



*Louisiana*



# Impacting Disparities in Healthcare Using a Disease Management Model

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# Past, Present, Future

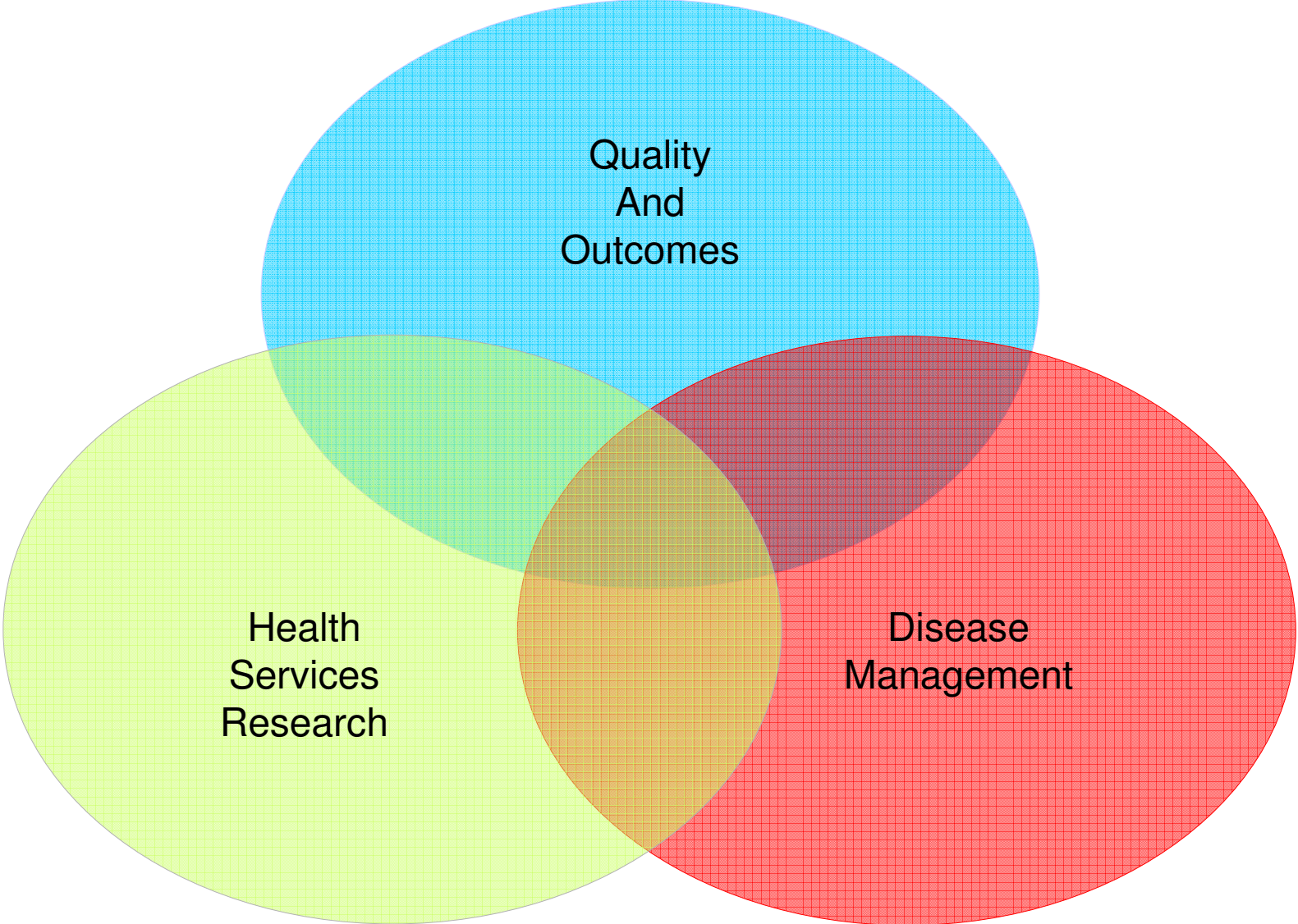
- Louisiana
- Miami
- Global Healthcare for Chronic Diseases

# Health Services Research

a field of inquiry that examines the impact of the organization, financing and management of health care services on the delivery, quality, cost, access to and outcomes of such services.

# Contrasting Delivery Models

	Old	New
Care Relationships	Episodic	Continuous
Care Focus	Acute	Chronic
Responsiveness	Reactive	Proactive
People	Industrial	Population
Information System	Paper-based	Electronic
Physician/Nurse	Solo	Groups
Focus of Care	Hospital	Clinic
Consultation/Referral	Random	Evidence Based



Quality  
And  
Outcomes

Health  
Services  
Research

Disease  
Management

# The “Big Free”





# Health Care Services Effectiveness Team

- Gene Beyt, MD, MS consultant
- Kurt Braun, PhD Biostats
- Michael K. Butler, MD, MHA Medical  
director
- Lauren Haygood, RN, MSN Quality
- Ron Horswell, MBA, PhD Biostats
- Michael Kaiser, MD Grant writer
- Joey Key, CPHQ Data analyst
- Harriet Kummerlowe, RN Nursing  
director
- Al Stewart, R. Ph., MHA Pharmacy
- Keith Verret IT
- Wayne Wilbright, MD, MS Medical

# LSUHSC-HCSD

## Criteria For Success

- Quality (Good Medical Outcomes)
- Teaching
- Revenue (Business Enterprise Model)
- Research
- Access (Organized System of Care)
- Service
- Stakeholder Satisfaction
- Safety



# Addressing Indigent Care

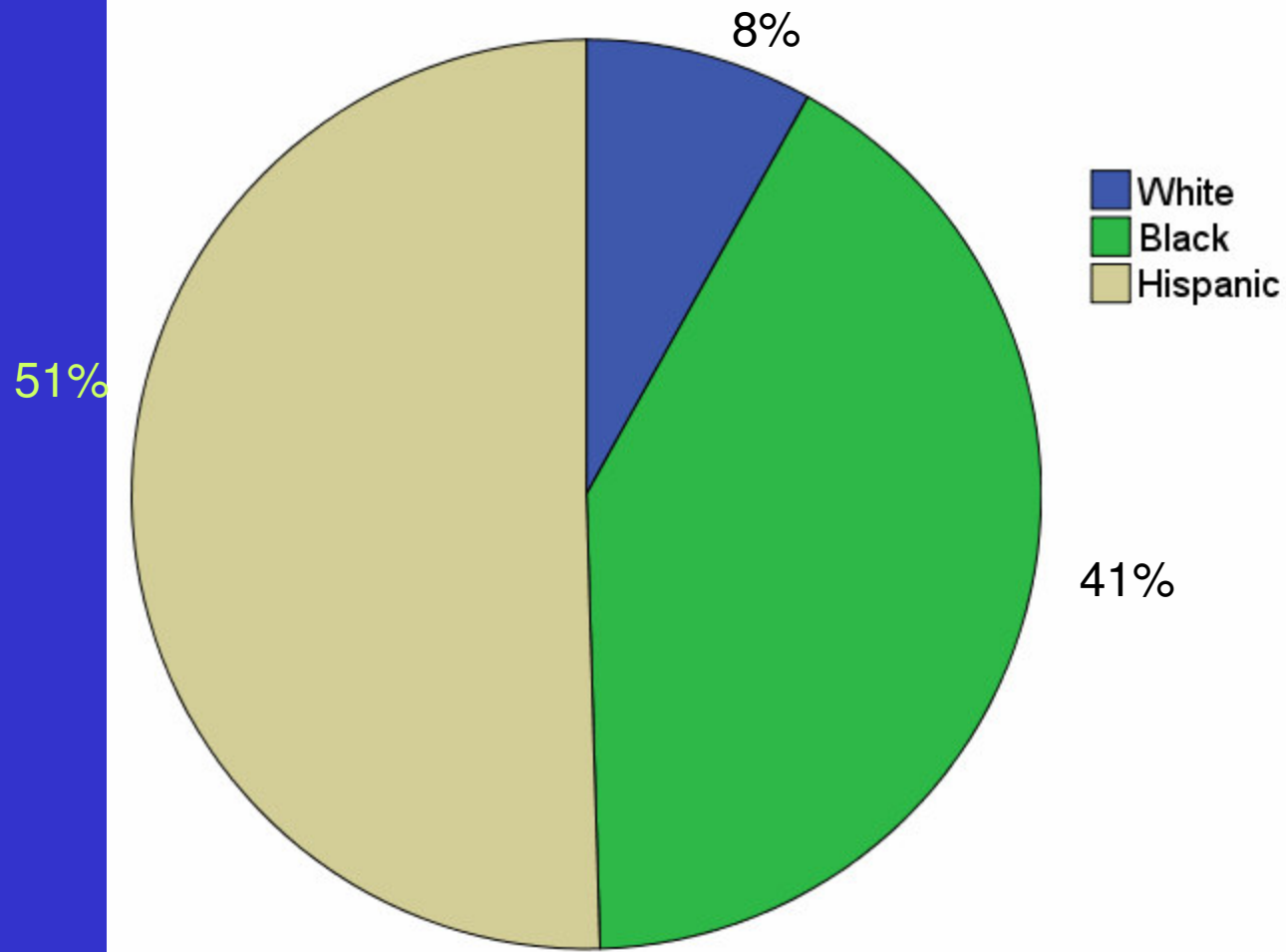
- Mean income      \$11,446.56
- Median income    \$11,892
- Range              \$0-\$30,000

# Statewide Database

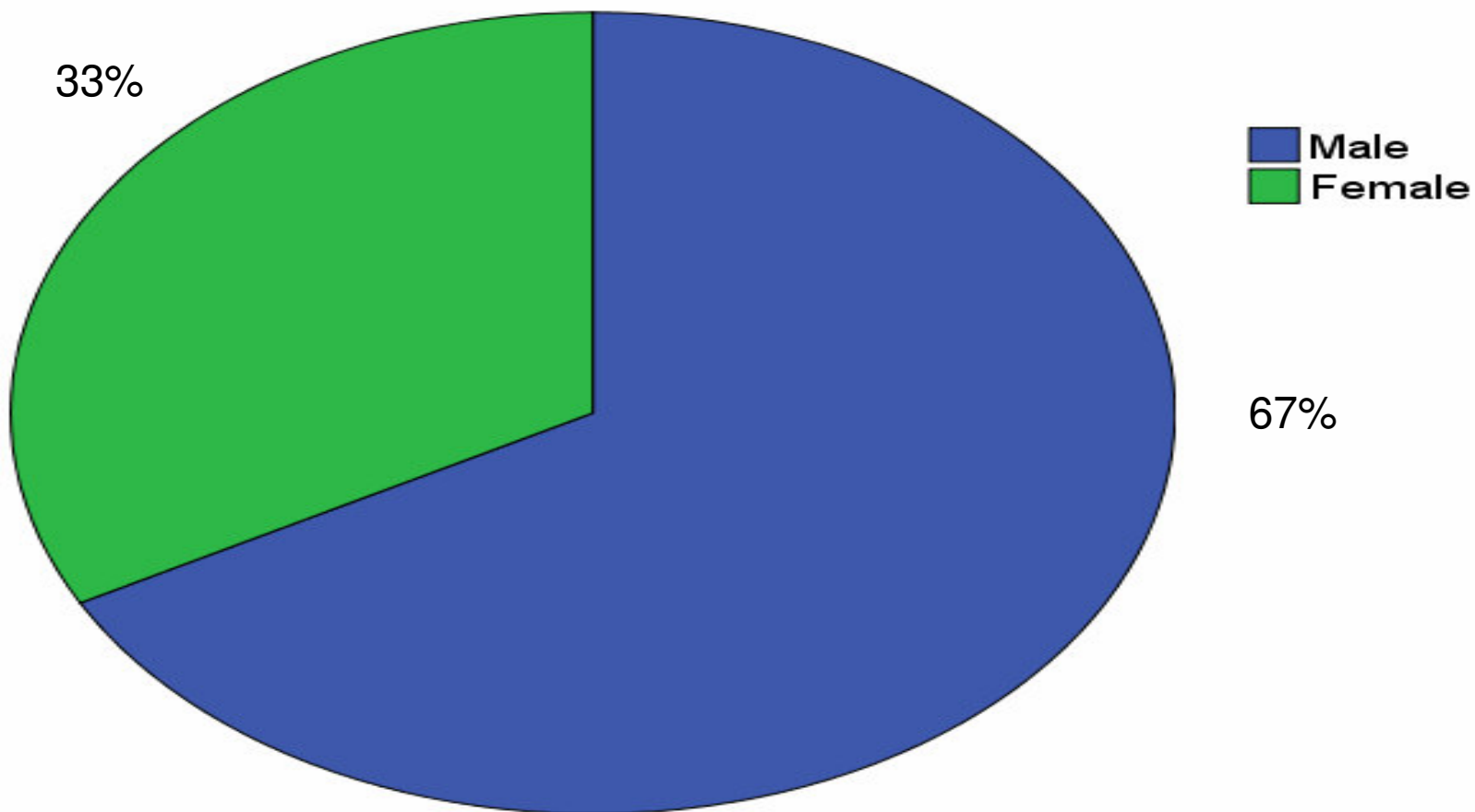
N=1500

17-35	4.9%	DM	41%
36-50	29.%	HTN	88%
51-65	51%	New AMI	4%
65+	13%	HTN/DM	35%
Mean age	54		
AA	56.7%		
Female	40%		

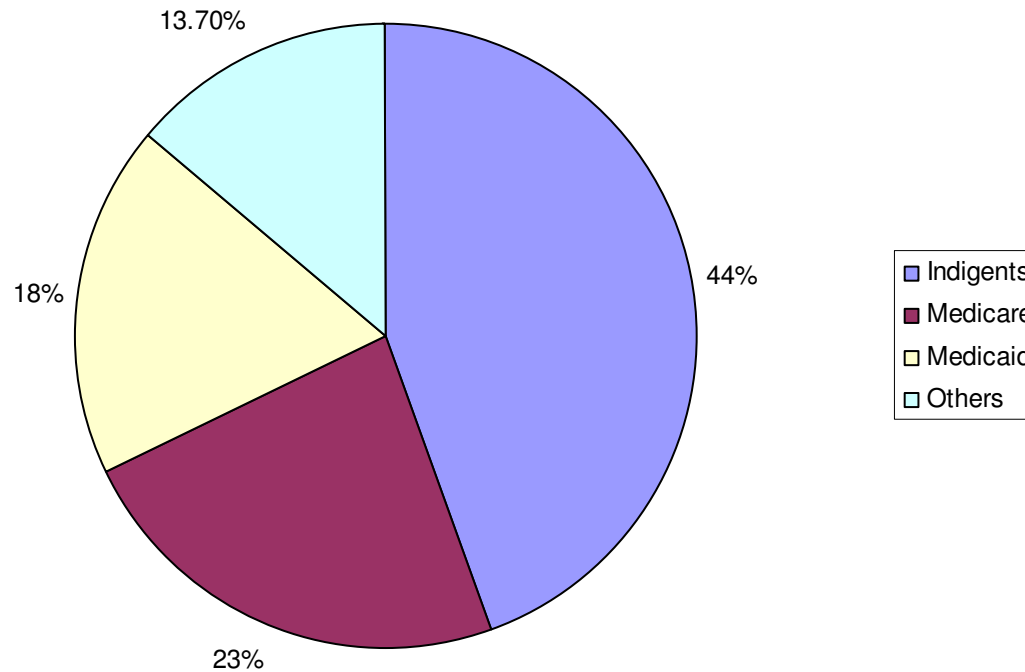
# Patients Enrolled in Jackson Heart Failure Clinic by Race



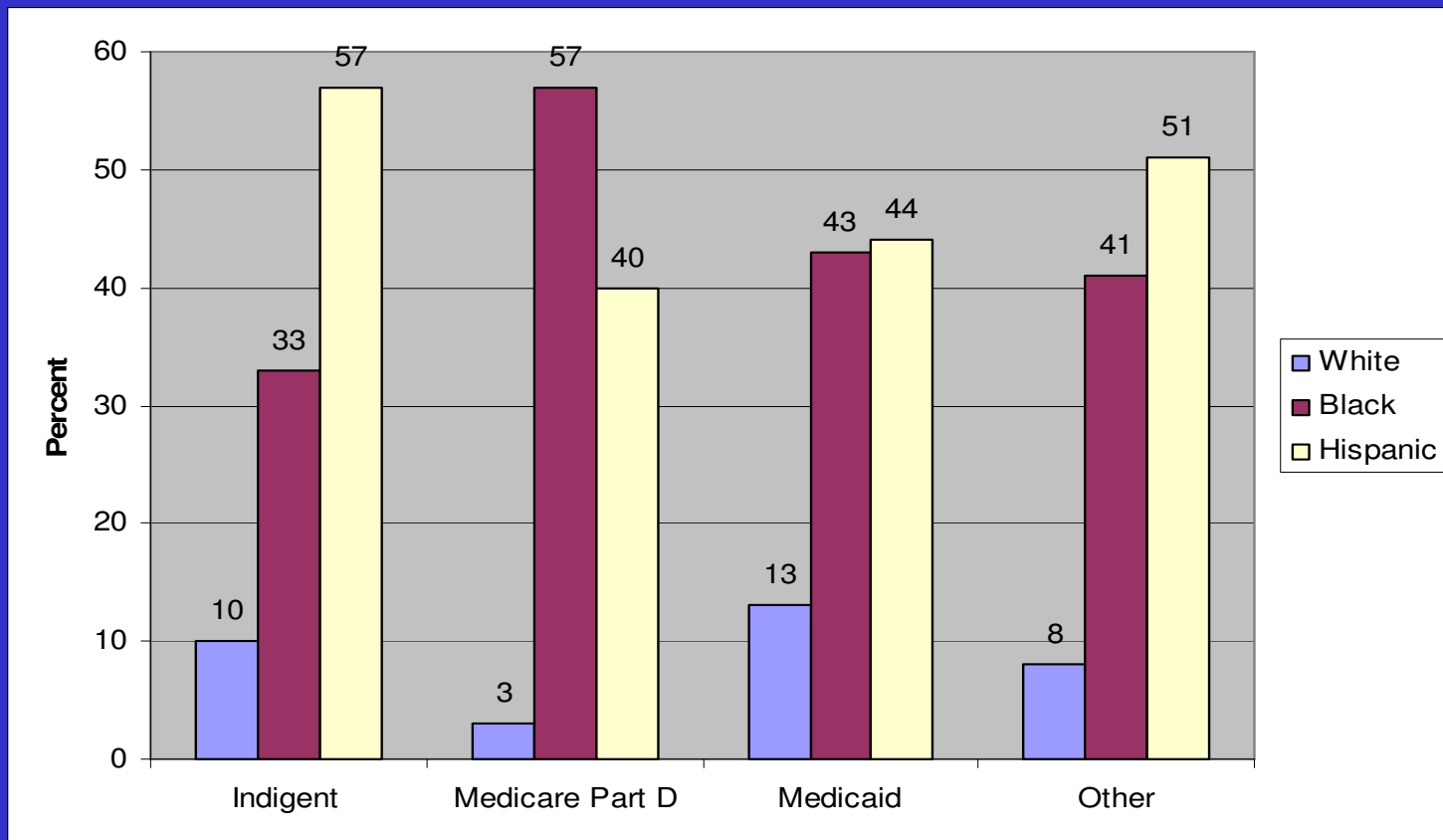
# Patients Enrolled in Jackson Heart Failure Clinic by Gender



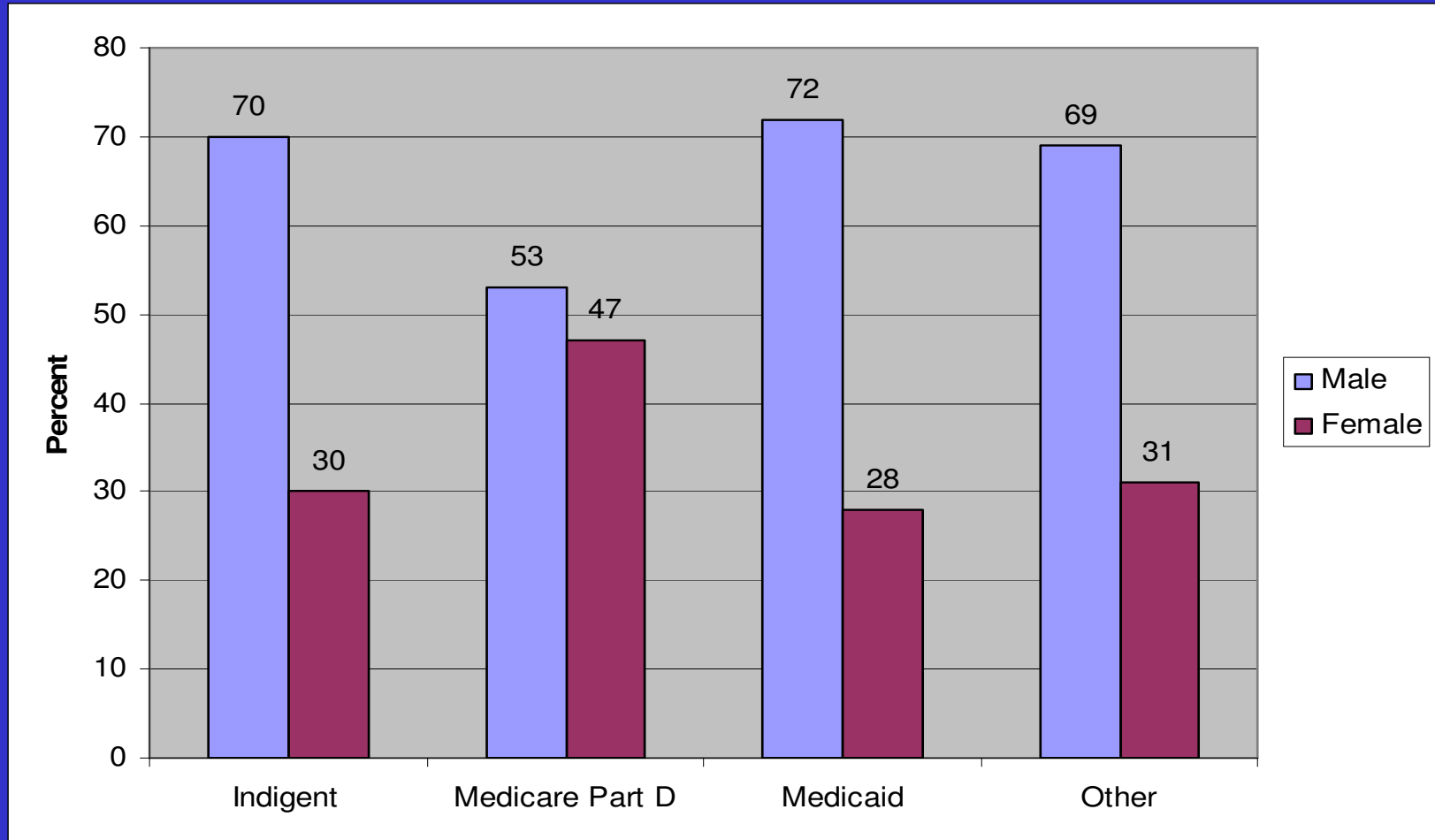
# Patients with Heart Failure by Insurance Classification at JMH



# Financial Classification by Race



# Financial Classification by Gender



# Dashboard

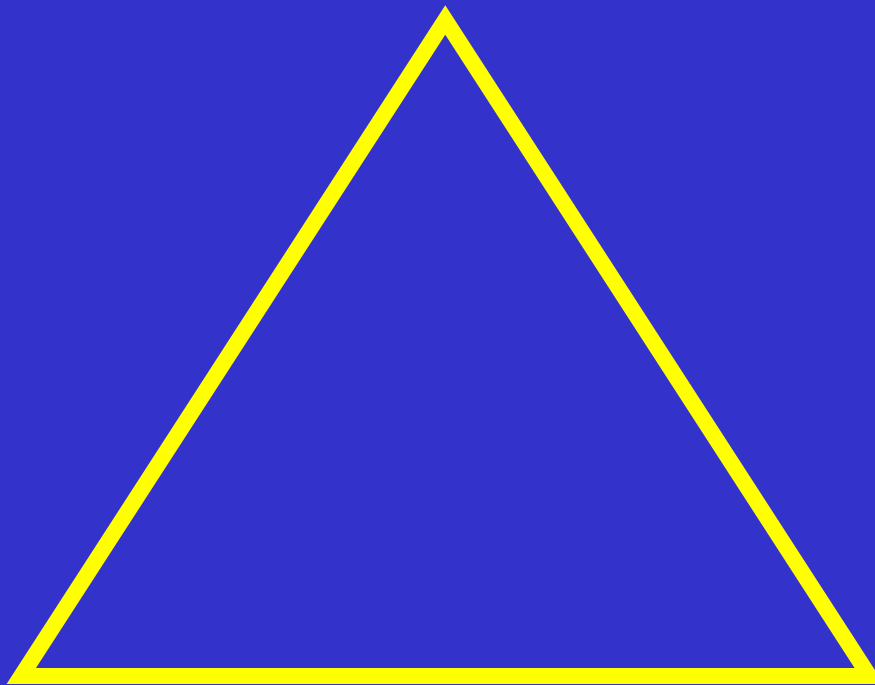
- Age
- Race
- Gender
- Ht/Wt/BMI/Waist
- BP
- NYHA
- Echo
- ED SHIM
- Ace/BB/Dig/Spir/Ami
- Ca/NSAID/Antiarr/Av
- Vaccines
- EKG/QRS/afib
- Pacer/AICD
- Labs/CBC/CMP/TSH/  
Lipids
- ABI
- Surveys
- Mortality

# Penetrating Iron Triangle

Access

Quality

Cost



# Aligning Quality and Payment for Heart Failure Care: Defining the Challenges

Hospitals may **not support** programs that **improve quality** of care delivered to heart failure patients because these programs **lower readmission** rates and empty beds, **declining revenue**. A conflict between the highest quality of care and financial solvency does not serve the interests of patients, physicians, hospitals, or payers. In principle, resolution is simple: reimbursement systems should reward higher quality of care.

E. Havranek, et al

Journal of Cardiac Failure Vol. 9 No4 2003

# Patient Acquisition

CHF Clinic acquires patients from four sources:

1. Hospital floor
2. Emergency Department
3. Primary Care referrals
4. The Echo department



Hospital Floor

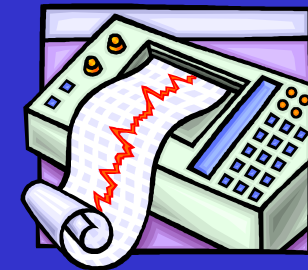


CHF Clinic



Primary Care

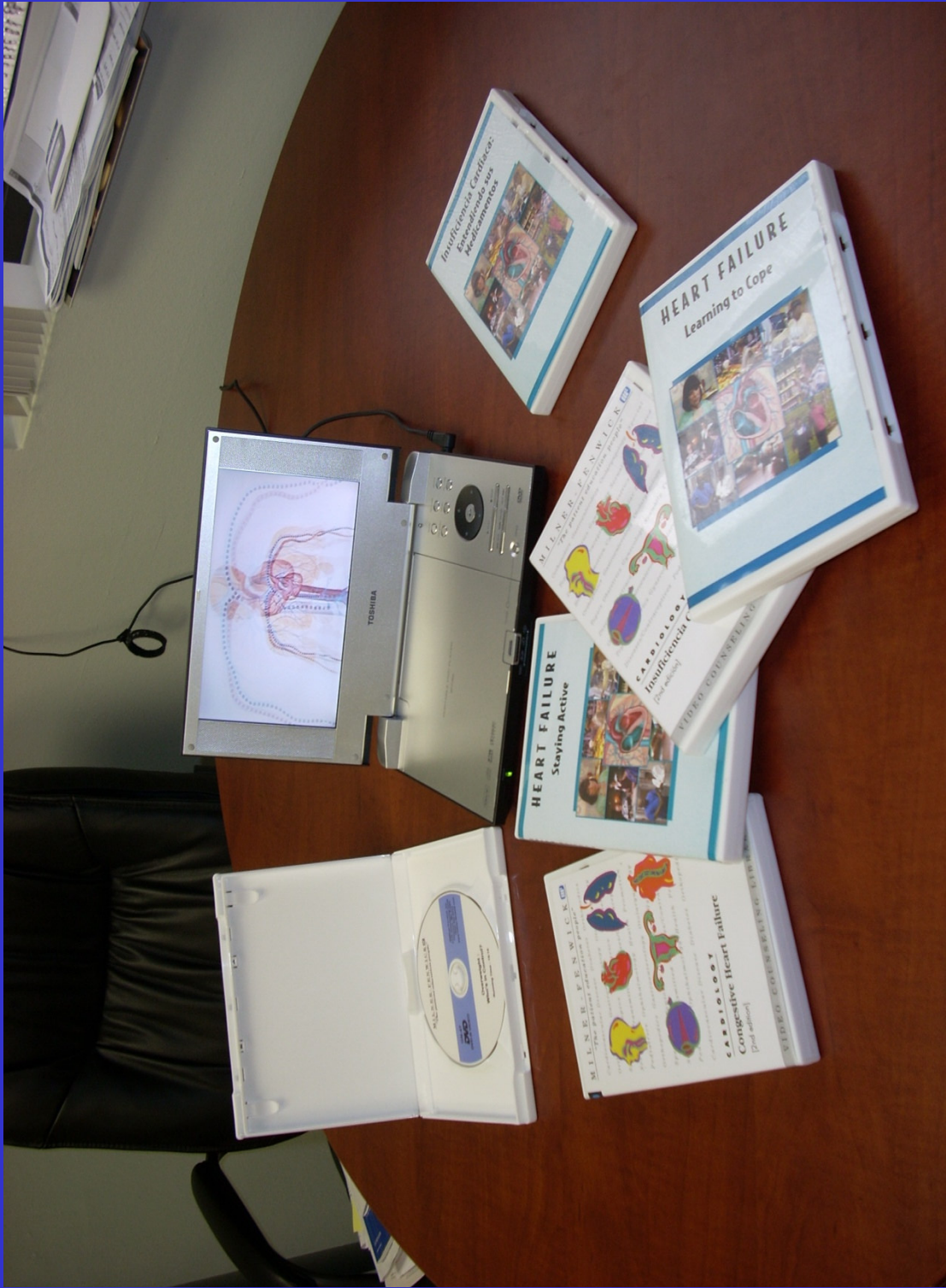
Emergency Dept.



Echo Dept.

# Process for Quality Improvement in Disease Management

- Implement Practice Guidelines
- Patient Education
- Medication Assistance
- Self Management
- Out Patient Access to Diuresis
- Internal Support via Telemanagement



# CHF Disease Management Algorithm

Dyspnea  BNP  Echo  EF < 40%

- Loop diuretic
- Ace inhibitor (at night)
- ARB – cough, angioedema
- Beta blocker

Carvedilol 3.1 mg BID for 2 wks with food, 6.25 mg BID for 2 wks, then 12.5 mg BID for 2 wks then 25 mg BID

- Educational tape 12 minutes: symptoms, meds, diet, activity

# JAMA Article

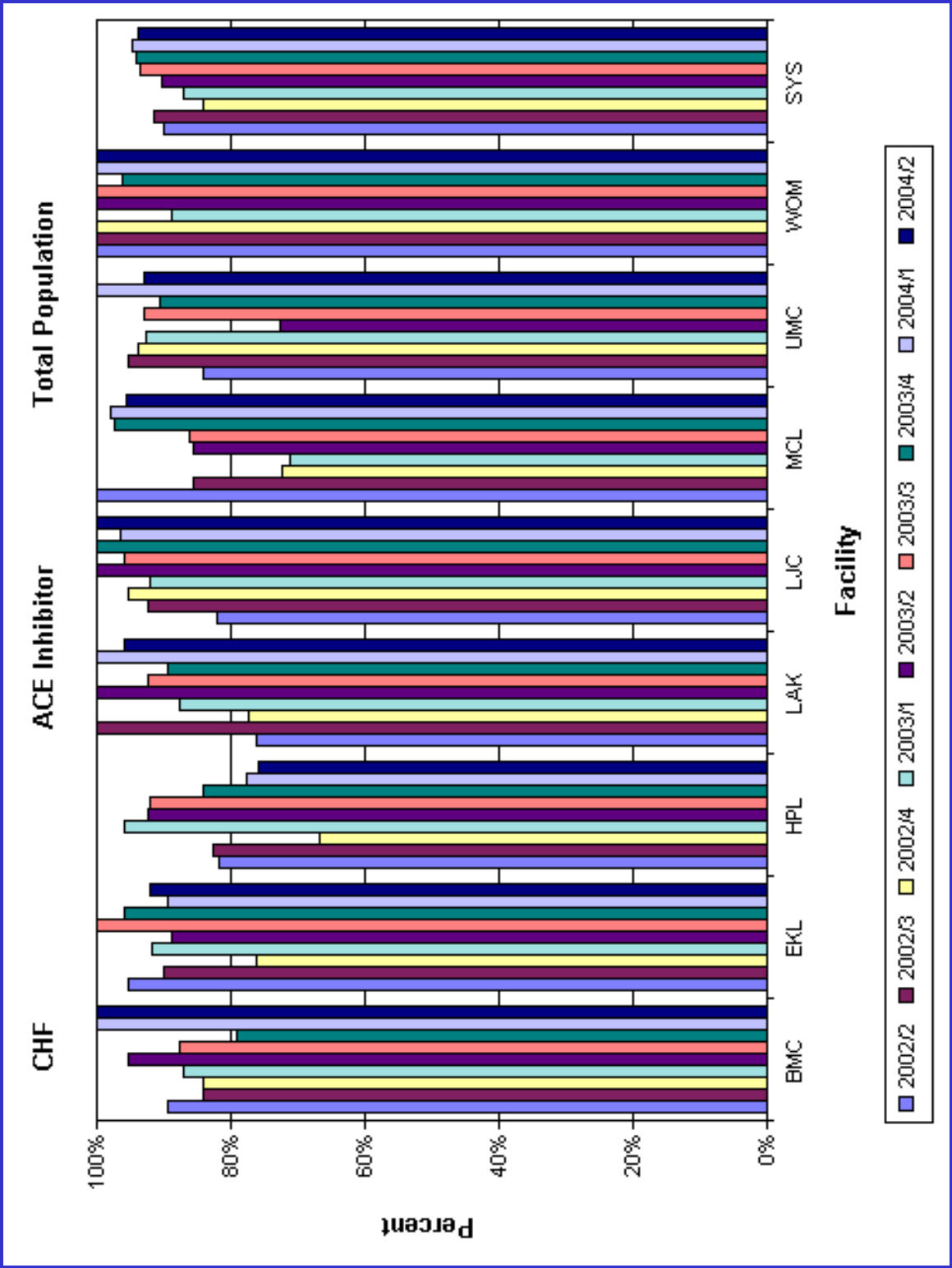
## Change in the Quality of Care Delivered to Medicare Beneficiaries, 1998-1999 to 2000-2001

Despite widespread concern regarding the quality and safety of health care, and a Medicare Quality Improvement Organization (QIO) program intended to improve that care in the United States, there is only limited information on whether quality is improving.

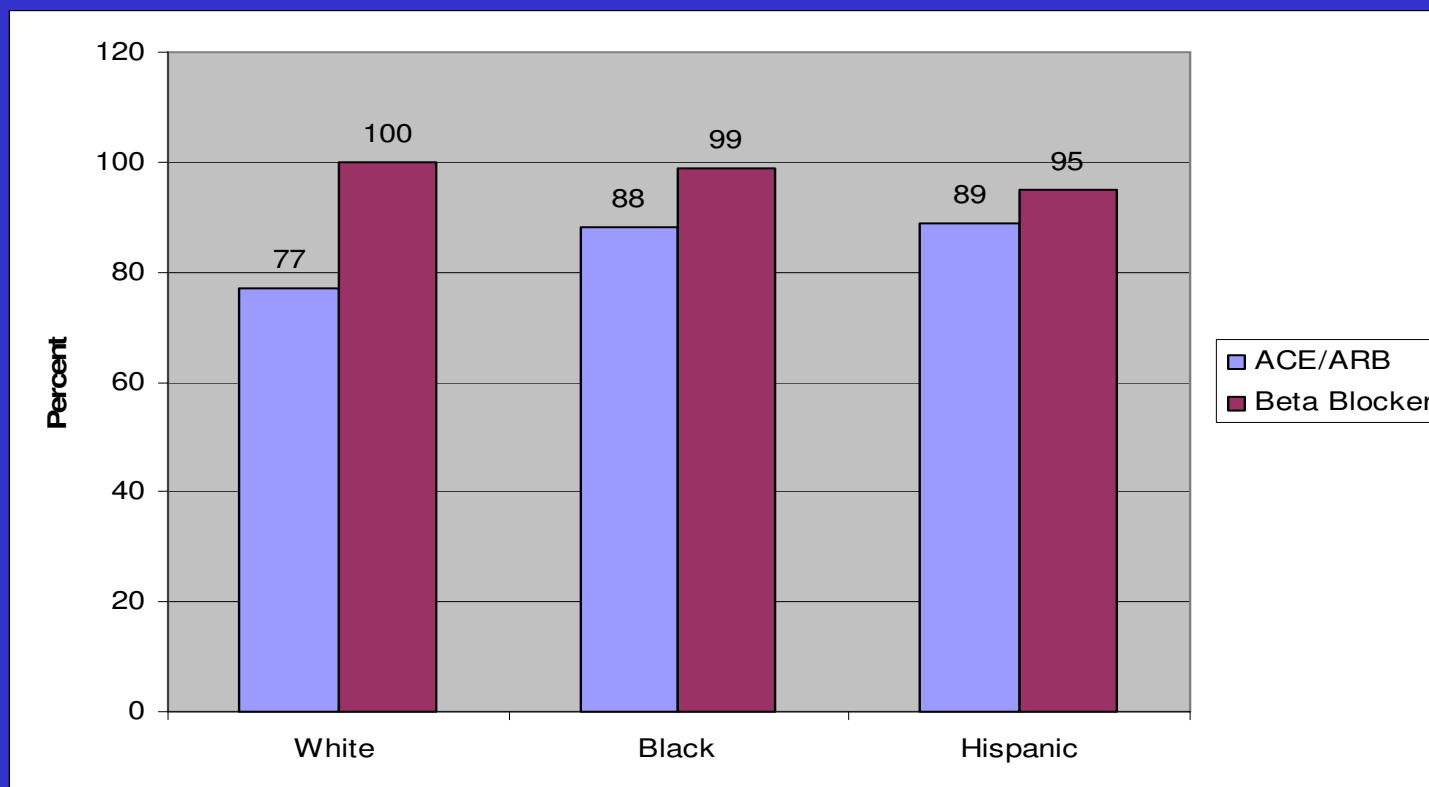
**Table 2. Quality Indicator Averages (Absolute Change From Baseline) by State, 2000-2001\***

State	Average State Ranks		Quality Indicators												
	1998-1999	2000-2001	Acute Myocardial Infarction							Congestive Heart Failure		Stroke			
			Aspirin 24 h	Aspirin Disch	BB 24 h	BB Disch	ACE in AMI	Smoking	Thrombolysis, min	PTCA, min	LVEF	ACE in HF	Atrial fibrillation	Antithrombotic	Nifedipine
Alabama	46	42	80 (2)	87 (1)	58 (3)	78 (18)	69 (6)	38 (4)	35 (-18)	100 (1)	69 (4)	70 (8)	53 (3)	84 (4)	100 (4)
Alaska	22	33	82 (-5)	86 (-10)	78 (-1)	67 (-6)	100 (18)	61 (24)	57 (3)	90 (-13)	70 (19)	58 (-33)	52 (-1)	84 (-2)	97 (4)
Arizona	25	29	84 (-3)	84 (-2)	65 (2)	84 (16)	69 (1)	32 (-21)	55 (-3)	103 (-4)	81 (11)	61 (-4)	55 (-2)	89 (7)	99 (8)
Arkansas	50	48	78 (3)	84 (6)	50 (-5)	57 (-6)	69 (12)	39 (15)	37 (-5)	109 (15)	60 (6)	43 (-22)	51 (0)	80 (3)	100 (8)
California	39	44	87 (2)	86 (2)	66 (6)	66 (-2)	70 (4)	31 (-10)	77 (41)	146 (39)	66 (4)	70 (5)	52 (8)	77 (2)	96 (9)
Colorado	9	7	92 (6)	93 (3)	75 (10)	92 (16)	82 (8)	53 (6)	51 (13)	121 (42)	69 (4)	65 (-7)	65 (8)	85 (1)	100 (6)
Connecticut	6	9	89 (-3)	86 (-5)	78 (10)	83 (8)	80 (6)	39 (-2)	39 (2)	101 (-7)	79 (2)	69 (-4)	64 (7)	90 (0)	100 (2)
Delaware	12	14	88 (2)	96 (10)	69 (7)	84 (12)	82 (10)	33 (-37)	28 (-22)	67	77 (3)	78 (5)	55 (5)	89 (3)	99 (1)
District of Columbia	31	37	87 (-10)	91 (8)	69 (-5)	85 (-7)	78 (5)	39 (12)		177 (127)	75 (4)	72 (-4)	55 (1)	82 (3)	99 (0)
Florida	40	41	80 (3)	79 (1)	65 (4)	79 (10)	60 (-10)	33 (3)	45 (9)	95 (-36)	76 (6)	70 (4)	61 (5)	80 (1)	97 (6)
Georgia	48	47	73 (-6)	84 (3)	58 (-4)	74 (6)	71 (3)	38 (4)	38 (4)	110 (6)	68 (5)	64 (-3)	51 (1)	80 (1)	100 (9)
Hawaii	23	16	90 (6)	83 (2)	62 (6)	84 (33)	79 (4)	50 (14)	79 (35)	96 (21)	82 (7)	74 (3)	47 (2)	90 (1)	100 (3)
Idaho	19	22	90 (3)	87 (2)	66 (-4)	84 (11)	78 (19)	44 (-12)	30 (-8)	107 (-32)	58 (4)	73 (-15)	56 (-1)	83 (3)	99 (1)
Illinois	47	46	83 (7)	80 (4)	67 (0)	75 (20)	73 (-1)	35 (6)	51 (30)	110 (-51)	67 (2)	68 (7)	57 (2)	83 (3)	99 (7)
Indiana	29	27	83 (-1)	89 (2)	69 (6)	83 (12)	79 (12)	55 (2)	35 (2)	165 (45)	71 (6)	60 (-5)	62 (7)	84 (3)	98 (5)
Iowa	8	6	85 (1)	88 (2)	78 (14)	89 (10)	77 (2)	41 (4)	51 (8)	104 (-29)	66 (13)	70 (-1)	60 (3)	83 (-1)	100 (1)
Kansas	34	30	84 (5)	84 (0)	68 (14)	74 (15)	67 (9)	51 (8)	49 (4)	134 (49)	59 (1)	60 (-10)	53 (2)	86 (10)	97 (8)
Kentucky	37	40	85 (5)	81 (-2)	65 (2)	80 (7)	66 (-4)	52 (16)	32 (2)	71 (-48)	63 (1)	52 (-10)	54 (3)	84 (1)	100 (9)
Louisiana	49	51	85 (4)	81 (2)	65 (7)	71 (-2)	65 (1)	25 (-15)	44 (11)	105 (11)	66 (6)	58 (12)	49 (2)	74 (-1)	100 (6)
Maine	3	3	89 (4)	91 (4)	82 (1)	91 (7)	82 (14)	49 (-12)	38 (13)		73 (6)	71 (-1)	60 (-1)	89 (2)	99 (1)
Maryland	24	25	85 (-1)	87 (3)	71 (2)	77 (1)	79 (0)	27 (-13)	30 (-24)	83 (-86)	75 (2)	61 (-4)	55 (2)	84 (3)	99 (1)
Massachusetts	4	15	87 (0)	86 (-2)	82 (9)	88 (-4)	72 (-7)	45 (1)	45 (4)	135	80 (4)	65 (3)	66 (2)	91 (5)	99 (3)
Michigan	28	26	85 (1)	90 (4)	70 (3)	93 (20)	82 (8)	43 (1)	49 (11)	110 (-29)	70 (1)	68 (6)	57 (6)	86 (7)	99 (3)
Minnesota	7	10	88 (-2)	83 (-6)	80 (14)	87 (3)	69 (-11)	51 (13)	42 (2)	117 (21)	64 (3)	69 (-1)	62 (3)	89 (1)	100 (3)
Missouri	35	28	81 (5)	88 (10)	67 (8)	78 (7)	74 (0)	54 (16)	80 (38)	124 (-255)	73 (7)	71 (12)	58 (6)	83 (-1)	99 (7)
Montana	17	13	88 (2)	89 (-1)	70 (17)	71 (-1)	71 (13)	46 (-17)	44 (-3)	87 (0)	58 (1)	77 (7)	62 (3)	86 (1)	99 (3)
Mississippi	51	50	80 (0)	84 (7)	60 (16)	66 (19)	66 (5)	43 (9)	38 (11)	141 (-51)	61 (2)	55 (-6)	54 (7)	80 (6)	100 (2)
Nebraska	27	12	85 (1)	89 (4)	74 (8)	74 (-9)	81 (13)	51 (14)	47 (2)	107 (-311)	74 (3)	69 (-7)	67 (9)	90 (6)	95 (7)
Nevada	36	35	88 (5)	84 (4)	59 (1)	69 (-1)	73 (-4)	45 (1)	45 (-7)	178 (70)	82 (0)	62 (-13)	56 (14)	81 (3)	96 (9)
New Hampshire	1	1	92 (4)	93 (2)	86 (11)	89 (-1)	87 (6)	36 (-13)	35 (-14)	260 (159)	82 (1)	77 (2)	70 (8)	86 (1)	100 (1)
New Jersey	41	43	76 (-1)	65 (-10)	61 (-4)	68 (-1)	64 (4)	31 (-7)	47 (3)	128 (10)	72 (6)	59 (6)	55 (0)	73 (0)	99 (3)
New Mexico	32	36	89 (4)	89 (2)	65 (12)	74 (12)	67 (-10)	53 (3)	43 (6)	94 (-46)	58 (3)	70 (-14)	58 (1)	77 (-1)	97 (6)
New York	30	24	84 (1)	84 (3)	81 (14)	85 (12)	78 (1)	36 (-13)	44 (-9)	100 (6)	81 (4)	76 (-8)	62 (7)	84 (2)	100 (2)
North Carolina	18	23	84 (3)	92 (3)	69 (4)	81 (2)	76 (-1)	47 (13)	58 (27)	95 (-29)	74 (15)	65 (3)	53 (-7)	87 (0)	98 (1)
North Dakota	5	4	92 (7)	92 (5)	75 (6)	84 (-3)	65 (-16)	42 (13)	103 (60)	73 (-122)	45 (5)	68 (-10)	64 (-1)	90 (4)	100 (5)
Ohio	33	38	83 (-5)	83 (-3)	72 (10)	79 (6)	64 (-7)	25 (-2)	42 (-11)	82 (10)	75 (5)	57 (-7)	62 (10)	84 (4)	98 (6)
Oklahoma	44	45	83 (5)	82 (3)	57 (12)	76 (13)	76 (6)	39 (14)	46 (8)	59 (-25)	59 (7)	56 (-10)	50 (-2)	76 (4)	97 (7)
Oregon	20	11	87 (1)	87 (3)	79 (10)	80 (3)	78 (8)	45 (-8)	38 (-2)	77 (-25)	70 (11)	76 (7)	56 (-1)	82 (4)	100 (6)
Pennsylvania	16	31	85 (3)	85 (4)	68 (-3)	79 (-9)	63 (-21)	26 (-15)	50 (11)	103 (-88)	77 (3)	61 (-12)	63 (2)	86 (1)	99 (0)
Puerto Rico	52	52	70 (4)	69 (10)	53 (20)	67 (14)	65 (6)	33 (3)	78 (12)	230	56 (12)	61 (2)	39 (8)	76 (3)	98 (0)
Rhode Island	15	17	88 (6)	88 (1)	81 (6)	95 (16)	84 (1)	31 (5)	38 (-2)	106 (-158)	79 (2)	74 (-6)	65 (5)	86 (-2)	98 (3)
South Carolina	38	32	83 (3)	85 (5)	70 (12)	76 (6)	79 (20)	34 (9)	45 (-10)	78 (-481)	73 (6)	60 (-6)	59 (7)	90 (7)	100 (1)
South Dakota	26	20	89 (6)	92 (4)	70 (1)	82 (11)	75 (8)	52 (15)	121 (57)	163 (-117)	61 (10)	56 (-10)	69 (8)	90 (6)	97 (7)
Tennessee	42	39	78 (-5)	84 (0)	63 (7)	75 (9)	71 (4)	39 (-5)	41 (15)	170 (64)	67 (0)	66 (15)	46 (-15)	81 (5)	100 (6)
Texas	45	49	83 (5)	75 (-9)	65 (14)	72 (14)	64 (1)	37 (18)	54 (16)	111 (26)	65 (1)	58 (-4)	48 (4)	80 (8)	98 (8)
Utah	14	5	87 (3)	93 (3)	75 (17)	88 (20)	78 (-1)	61 (10)	30 (-20)	89 (-64)	71 (14)	73 (-6)	65 (8)	88 (2)	98 (7)
Vermont	2	2	92 (6)	90 (1)	82 (4)	86 (7)	70 (-2)	56 (-3)	48 (-1)	230 (45)	81 (10)	81 (4)	66 (8)	88 (2)	99 (1)
Virginia	21	18	89 (4)	90 (6)	67 (2)	88 (11)	78 (11)	53 (10)	51 (6)	141 (-23)	80 (3)	73 (-1)	56 (-4)	88 (-2)	98 (0)
Washington	13	19	92 (6)	87 (-1)	71 (4)	78 (12)	71 (-5)	51 (-9)	50 (4)	98 (-23)	69 (6)	61 (-19)	59 (9)	83 (-1)	100 (6)
West Virginia	43	34	85 (1)	86 (1)	65 (13)	62 (-3)	65 (1)	51 (6)	40 (-21)	122 (-15)	58 (-4)	53 (-5)	56 (11)	87 (1)	100 (7)
Wisconsin	11	8	86 (1)	87 (-1)	74 (3)	79 (-6)	75 (10)	58 (16)	49 (16)	108 (-104)	72 (5)	72 (-3)	65 (5)	86 (2)	100 (5)
Wyoming	10	21	95 (4)	91 (-4)	71 (1)	62 (0)	89 (-1)	44 (-22)	33 (-3)	116 (-41)	42 (8)	82 (3)	65 (7)	82 (2)	98 (-2)
Median			85 (3)	86 (2)	69 (6)	79 (7)	74 (4)	43 (3)	45 (4)	107 (-19)	70 (4)	68 (-4)	57 (3)	84 (2)	99 (4)

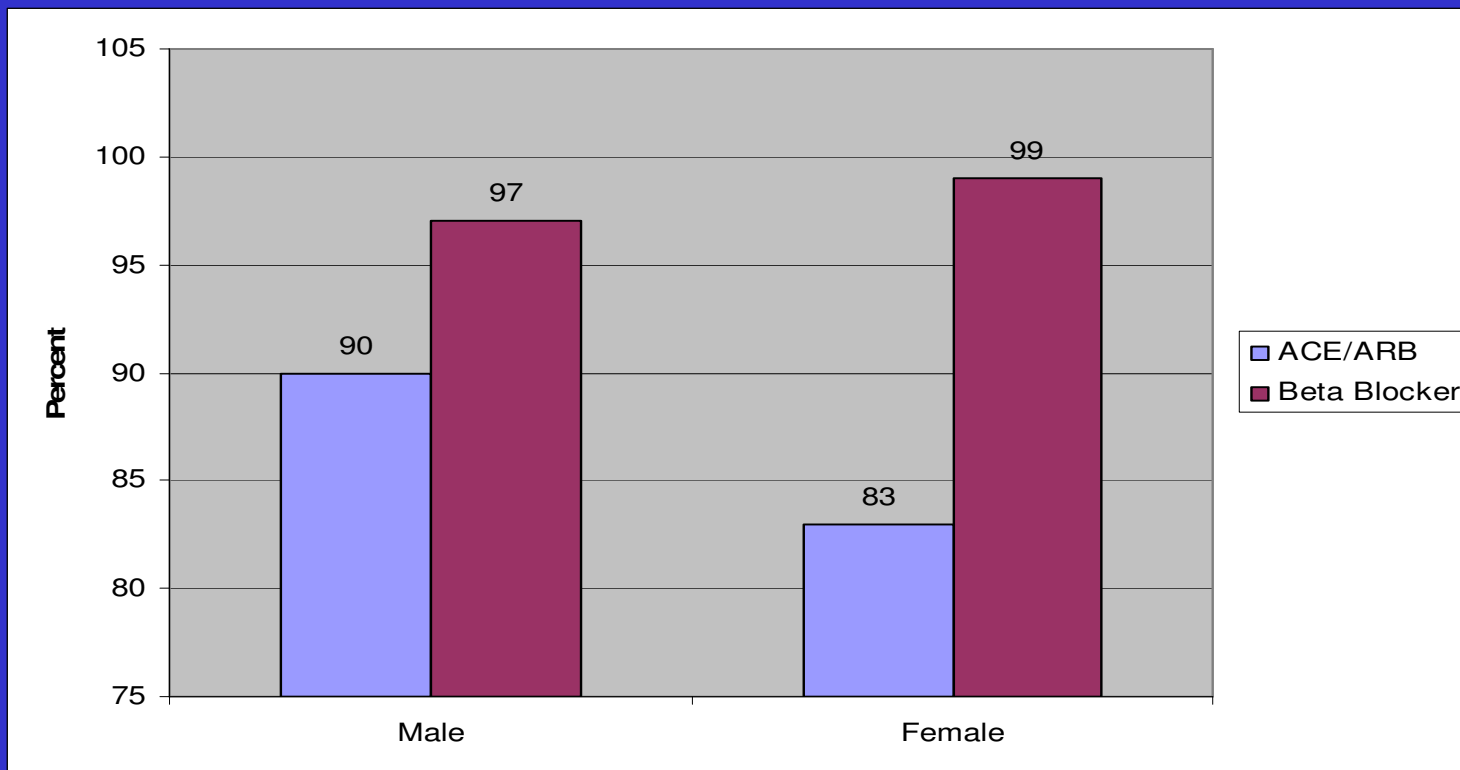
Louisiana  
51<sup>st</sup> →



# Patients on ACE and Beta Blockers by Race at Jackson Memorial Hospital



# Patients on ACE and Beta Blockers by Gender at Jackson Memorial Hospital



# The Experience of a Cost Effective CHF Disease Management Model Applied to an Indigent Population

- Decrease admissions – 72%
- Decrease LOS – 70%
- Decrease ER visits – 68%
- 1996 LJC cost savings - \$500,000

# Cost Avoidance Analysis

	<b>1998 Charges</b>	<b>2001 Charges</b>	<b>Difference</b>	<b>Dollars % increase</b>	<b>Pop. % Increase</b>
<b>CHF</b>	57 million	68 million	11 million	19%	39%

	<b>2001 Patients</b>	<b>1998 Charges</b>	<b>Exp. \$ Increase</b>
<b>CHF</b>	6,000	\$13,900	95 million

	<b>Current Patients 1998 Charges</b>	<b>Current Patients Current Charges</b>	<b>Difference</b>
<b>CHF</b>	95 million	68 million	27 million

# Dashboard

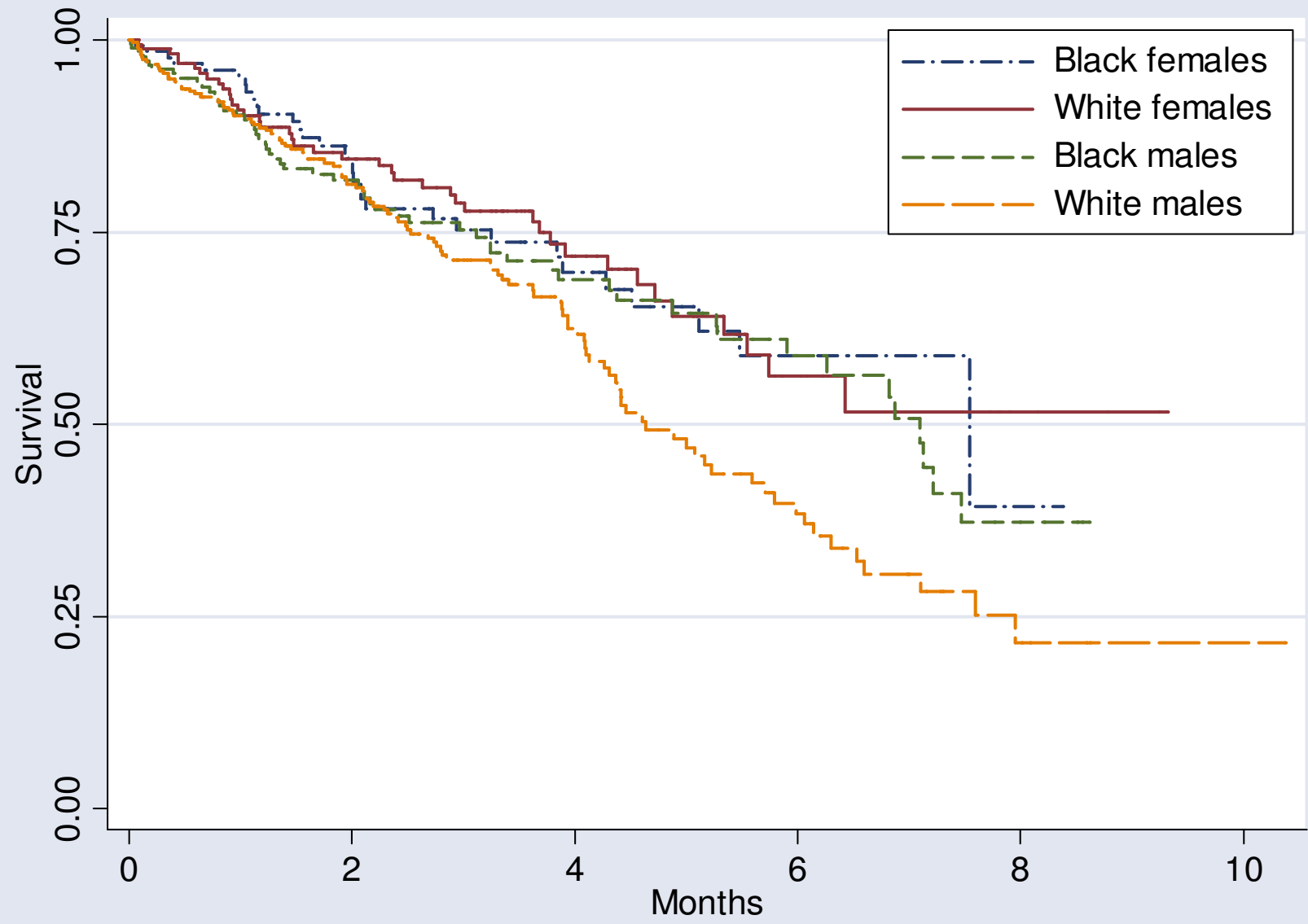
- Age
- Race
- Gender
- Ht/Wt/BMI/Waist
- BP
- NYHA
- Echo
- ED SHIM
- Ace/BB/Dig/Spir/Ami
- Ca/NSAID/Antiarr/Av
- Vaccines
- EKG/QRS/afib
- Pacer/AICD
- Labs/CBC/CMP/TSH/  
Lipids
- ABI
- Surveys
- Mortality

# Racial/Gender Differences in Heart Failure Care Eliminated in a Heart Failure Disease Management Clinic Serving Indigent Patients

Leonardo Tamariz, MD, MPH

Ana Palacio, MD, MPH

Kathy Hebert, MD, MMM, MPH



# Dashboard

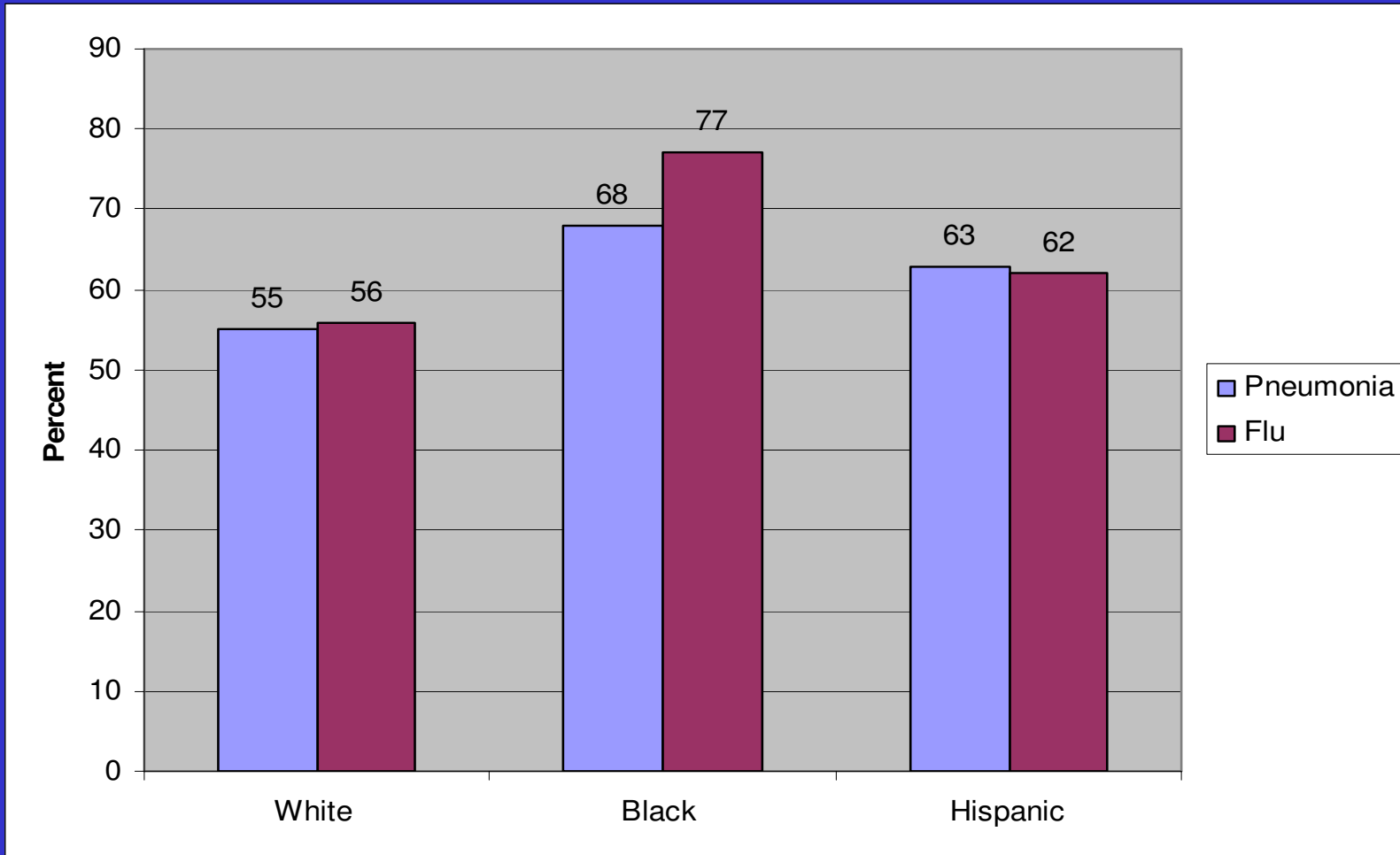
- Age
- Race
- Gender
- Ht/Wt/BMI/Waist
- BP
- NYHA
- Echo
- ED SHIM
- Ace/BB/Dig/Spir/Ami
- Ca/NSAID/Antiarr/Av
- Vaccines
- EKG/QRS/afib
- Pacer/AICD
- Labs/CBC/CMP/TSH/  
Lipids
- ABI
- Surveys
- Mortality

# How good is American health care?

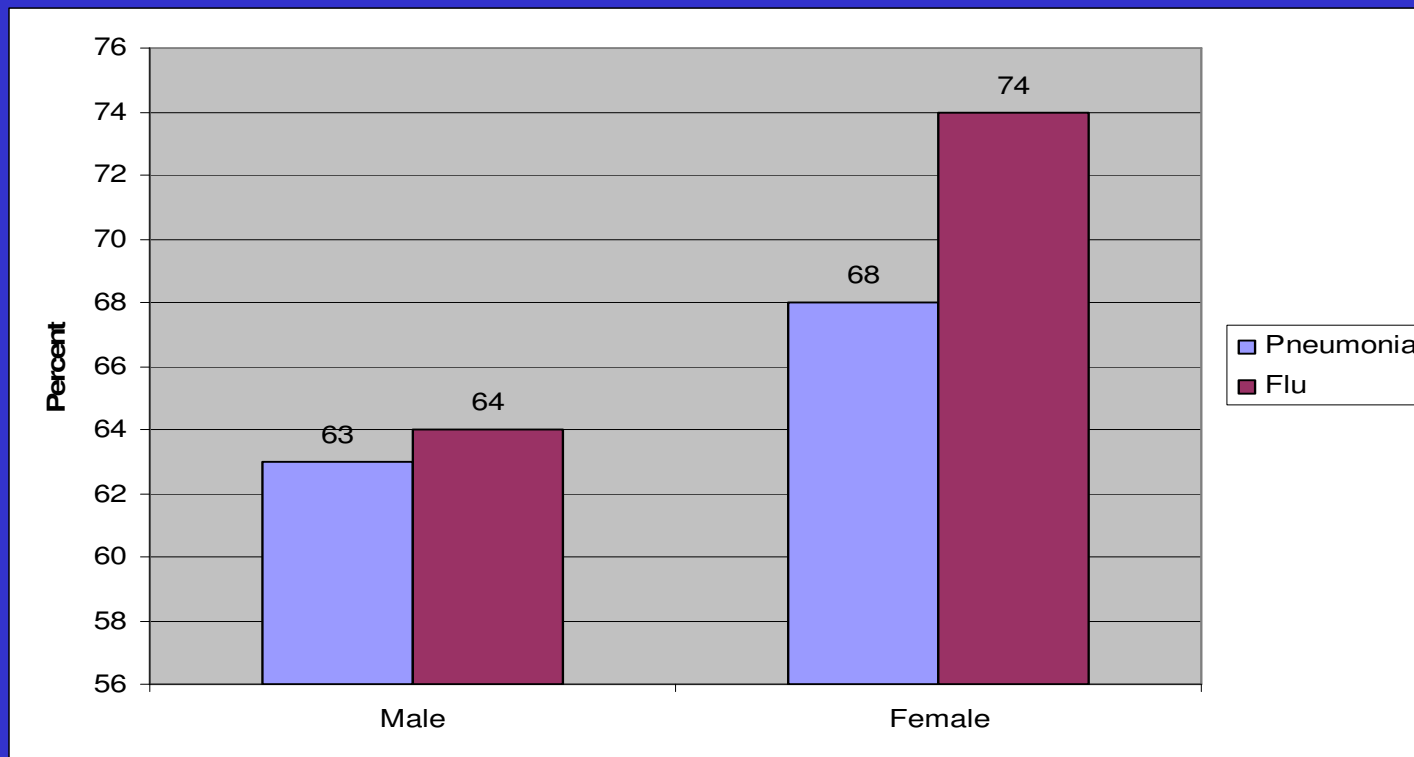
**Extensive literature review performed at  
RAND in 1998:**

- Only 50% of Americans receive recommended preventive care

# Patients who Received the Pneumonia or Flu Vaccine by Race at JMH

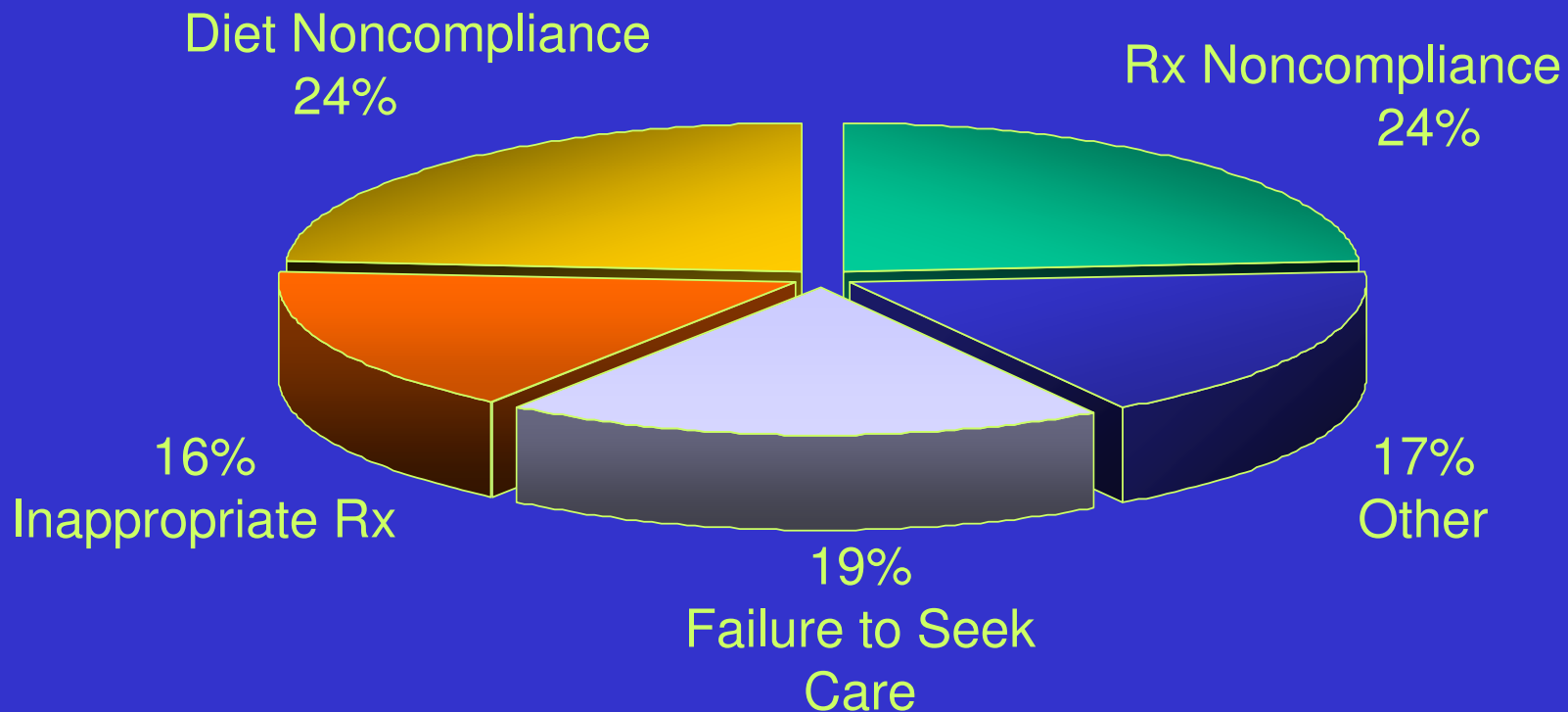


# Patients who Received the Pneumonia or Flu Vaccine by Gender at JMH



# Causes of Hospital Readmission for Congestive Heart Failure

Over 2/3 of HF Hospitalizations Preventable



Addressing A National Epidemic:  
A Congestive Heart Failure Outpatient  
IV Diuresis Protocol in Indigent  
Patients Demonstrates Safety, Efficacy,  
and Cost Effectiveness

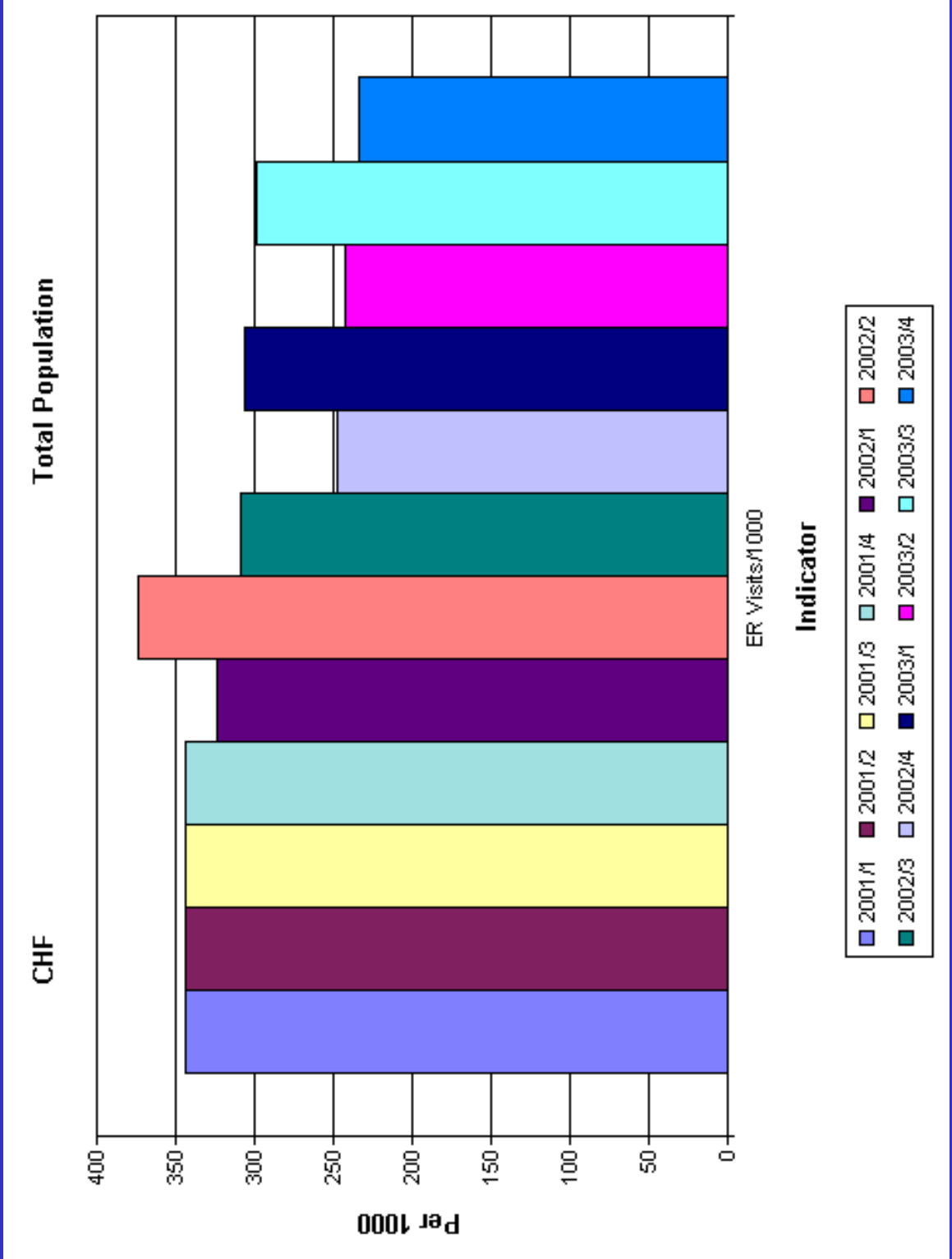
\$279.46

versus

\$7515.55

# ACCESS IVP

- Nonscheduled clinic visits for IVP lasix
- 2001 - 30
- 2002 - 256
- 2003 – 238
- Goal to decrease ER visits and health care cost, increase patient satisfaction, increase physician satisfaction



Health Policy: Can an Open  
Access Model for IV Diuretics in an  
Outpatient Disease Management  
Program Reduce Hospital Costs?

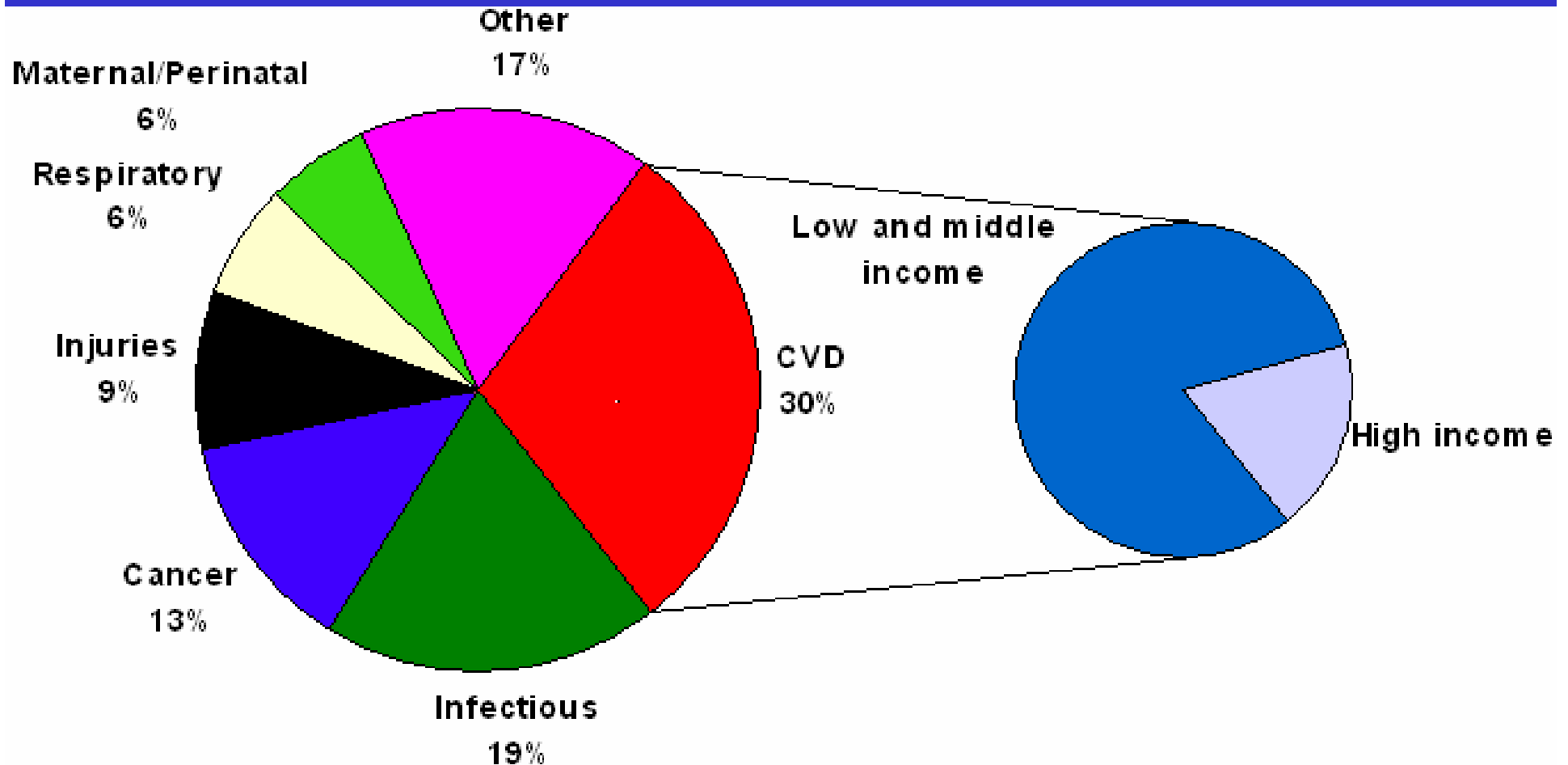
Dylan L. Steen MD, Valerie Reed NP,  
Gwendolyn Roxas RN, Maria Fonseca RN,  
Kathy Hebert MD, MMM, MPH

Jackson Memorial Hospital

# Health Policy

- **Results:** 173 new patients / 3 months
- 115 visits for IVP lasix
- 54 patients (31%)
- 16 patients used service multiple times (range 2-11).
- Average ER cost \$5295/CHF (96% admitted)
- Cost Avoidance for 115 ER visits = \$608,925
  
- Average inpatient costs for CHF = \$26,404 (LOS 5.25 days)
- Cost Avoidance for admissions 96% / 115 = \$2,915,001
  
- **Conclusion:** An open access IVP lasix program is cost effective alternative to ER and inpatient treatment for CHF patients requiring diuresis.

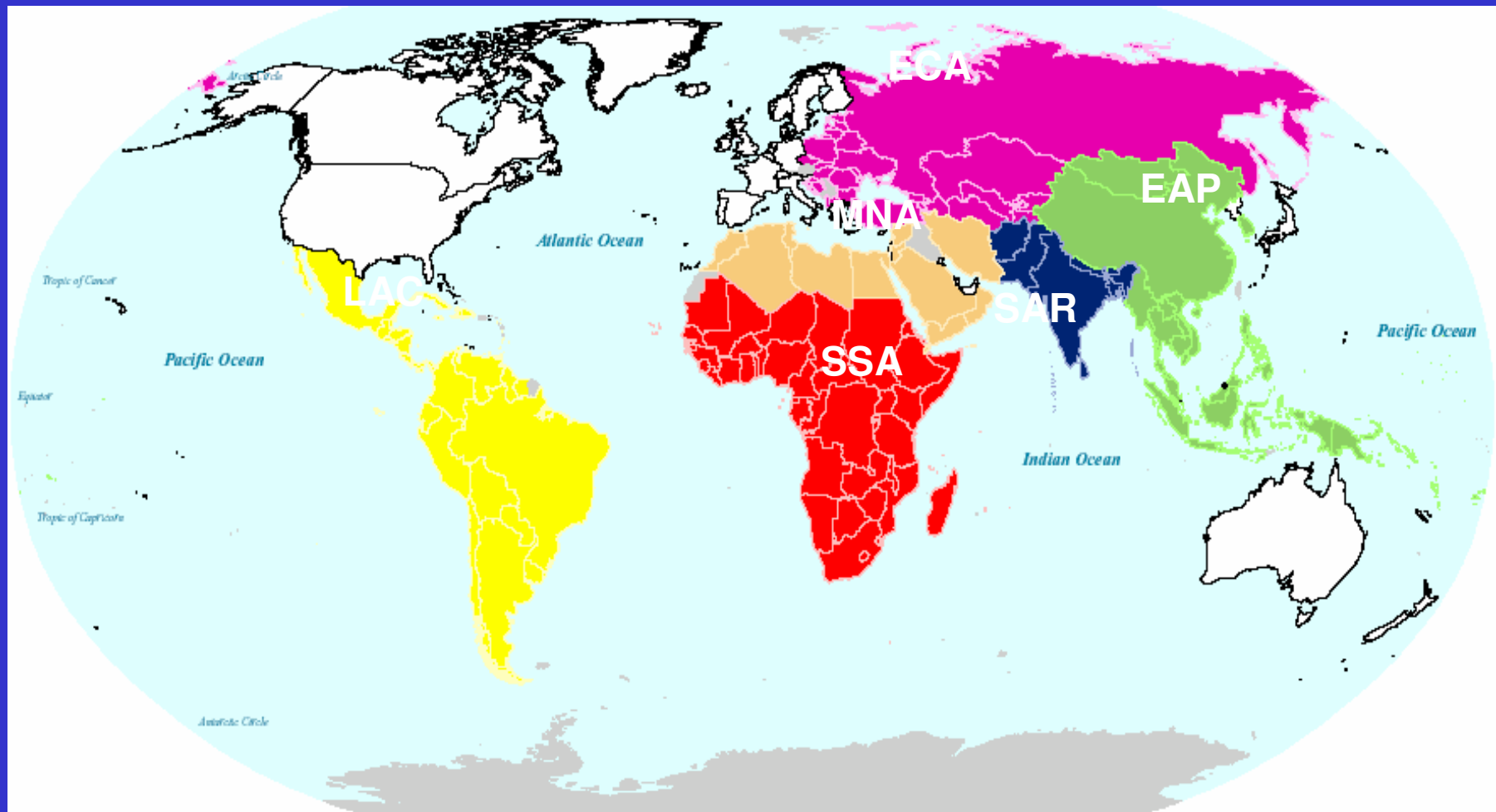
# Cause of Death



Gaziano TA. Boston, MA.. 2004.

Adapted from: Murray CJL, Lopez AD, eds. The global burden of disease. Cambridge, MA: Harvard School of Public Health; 1996.

# Geographic and Economic Regions of the World



Gaziano TA, Knott R. Boston, MA. 2004.

Adapted from: World Bank countries and regions. [Accessed Nov 2004]. Available from URL:

<http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/0,,pagePK:180619%7etheSitePK:136917,00.html>

Exporting a CHF Disease  
Management Clinic to the Former  
Soviet country of Georgia

# The World



**Small country 4.4 Mio**  
**With big problems**



# CHF Clinic

## Tbilisi, Georgia (country)

Demographics	Sample n= 173
Mean age	64.6
Male	68%
Caucasian	100%
Georgian	94%
Armenian	3%
Azerbaijan	3%
Unemployed	88.5%
Insurance	4%
Mean income \$US	1200/year
Mean EF +/- SD	31.67 +/- 6.8
NYHA I	3
II	70
III	107
IV	23

ICM	60%
DCM	40%
HTN	77.5%
MI	46.8%
Stroke	6.9%
Depression	8.6%
DOE	95%
Orthopnea	76%
PND	40%
Leg edema	59.5%
Current tobacco	25%
Second visit	N= 99
Beta blocker	75%
Ace inhibitor	75%
Diuretic	75%

# National Association of Public Hospitals and Health Systems



- 2002 Safety Net Award for Accountability and Quality Improvement
- CHF Disease Management Program
- L.J. Chabert Medical Center

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