [211 pt-years]	PF LVAD (n=59) [41 pt-years]		
	Events/pt yr	Events/pt yr	Risk Ratio [95% Confidence Interval]	p-value
Pump Replacements	0.06	0.51		<0.001
Stroke	0.13	0.22		0.21
Ischemic	0.06	0.10		0.38
Hemorrhagic	0.07	0.12		0.33
Device-related infection	0.48	0.90		0.01
Local non-device infection	0.75	1.33		0.02
Sepsis	0.39	1.11		<0.001
Bleeding				
Bleeding requiring PRBC	1.66	2.45		0.06
Bleeding requiring surgery	0.24	0.29		0.57
Other Neurological	0.17	0.29		0.14
Right Heart Failure				
Extended Inotropes	0.14	0.46		<0.001
RVAD	0.02	0.07		0.12
Cardiac Arrhythmias	0.69	1.31		0.006
Respiratory Failure	0.31	0.80		<0.001
Renal Failure	0.10	0.34		<0.001
Hepatic Dysfunction	0.01	0.00		
Device Thrombosis	0.06	0.05		
Re-hospitalizations	2.64	4.25		0.02



STROKE

INFECTION

BLEEDING

RIGHT HEART FAILURE

PUMP THROMBOSIS

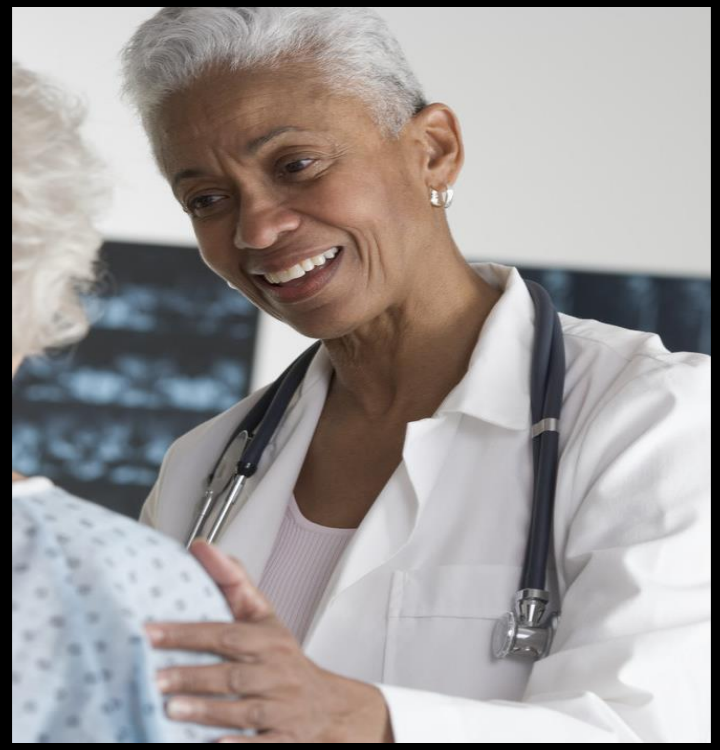
Improved Quality of Life

Additional Resources

PAR Heart Failure Clinic
706-475-1700

www.hfsa.org/heart-failure-guidelines

www.hfsa.org/accahahfsa-guideline-management-heart-failure-update/



Complete Care: Heart Failure

Piedmont Athens Regional

Medically Integrated Practice Units (IPUs)

Traditional Functional Structure

- Supply-driven
- Organized around skills and facilities
- Services in silos
- Discordant care, miscommunication, errors and waste

Integrated Practice Unit Structure

- Demand-driven; organized around **medical conditions**
- **Full range** of medical expertise, skills, and facilities
- Care provided by a **team**
- **Dedicated** resources
- **Results-driven**
- Complete **cycle of care**

Heart Failure IPU

Redefining Health Care at Piedmont Athens Regional

Heart Failure IPU at PAR

- Dedicated multidisciplinary team:
  - Hospitalists
  - Heart Failure specialists (outpatient provider)
  - Nursing
  - Dietitian
  - Pharmacists
  - Social Worker
  - Heart Failure Navigator
- Responsible for the **full cycle of care**
- Patient education, engagement and follow-up

Heart Failure IPU at PAR

Consistent Workflow Processes

- Nursing pathways
- Education materials
- Inpatient consults
- Follow-up appointments
- Follow-up phone calls

Heart Failure IPU at PAR

Integrated Workflow Processes

- Staff training
- Improved communication
- Improved team approach, including patient and family

Initial Success!

- Recently ranked #1 in Heart Failure Treatment in Georgia, #7 in US
- Scores based on patient safety, inpatient quality, readmissions, mortality, and complications

Hospital Quality Ratings 2018

Medical Excellence - Georgia

Heart Failure Treatment

Rank	Rating	Hospital Name	City Location	State
1	✓++	Piedmont Athens Regional Medical Center	Athens	GA
2	✓++	Northeast Georgia Medical Center	Gainesville	GA
3	✓++	Wellstar Paulding Hospital	Dallas	GA
4	✓++	Gwinnett Medical Center	Lawrenceville	GA
5	✓++	Memorial Health University Medical Center, Inc	Savannah	GA
6	✓++	Wellstar West Georgia Medical Center	Lagrange	GA
7	✓++	Cartersville Medical Center	Cartersville	GA
8	✓++	Oconee Regional Medical Center	Milledgeville	GA
9	✓++	Gordon Hospital	Calhoun	GA
10	✓+	Wellstar Kennestone Hospital	Marietta	GA