Implementing a Heart Failure Quality Improvement Program

R. Kannan Mutharasan, MD, FACC
Assistant Professor of Medicine – Cardiology
Northwestern University Feinberg School of Medicine
kannanm@northwestern.edu | @DoctorFitHeart

On Behalf of the Northwestern Heart Failure Bridge and Transition Team
Heart Failure Bridge and Transition Team

Michelle Fine
Katie Sandison
Sara Vander Ploeg
Pharmacy
Corrine Benacka
Jess Debrocke
Courtney Montgomery
Carly Koziol
Nurse Educator
Kayleigh Nolan
Galter 10 Cardiology
Kannan Mutharasan
Physician Co-Lead
Clyde Yancy
Allen Anderson
Charlie Davidson
Division of Cardiology
Josie Rhoades
Transitional Care Liaison
Hannah Alphs Jackson
Jennifer Faltin
Value-Based Delivery
Amanda Vlcek
Social Work
Preeti Kansal
Physician Co-Lead
Corrine Benacka
Nurse Practitioner
Daniel Navarro
Information Technology
Dominique Kosk
Registered Dietitian
Abbey Lichten
Health Education
Robin Fortman
Nicki Pincus
Shilpa Shelton
Bluhm Cardiovascular Institute
R. Kannan Mutharasan, MD, FACC
HF BAT Team
Learning Objectives

• Describe the heart failure syndrome and relate its complexity to the complexities of other disease states

• Illustrate the composition of a multidisciplinary care team and its role in managing complex disease
Agenda

• Problem
• Process
• Outcomes
• Team Work
What is Heart Failure?

- Syndrome not a disease
- Multiple root causes
- Final common pathway of heart disease

- Either not enough perfusion
- Or congestion in lungs or body

- #1 cause for Medicare admission

@DoctorFitHeart | kannanm@northwestern.edu
R. Kannan Mutharasan, MD, FACC
Why are people hospitalized with HF?

• Dyspnea (can’t breathe)
• Edema (swelling)
• Weak
• Organ dysfunction
• Chest pain
Heart Failure Rehospitalization Epidemiology

27%

30-day rehospitalization rate (Medicare) for heart failure admission

Centers for Medicare and Medicaid Services [CMS Link]
Jenks SF, Williams MV, Coleman EA. NEJM 2009 Apr 2; 360(14):1418-28

@DoctorFitHeart | kannanm@northwestern.edu
R. Kannan Mutharasan, MD, FACC
Only 37% of heart failure readmissions are for heart failure again!


Jenks SF, Williams MV, Coleman EA. NEJM 2009 Apr 2; 360(14):1418-28
“The struggle itself toward the heights is enough to fill a man’s heart. One must imagine Sisyphus happy.”

- Albert Camus
Bundled Payments for Care Improvement (BPCI): Financial Model Schematic

- **Index Admission**
  - DRG 291-293

- **Professional Services**

- **Inpatient Rehab**

- **Home Health**

- **Outpatient**

- **SNF**

- **Readmission**
  - Readmission Professional

- **30 days post-discharge**

- **“transitional care period”**

@DoctorFitHeart | kannanm@northwestern.edu

R. Kannan Mutharasan, MD, FACC
What Drives Cost for a HF Episode of Care?

- Baseline
- Index Hospitalization
  - Skilled Nursing Facility
  - Readmission
  - Outpatient Visits
  - Home Health
  - Inpatient Rehab
What Drives Cost for a HF Episode of Care?

- Index Hospitalization
- Skilled Nursing Facility
- Readmission
- Home Health
- Outpatient Visits
- Inpatient Rehab

Baseline

Sound Investments!!
Potential Waste

@DoctorFitHeart | kannanm@northwestern.edu
R. Kannan Mutharasan, MD, FACC
Patients with Heart Failure Readmit Early

Heart failure hospitalization

Days 0-3 Percentage of all readmissions, 13.4

Days 0-7 Percentage of all readmissions, 31.7

Days 0-15 Percentage of all readmissions, 61.0

Why are people hospitalized with HF?

• Dyspnea (can’t breathe)
• Edema (swelling)
• Weak
• Organ dysfunction
• Chest pain

@DoctorFitHeart | kannanm@northwestern.edu
R. Kannan Mutharasan, MD, FACC
Why Are People Hospitalized with HF: Our Value Proposition

- Identify and correct **underlying problems** driving the heart failure syndrome
- **Initiate and titrate** guideline-directed medical therapy in-hospital and outpatient
- **Connect** to outpatient services
- Empower patients to **adhere** to prescribed therapy
- Empower patients to **limit** salt and fluid intake
- Develop **feedback loops** to detect/correct exacerbations early and often
  - Daily weight monitoring
  - CardioMEMS
  - 48-hour phone follow up after discharge
  - Frequent office visits if needed, especially **7-day follow up**
  - Encourage patients to call with symptoms

**Our Strategic Bet:** If we can deliver on these processes, we can improve outcomes and reduce readmissions.
Four Reasons Patients Readmit

- Inadequate Social Structure
- Inadequate Patient Activation
- System Failure
- Biological (Just Sick)

@DoctorFitHeart | kannanm@northwestern.edu
R. Kannan Mutharasan, MD, FACC
Process
Caveat: Our Local Solutions for Our Local Challenges Leveraging Our Local Resources
High-Level Process Overview for BAT team

- Patient Identification
- Inpatient Services and Coordination
- Post Discharge Services and Coordination

Strategic Goal: ID patients early to build relationships and intervene
Deeper View of BAT Core Value Chain

EDW Screen

BAT Sees

Cards Seeing

Clinical
Education
Social Work
Pharmacy
Transition
48h Call
7d APN Visit
14d PCP
21d Cards

BAT Inpatient

BAT Outpatient

@DoctorFitHeart | kannanm@northwestern.edu
R. Kannan Mutharasan, MD, FACC
EDW Screen

- Based on administration of IV diuretics, BNP > 100, tele reason = HF
- 95% sensitive for HF admissions
- For every 3 active HF patients: 1 ends up in the bundle
Clinical Consultation

• Goal: Cardiology consultation on all HF patients
• Rationale: Root causes; more diuresis; develop relationship
Nurse HF Education

- Goal: Nurse HF education on all patients
- Rationale: Empower patients to adapt behavior change

@DoctorFitHeart | kannanm@northwestern.edu
R. Kannan Mutharasan, MD, FACC
Social Work

- **Goal:** Social work intervention to address barriers to care
- **Rationale:** Root causes; develop relationship
Pharmacy Intervention

- Goal: Encourage med adherence (55% cardiac med error rate)
- Rationale: Medicine works

@DoctorFitHeart | kannanm@northwestern.edu
R. Kannan Mutharasan, MD, FACC
Transition of Care

- **Goal:** Partner with post-acute partners
- **Rationale:** ~30% of patients go to SNF, inpt rehab, or have home health

@DoctorFitHeart | kannanm@northwestern.edu
R. Kannan Mutharasan, MD, FACC
**48-Hour Phone Call**

- **Goal:** Ensure meds, appts, feeling ok, answer questions
- **Rationale:** At home it’s real
7-day Visit in HF Discharge Clinic with APN

• Goal: Volume status assessment; advance plan of care if possible; pull in other disciplines

• Rationale: Hard to know diuretic dose for leaving hospital
Further Targets for Improvement

- Weekend coverage
- Medication adherence
- Scheduling patients
- Appointments for patients at SNFs
- Motivating patients
- Tracking process metrics
- Interventions in the ED to prevent admissions
- Facilitating discussions surrounding palliative care
- Looping in the primary care physician
Outcomes
Outcomes: Average Savings / Episode

CHF Average Episode NPRA Over Time

$3,000
$2,000
$1,000
$-
$(1,000)
$(2,000)

2015Q3
2015Q4
2016Q1
2016Q2
Drivers of Our Results

- **Readmissions**
  - CY 2014: 40%
  - BPCI Year 1: 30%
  - BPCI Year 2 YTD: 20%

- **SNF Utilization**
  - CY 2014: 30%
  - BPCI Year 1: 20%
  - BPCI Year 2 YTD: 10%

- **SNF aLOS**
  - CY 2014: 50.0
  - BPCI Year 1: 40.0
  - BPCI Year 2 YTD: 30.0

@DoctorFitHeart | kannanm@northwestern.edu
R. Kannan Mutharasan, MD, FACC
Medicare Risk-Adjusted 30-Day Unplanned Readmissions (Hospital Compare)

- "No Different Than National Rate" but improved 1.5 percentage points over previous two reporting periods
- Expect to see further improvement in rate due to reduced readmissions under BPCI

![Bar chart showing readmission rates for Northwestern Memorial Hospital and US National Rate over different periods.](image)
An Interesting Thing Happened on the Way to Reducing Readmissions: (Medicare.gov/hospitalcompare)

Among national leaders – reduction in 30-day heart failure mortality rates, 2013 - 2016

NORTHWESTERN MEMORIAL HOSPITAL

6.2%

11.9%

Number of included patients:

881

http://medicare.gov/hospitalcompare
Team Work
How Do We Do Our Work?

• Constant communication: In person, messaging
• Kaizen: Continuous process improvement
• Scrum: Shun overanalysis; prioritize and execute

Autonomy  Mastery  Purpose
Next Steps

• Share your institution’s lessons learned!

• How do you address complexity in your practice?

• How can different disciplines synergize to solve problems?
“Give me a lever long enough and a fulcrum on which to place it, and I shall move the world.”

-Archimedes
Implementing a Heart Failure Quality Improvement Program

R. Kannan Mutharasan, MD, FACC
Assistant Professor of Medicine – Cardiology
Northwestern University Feinberg School of Medicine
kannanm@northwestern.edu | @DoctorFitHeart

On Behalf of the Northwestern Heart Failure Bridge and Transition Team
Implementing a Heart Failure Quality Improvement Program

R. Kannan Mutharasan, MD, FACC
Assistant Professor of Medicine – Cardiology
Northwestern University Feinberg School of Medicine
kannanm@northwestern.edu | @DoctorFitHeart

On Behalf of the Northwestern Heart Failure Bridge and Transition Team
Thank You!!

kannanm@northwestern.edu

R. Kannan Mutharasan, MD, FACC

for the

Northwestern Medicine Heart Failure Bridge and Transition Team