



**Jefferson.**  
School of Population Health

*Root Cause Analysis:*  
**Heart Failure Readmissions  
at Thomas Jefferson University Hospital**

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MPH Capstone  
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# What is heart failure?

- The heart cannot pump enough blood and oxygen to support other organs.
  - Co-morbidities: coronary artery disease, high blood pressure, diabetes
  - Factors: smoking, obesity, high fat foods, sodium, cholesterol
- **5.7 million** Americans living with heart failure
  - **550,000** new patients diagnosed each year
- **~11 million** physician outpatient visits annually
  - HF hospitalizations exceeds all forms of cancer combined

# What defines a ‘readmission’?

- Centers for Medicare & Medicaid Services (CMS):
  - ‘readmission’ is admission to a hospital within 30 days of discharge from the same or another hospital.
- National 30-day readmission rates: **25%**
- National 6-month readmission rates: **50%**
- Readmission carries a higher mortality risk than index hospitalization

# Why focus on heart failure patients?

Medical Condition	30-Day Readmission Rate	Proportion of All Readmissions
ALL	21.0	77.6
<b>Heart Failure</b>	<b>26.9</b>	<b>7.6</b>
Psychoses	24.6	4.0
Pneumonia	20.1	6.3
COPD	22.6	4.0
GI problems	19.2	3.1

# Financial Implications

- Managing Heart Failure (total direct & indirect costs):
- Increase by **nearly \$10 billion** dollars from 2005 to 2009
- ~\$12 billion of \$15 billion readmission costs result from cases that are considered **preventable**
- Affordable Care Act
  - *Readmissions Reduction Program*
    - Performance benchmarks (FY2013)
    - Hospitals above ‘readmissions ratio’: lose **\$300 million**
      - Continue to exceed the readmission ratio:
        - FY2014: **2%** penalty
        - FY2015: **3%** penalty
  - *Hospital Value-Based Purchasing Program*

<b>Hospitals - Philadelphia</b>	<b>Readmission Penalty (FY2013)</b>
<b>Aria Health</b>	1.00%
<b>Pennsylvania Hospital</b>	1.00%
<b>Hahnemann Hospital</b>	0.86%
<b>TJUH</b>	<b>0.59%</b>
<b>Albert Einstein Medical Center</b>	0.54%
<b>Temple University Hospital</b>	0.49%
<b>Penn Presbyterian</b>	0.06%
<b>Hospital of Univ. Pennsylvania</b>	0.02%

# Factors Influencing Readmission

- Disease
  - Heart Failure patients:
    - + hypertension = 75%
    - + atrial fibrillation = 50%
    - + diabetes mellitus = 39%
- Physician
  - Length of Stay
    - 1993-2006: Average length of HF visit ↓26%,  
30-Day Readmission Rate ↑ from 17 to 20%
  - Validity?
- Patient
- Community/Resource

# STUDY GOAL

To understand the root causes for high hospital readmission rates for heart failure patients at Thomas Jefferson University Hospital, particularly from the patient's perspective; the ultimate goal is to influence future recommendations and interventions.

# Specific Aims

**Aim 1:** Assess and analyze the baseline health data for readmitted heart failure patients at TJUH

**Aim 2:** Patient-perceived reasons behind the hospital readmissions

**Aim 3:** Analysis of current systems in place to prevent frequent readmissions

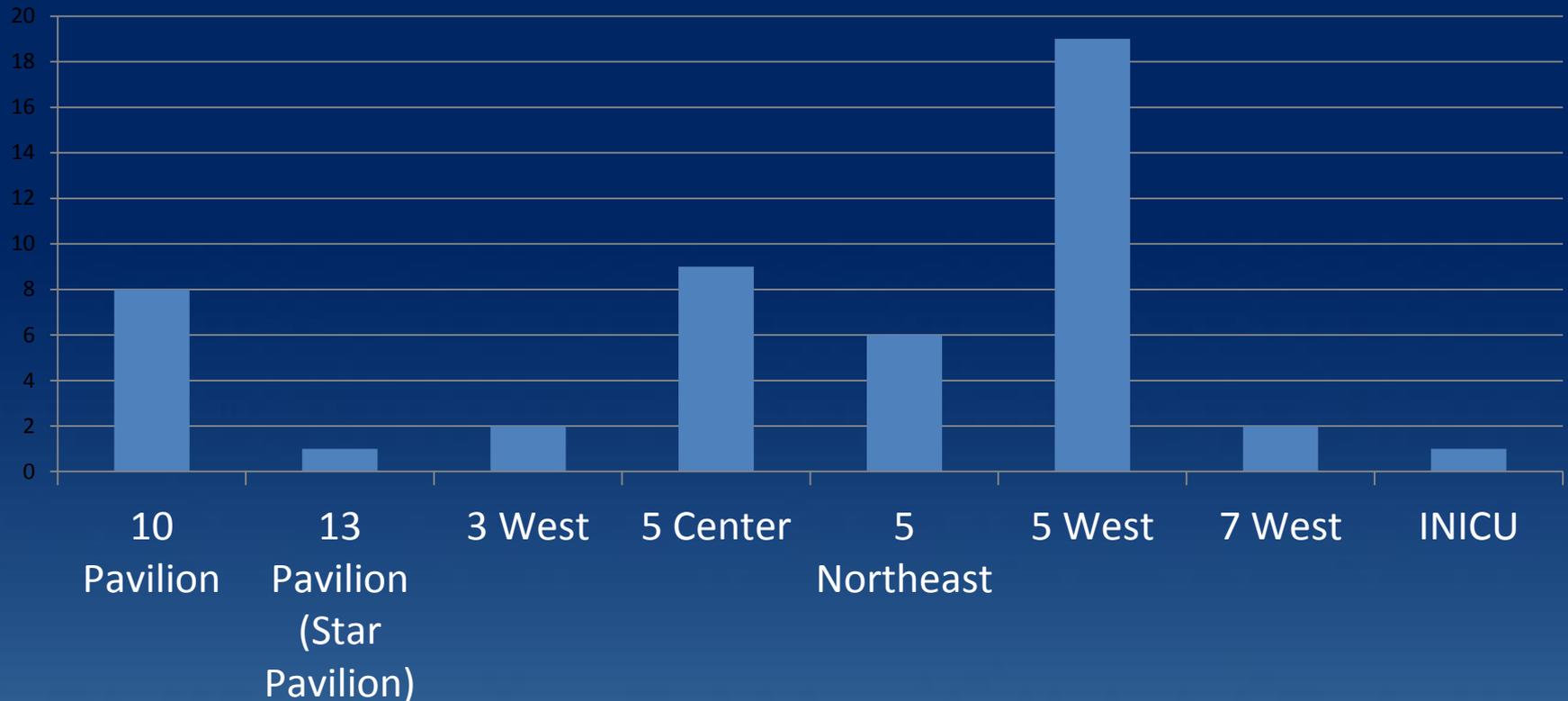
# METHODS

- *Inclusion Criteria: Age (18 years old) & Readmission (30 days)*
- Validated Survey: Kansas City Cardiomyopathy Questionnaire
- Qualitative study comprised of patient interviews with recently readmitted heart failure patients (IRB)
  - Pre-determined set of questions
- Surveys & Interviews conducted in hospital room

# METHODS: Sample Size

- Jefferson Coordinating Center for Clinical Research

## 6-Month Readmissions by Floor



# ANALYSIS

- Interview responses de-identified and kept securely
  - Coded into themes
  - Compared across all interviews
  - Daily Interpretive Analysis
- Calculate Summary Scores for Kansas City Cardiomyopathy Questionnaire (KCCQ) - *Cardiovascular Outcomes, Inc*
- Analyze correlations of trends in data and common themes
  - Health status
  - Reasons for readmission

# Kansas City Cardiomyopathy Questionnaire

- **23 items** in different categories:
  - Physical Limitation
  - Social Limitation
  - Symptom Stability
  - Symptom Frequency
  - Symptom Burden
  - Total Symptom
  - Self-Efficacy
  - Quality of Life
  - Overall Summary Score
  
- Range: **0 to 100** (best health status)

# Interview: Open-Ended Questions

- Patient-perceived reason for readmission
- Communication
- Transportation
- Medication Management
- Lifestyle
- Goals

# Interview: Open-Ended Questions

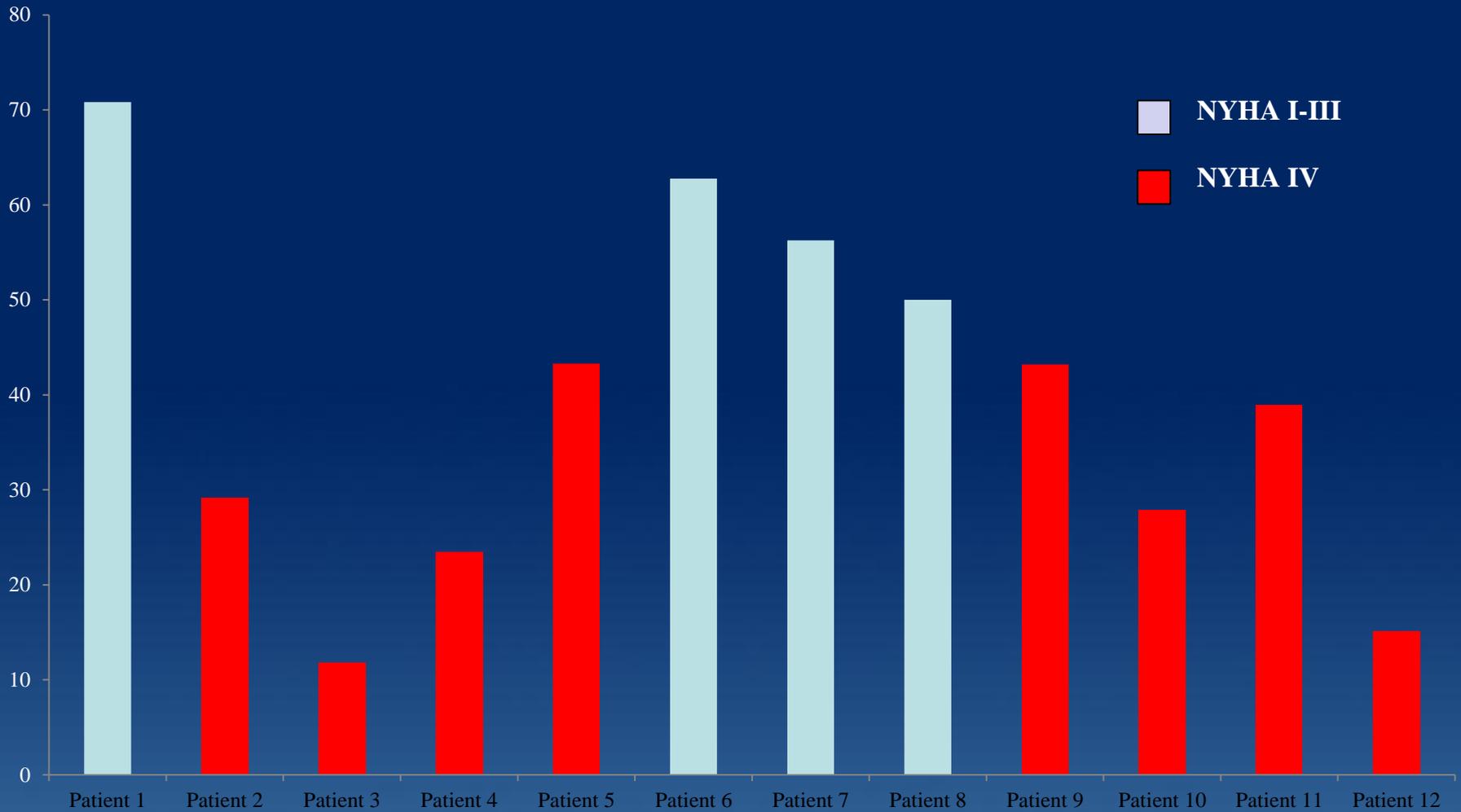
- *What happened that you had to come back to the hospital?*
- *Do you remember getting instructions from the nurses when you left the hospital? Can you recall any of that information?*
- *How do you get to your doctor appointments?*
- *Do you feel that you need each medication the doctor prescribed?*
- *Describe your typical meals since you got home. Who prepares your meals?*
- *What would help you manage your illness or be healthier?*

# RESULTS: Overall Themes

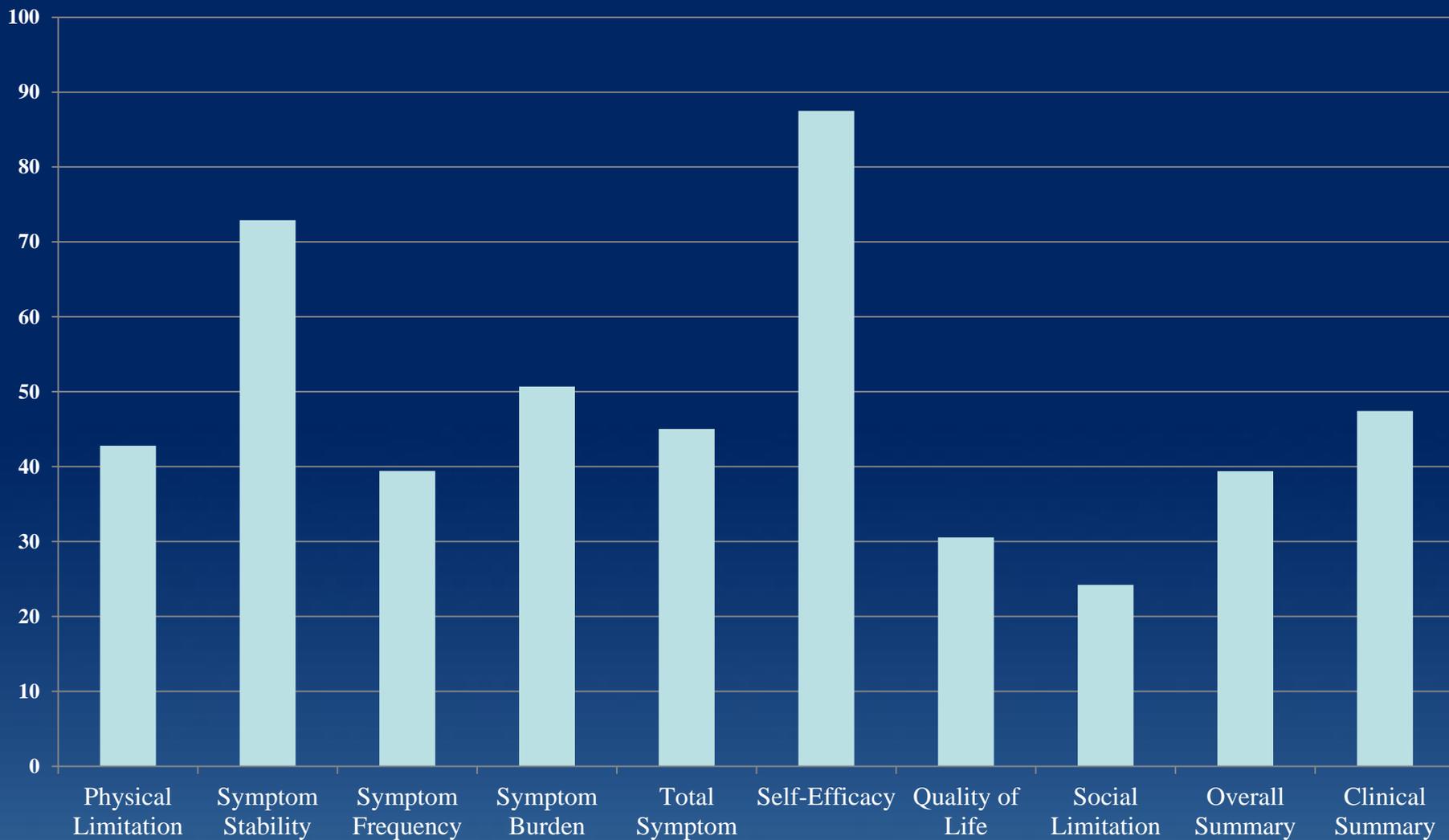
- **1. Health Status of Patients**
  - KCCQ Results: Summary Scores
  - Patient attitudes and beliefs about illness
- **2. Factors Influencing Readmission (Interviews)**
  - Barriers to follow-up appointments
  - Medication Non-Compliance
  - Diet Non-Compliance
  - Family Support
- **3. Improvements and Recommendations**
  - Desire to lose weight and get healthy
  - Lack of continuity with home health services

# 1. HEALTH STATUS OF PATIENTS

# RESULTS: KCCQ



# RESULTS: KCCQ – Categories



# Health Status: Patient Attitudes & Beliefs

- *“It’s well managed when I’m in the hospital, but other than that, it’s not so good. Each day I feel like I’m losing the battle more and more. It’s like the disease is winning.”*
- *“...I know how hard it is for my daughter. She’s got kids, you know, and her own family. But she stays with me and I just make her life tough. I do.”*
- *“...I can’t clean myself properly without help, I can’t wash up, things like that. It makes me just want to stay inside and not go see anyone.”*

# Health Status: Patient Attitudes & Beliefs

- *“I hate coming back here, but what can I do? It doesn’t matter what I do at home, my son keeps sending me right on back. But being here is just delaying the inevitable.”*
- *“This is the first time I’ve really felt down on myself. Like I let myself down, and let the heart failure get the best of me. and it’s pathetic, really. It’s pathetic.”*
- Depression vs Overall Summary Score (Rumsfeld et. al., 2003)

## 2. FACTORS INFLUENCING READMISSION

# Factors: COMMUNICATION

- - 5 of 12 patients did not make scheduled follow-up appointment
- *“I was supposed to go see Dr. XXXXX, my cardiologist, but man, my wife just forgot to remind me about it until it was too late.”*
- *“I don’t really go see the doctor that much because I don’t feel that sick. It’s a nuisance. A lot of this is just part of getting old. The only reason I’m here now is because I was getting short of breath and my husband brought me to the ER.”*

# Factors: TRANSPORTATION

- 1/3 of patients interviewed missed an appointment due to transportation
- 5 of 12 relied on SEPTA or CCT program
- *“My brother is the one who takes me to the doctor. Usually it’s not a problem, but sometimes he has car trouble, which is what happened this last time. Things got bad for me real fast, and that’s why I’m here now.”*

# Factors: MEDICATION

- 91% claimed to be taking all of the medications regularly, and to have received some information about medication upon discharge.
- 1/3 of patients did not know the purpose of each medication:
- *“They did tell me about the different drugs, but for some of them it didn’t really make sense, and I felt too embarrassed to ask about it after.”*
- *“I’ve been taking these drugs for so long man, I couldn’t tell you what half of them do by now.”*
- *“My daughter usually helps me keep track of them, when she takes her medication (for mental illness).”*

# Factors: MEDICATION

- 2/3 of patients felt they did not need all of their prescribed medications
- *“The nurse said I need all those pills, but at this point I think they do more harm than good, you know?”*
- *“It’s been so long since I’ve been taking some of these drugs, and I don’t seem to be getting any better.”*
- *“The doctors have to understand, that we’re not scientists, right? We get the pills from the nurse, and the nurses are great, they are really nice and make sure I’m feeling okay. But the young docs got to realize that I don’t know all the different reactions and things from the drugs, and I definitely don’t know why they keep changing them out every few days.”*

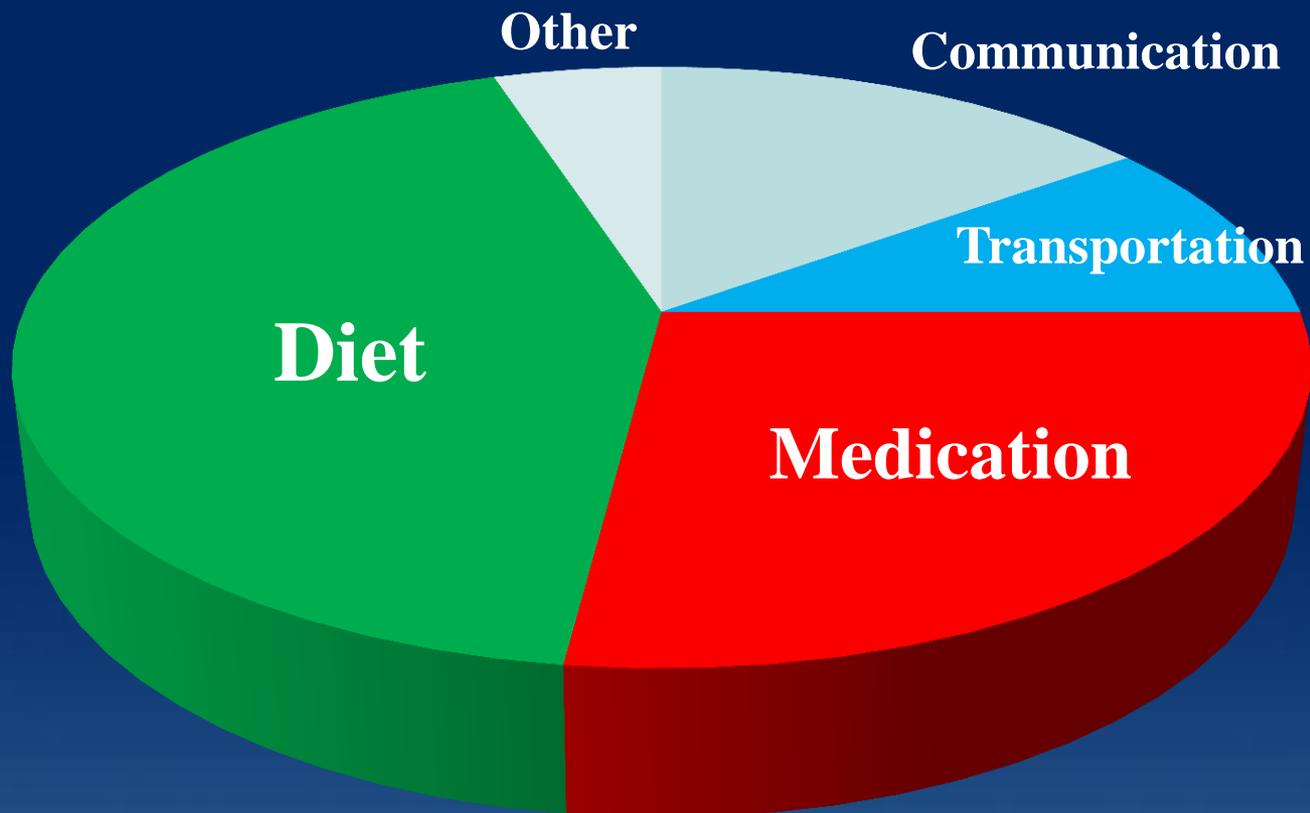
# Factors: LIFESTYLE/DIET

- 3 of 12 patients reported receiving any verbal information about specific dietary restrictions
- *“I think they did give me a pamphlet about what I can eat and everything, but I just never got around to reading it.”*
- ~60% of the patients reported some problem with adhering to their dietary restrictions
- *“If they cook something for everyone, you know, I can’t just say ‘No no that’s not good enough for me, make me something else.’ I just eat whatever everyone else is eating. They can’t put everyone’s diet on low salt just because of me.”*

# Factors: LIFESTYLE/DIET

- *“I do an okay job of keeping up with the different rules, but I still cheat every now and then. Sometimes you just need to have something that tastes good, you know?”*
- *“My husband found these low-salt bread crumbs that we can use for cooking which are really great, but just so dang expensive. We try real hard, but sometimes it’s just easier for us to stop and get some McDonalds. I don’t think the McDonald’s up on Market has a low-salt menu.”*
- *“I thought I was doing a pretty good job of looking out for myself at home, with the salt and stuff. But then I come to the hospital, and I think, damn, this is what a low-salt diet is really like? This ain’t what I had in mind at all!”*

# RESULTS: Breakdown of Patient Responses



## Individual Perceptions

### Modifying Factors

- Age, race, ethnicity
- KCCQ Summary Score
- Knowledge of heart failure

### Perceived Seriousness & Susceptibility

- How important is a low-salt diet?
- Does it matter if I ignore the rules once or twice?

### Cues to Action:

- family pressure
- advice from doctor/nurse
- hospital readmission

## Assessments

### Benefits:

- fewer hospital visits, fewer symptoms
- improved quality of life

### Barriers:

- decreased enjoyment of food
- cost and effort to maintain

## Likelihood of Action

Adhering to low-sodium diet and full dietary guidelines

Perceived threat of death due to heart failure

# 3. IMPROVEMENTS AND RECOMMENDATIONS

# Jefferson Staff and Support

- *“I can’t say enough good things about this place, really. They do a great job, just top-notch.”*
- *“I would give Jefferson staff, especially the nurses, 6 stars out of 5. They take care of me, they take care of my family. I mean, this is how it should be.”*
- *“It’s just like any other hospital. They can’t wait to get me out of here and I can’t wait to leave.”*

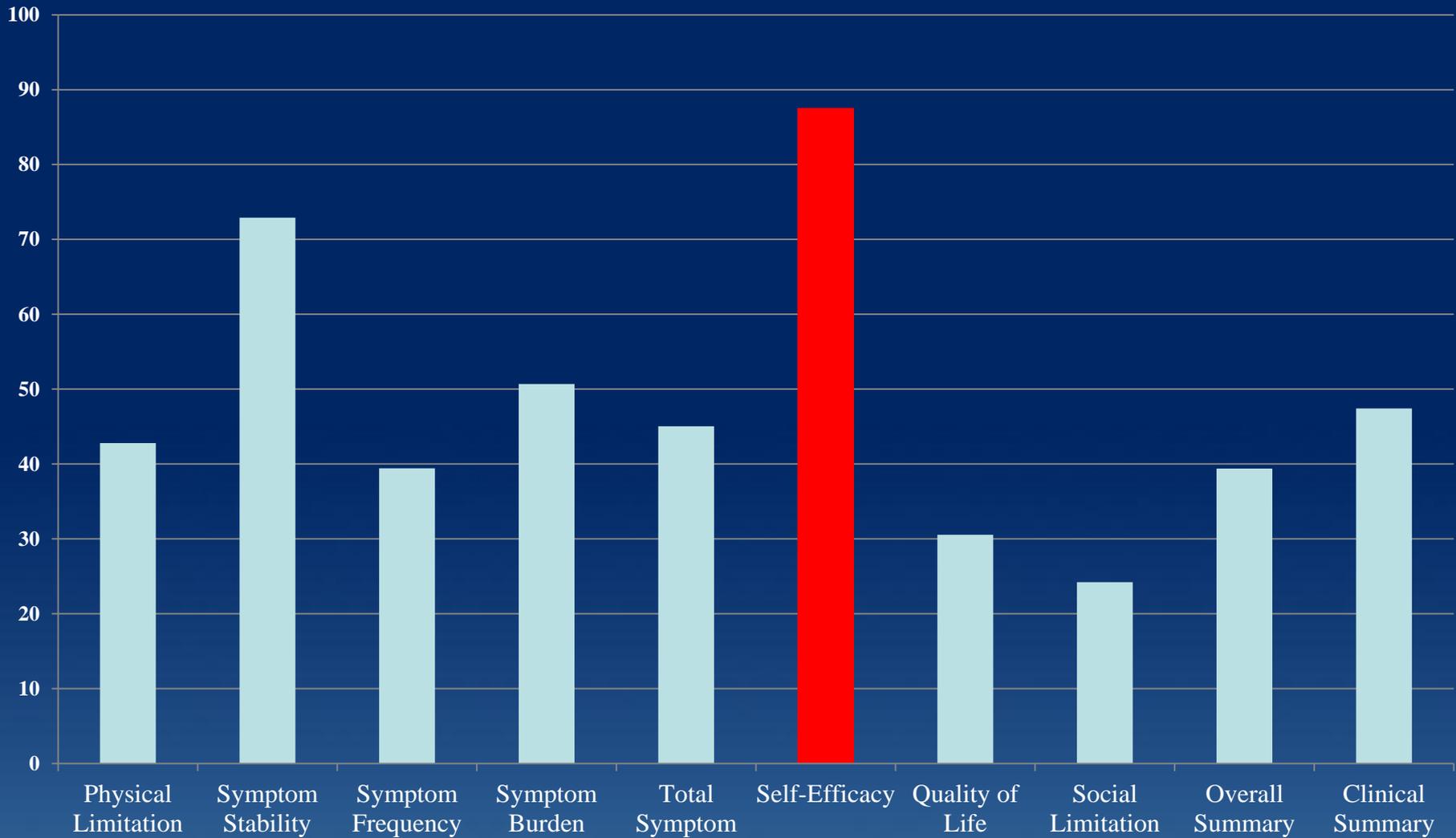
# Desire to Improve Health

- *“I need to get my weight stable. It’s a real problem. I walk a lot, and like to do so, but when I have no energy, it’s tough, and I put on weight. We talk a lot about weight with my doctor, and I feel good about it managing it while I’m in the hospital.”*
- *“If I get my strength back with rehab, then I can go to the restroom by myself and I’ll feel satisfied, somewhat. Right now, I have a lot of fear of just getting into the shower. I have to get my sons to help me and take sponge baths, things like that. That’s not how it should be.”*
- *“Honestly, I’m in end-stage CHF. My ejection fraction is 20% and falling. It’s just a natural progression. Everything that can be done here is being done. The cardio unit is really wonderful.”*

# Continuity of Home Health Services

- *“I really need to lose some of this weight, get this fluid off my body. I just wish I had a little more help at home when it came to that, you know? It’s hard when you’re on your own.”*
- *“They never really change my meds at home though. They do it every week, but when I’m here (at the hospital), it’s every single day. Every day. It takes them weeks to analyze and change things with HomeCare. So maybe if I had a nurse at home daily, that would be nice. But I’m way too young to be in a home, you know?”*

# RESULTS: KCCQ – Categories



# Recommendations

- Thorough demonstrations of clinical symptoms resulting from diet non-compliance
- Updates on medication regimen to coincide with any changes in prescriptions or treatment plans
- Psychological counseling while in the hospital; improved counseling services through HomeCare
- Stronger emphasis on weight reduction and dietary monitoring through HomeCare

# Current Projects:

## Heart Failure Care Coordination Program

- Patient & Family Education
  - Patient Education Binder
  - Video on Get Well Network
  - Teach Back Methodology
- Medication Teaching
- Follow up Doctor Appointment (Day 3-7)
- Follow up Phone Calls (Day 2, 7, 13, 21, 30)

# LIMITATIONS

- Sample Size
- Interview and analysis restrictions
- KCCQ: Question Validity
  - ex: *“How sure are you that you know what to do, or whom to call, if your heart failure gets worse?”*

**“Being in the hospital like this, with a heard condition... This isn’t something I planned on, right? I stopped smoking decades ago. I only drink at weddings. It’s really sad that I can’t go down the street and visit with my buddy, or hang out in the yard with my grandkids. It’s disappointing. I mean, I’m doing better than I was, you know. Jefferson has been great to me, but I just, I know I can do better. I have to do better, otherwise the next place I’m headed is the lot behind the church.”**

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# THANK YOU!