An Approach to Heart Failure Management in Patients with Frailty and Multimorbidity

Arlene S. Bierman, M.D., M.S
OWHC Chair in Women's Health and Professor, University of Toronto
Keenan Research Centre in the Li Ka Shing Knowledge Institute, St. Michael's Hospital

November 1, 2013
Faculty/Presenter Disclosure

- **Faculty**: Arlene Bierman, MD, MS
- **Relationships with commercial interests**: None
  - Grants/Research Support: MOHLTC, CIHR
  - Speaker’s Bureau: None
  - Consultant: None
Objectives

1. Understand the challenges inherent in applying evidence-based HF guideline care in a frail and multimorbid patient.
2. Discuss approaches the HF care for a frail and multimorbid patient.
3. Examine interventions designed to improve quality and outcomes of care in these complex patients.
Outline

• Epidemiology of HF – Multimorbidity and Readmissions
• Coexisting Illness and Geriatric Syndromes
• Functional Status, Symptom Severity and Quality of Life
• Models of Care and Improving Health Outcomes
• Moving from Disease Specific to Patient Centred Care
• What percent of individuals with heart failure have no comorbid conditions?

A. 1%
B. 3%
C. 9%
D. 14%
Co-morbidity among Chronic Conditions for Medicare FFS Beneficiaries: 2010

- Depression
- Cancer
- Arthritis
- High blood pressure
- Alzheimer’s disease
- High cholesterol
- Diabetes
- Osteoporosis
- Asthma
- Ischemic heart disease
- COPD
- Atrial fibrillation
- Chronic kidney disease
- Stroke
- Heart failure

Distribution of Medicare FFS Beneficiaries by Number of Chronic Conditions and Total Medicare Hospital Readmissions: 2010

- 0 to 1 Condition: 14%
- 2 to 3 Conditions: 23%
- 4 to 5 Conditions: 32%
- 6+ Conditions: 32%

Mrs. D.

- Mrs. D. is an 81 y.o. widow female who lives alone in a one bedroom senior citizen apartment.
- Her friend assists her with shopping and cooking.
- Independent for self care, uses cane for mobility.
- Her daughter who has power of attorney lives out of town.
Mrs D.

- Discharged from hospital 2 wks ago after CHF exacerbation, 2\textsuperscript{nd} admission in last 6 months
- Past medical history
  - Silent MI
  - Type II DM
  - H/O Stroke with transient right sided weakness.
  - Osteoporosis, osteoarthritis
  - Mild renal insufficiency
- On this visit you note
  - functional decline with generalized weakness
  - urinary incontinence
  - weight loss and under nourishment
Mrs D.

- Goals for clinical management?
- What other issues need to be considered?
Policy, Practice, and Health Outcomes

Bierman: 1999
AHRQ Task Force on Aging Report
Access, Quality, and Outcomes

Primary Access
Access to system:
• Trouble getting care
• Delay care because of cost
• Transportation

Secondary Access
Structural Barriers within System:
Difficulty getting:
• Appointment
• Advice after hours
• Appointment with specialist

Tertiary Access
Ability of Provider to Address Patient Needs:
• Provider aware of conditions and functional limitations
• Provider has requisite knowledge and skills
• Provider culturally competent

Health Outcomes
Managing Heart Failure in the Elderly

• Pathophysiologic and pharmacokinetic changes of aging
• Multimorbidity is the norm
• End-of-life decision making grows in importance
• Functional decline and frailty
  – Progression of disease
  – Acute event: e.g., hip fracture, stroke
Frailty

• “A physiologic syndrome characterized by decreased reserve and resistance to stressors, resulting from cumulative decline across multiple physiologic systems, and causing vulnerability to adverse outcomes”

Fried et al. 2003
Clues to Frailty

- Weight loss
- Weariness/Fatigue
- Low exercise tolerance
- Low level of physical activity
- Slow walking speed
- Cognitive impairment and or depression
Admissions and Readmissions
Age-standardized hospitalization rates for congestive heart failure (CHF) per 100,000 adults aged 25 and older, by sex and neighbourhood income quintile, in Ontario, 2006/07

Data sources: Canadian Institute for Health Information Discharge Abstract Database (CIHI DAD); Statistics Canada 2001 Census
• In Ontario, among women what percent of hospital admissions for heart failure are for those age 80 or older?

A. 33%
B. 45%
C. 59%
D. 67%
Age distribution of congestive heart failure (CHF) hospitalizations (percentage) for adults aged 25 and older, by sex, in Ontario, 2006/07

Data source: Canadian Institute for Health Information Discharge Abstract Database (CIHI-DAD)
Age-specific hospitalization rates for congestive heart failure (CHF) per 100,000 adults, by sex and age group, in Ontario, 2006/07

Data source: Canadian Institute for Health Information Discharge Abstract Database (CIHI-DAD)
In Ontario, what percent of hospital readmissions after a hospitalization are for non-cardiac diagnoses?

A. 22%
B. 34%
C. 45%
D. 60%
Risk-adjusted percentage of heart failure (HF) patients aged 45 and older who were non-electively readmitted to hospital, by sex and reason for admission, in Ontario, 2005/06

DATA SOURCE: Canadian Institute for Health Information Discharge Abstract Database (CIHI-DAD)
NOTE: HF specific readmissions are part of CVD-related readmissions. All-cause readmissions represent all readmissions including CVD-related visits
CVD = cardiovascular disease
Functional Status
What Matters to Patients

• Major goal of health care for elderly is to maintain independence, prevent functional decline, and improve health-related quality of life.
• Physicians do not routinely assess function in their elderly patients.
• Physicians are often unaware of patients functional limitations.
• Large gaps in quality of care in areas that can impact function.
# Atypical Clinical Features of HF in the Frail Elderly

<table>
<thead>
<tr>
<th>Symptoms and syndromes</th>
<th>Signs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delirium</td>
<td>Ankle edema: may reflect venous insufficiency, drug effects, immobility, malnutrition</td>
</tr>
<tr>
<td>Falls</td>
<td>Sacral edema</td>
</tr>
<tr>
<td>Sudden functional decline</td>
<td>Pulmonary rales/crackles are nonspecific</td>
</tr>
<tr>
<td>Sleep disturbances</td>
<td></td>
</tr>
<tr>
<td>Nocturia or nocturnal incontinence</td>
<td></td>
</tr>
<tr>
<td>Dyspnea less likely if patient is sedentary</td>
<td></td>
</tr>
</tbody>
</table>

Adapted from CCS_HFCC slides

Improving Health Outcomes
A Patient-Centred Approach

- Risk Factor Modification
  - Smoking Cessation, Diet and Exercise, Weight Control
- Management of Multimorbidity
  - Risk Factors: Hypertension, Diabetes, Cholesterol Management
  - Other Chronic Conditions: Osteoarthritis, Osteoporosis
- Management of Geriatric Syndromes
  - Falls, Urinary Incontinence, Cognitive Impairment
- Address Psychosocial Issues
- Care Coordination and Integration
- Patient Preferences and Goal Setting
- Interdisciplinary Teams and Shared Care
- Linkages to Community Services
Limitations
Activities of Daily Living (ADLs)

Medicare Health Outcomes Survey
SF-36 PCS

Medicare Health Outcomes Survey
Shortness of Breath

Medicare Health Outcomes Survey

Shortness of Breath Most/All Time < 1 Block

Percent

All CAD CHF

Men 7 12 23
Women 10 22 33

www.powerstudy.ca
Shortness of Breath While Climbing One Flight of Stairs - CHF

Medicare Health Outcomes Survey
SF-36 PCS and Severity of CHF Symptoms

- None: Mean PCS = 42.9
- Mild: Mean PCS = 35.4
- Mod.: Mean PCS = 28.3
- Severe: Mean PCS = 27.6
Comorbidity among Older Adults with CVD
Low Back Pain

Medicare Health Outcomes Survey
Urinary Incontinence

Medicare Health Outcomes Survey
Depressed Mood

Medicare Health Outcomes Survey

Sad/Depressed Much of Time Last Year

Percent

- All: 10 (Men) 15 (Women)
- CAD: 16 (Men) 24 (Women)
- CHF: 24 (Men) 28 (Women)

www.powerstudy.ca
Change in Functional Status Associated with New Diagnosis

Medicare Health Outcomes Survey
Risk Factor Modification...
Risk Factor Management

- Cardiovascular risk factors should be aggressively managed with appropriate drugs and lifestyle modifications to targets identified in other disease-specific national guidelines (class I, level A).
- Regular physical activity is recommended for all patients with stable heart failure symptoms and impaired left ventricular systolic function (class IIa, level B).
- Exercise training three to five times a week for 30 min to 45 min per session (to include warm-up and cool-down) should be considered for stable NYHA class II to III heart failure patients with left ventricular ejection fraction (LVEF) less than 40% (class IIa, level B).

Consensus conference recommendations on heart failure 2006
Can J Cardiol Vol 22 No 1 January 2006 37
The elderly patient with known or suspected heart failure should be assessed for relevant comorbid conditions, including cognitive impairment, dementia and depression, that may affect treatment, adherence to therapy, follow-up or prognosis (level I, class C).

In the care of elderly heart failure patients with cognitive impairment, a capable caregiver should be identified (level I, class C).

Heart failure therapies in elderly heart failure patients should be similar to those in younger patients, although their use may depend primarily on concomitant conditions (level I, class B).
Care of the Elderly

- Primary focus of care on symptom reduction and quality of life, rather than mortality reduction in patients with high comorbid burden  
  (Class I, Level C)

- Elderly HF patients with chronic physical complaints despite optimal HF therapy should be screened for depression  
  (Class I, Level C)

Social Considerations

• Psycho-social issues (e.g., depression, fear, isolation, home supports, need for respite care, etc.) should be routinely re-evaluated (Class I, Level C)

• Caregivers of patients with advanced HF should be evaluated for coping and degree of caregiver burden (Class I, Level C)

The Expanded Chronic Care Model

Community

Building Healthy Public Policy
Create Supportive Environments
Strengthen Community Action

Health System

Self-Management/Develop Personal Skills
Delivery System Design/Re-orient Health Services
Decision Support
Information Systems

Activated Community
Informed Activated Patient

Productive Interactions & Relationships
Population Health Outcomes/Functional & Clinical Outcomes

Prepared Proactive Practice Team
Prepared Proactive Community Partners

Source: Barr, Hospital Quarterly 2003
Models of Care for Multimorbidity

<table>
<thead>
<tr>
<th>Care Component</th>
<th>GRACE</th>
<th>PACE</th>
<th>Guided Care</th>
<th>SIPA</th>
<th>PRISM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interdisciplinary Teams</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Patient enrolment assessment</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Individualized care plans</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Case management</td>
<td>✔</td>
<td></td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Patient &amp; family involvement</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Continuity of care and transition management</td>
<td></td>
<td>✔</td>
<td>✔</td>
<td></td>
<td>✔</td>
</tr>
<tr>
<td>Single entry point</td>
<td></td>
<td>✔</td>
<td>✔</td>
<td></td>
<td>✔</td>
</tr>
<tr>
<td>Electronic health record</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Study</th>
<th>Model</th>
<th>Performance Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Counsell et al. (2007)</td>
<td>GRACE</td>
<td>ACOVE quality indicators. SF-36 medical outcomes. Functional index score created from 7 instrumental and 6 basic ADLs. ED visits, acute care hospitalizations and mortality rates.</td>
</tr>
<tr>
<td>Mukamel et al. (2006 &amp; 2007)</td>
<td>PACE</td>
<td>Risk-adjusted outcomes at 3 and 12 months post PACE enrolment: Self-assessed health status; functional status; mortality at 12 months.</td>
</tr>
<tr>
<td>Boult et al. (2008)</td>
<td>Guided Care</td>
<td>PACIC (at 0 &amp; 6 months) PCAT (PCP satisfaction, time allocation, knowledge, care coordination) Nurses’ job satisfaction instrument (at 12 months)</td>
</tr>
</tbody>
</table>
Scoping review

• HF interventions in ambulatory care settings that include multicomponent interventions, patient self-management support, and use of effective e-Health strategies improve patient outcomes.

• Multicomponent interventions including multidisciplinary teams, self-management education and telemonitoring can decrease hospitalizations, readmissions and mortality.

• Despite a large body of evidence, many HF patients receive fragmented, uncoordinated care, resulting in suboptimal outcomes and avoidable morbidity.
Scoping review

- Heterogeneity of studies and lack of detail in providing important information about the population, setting, and intervention limit the interpretation of these results.

- Reporting of improvement interventions in the literature is insufficient. Reporting using guidelines, such as SQUIRE, can help provide the context needed to design effective interventions for diverse practice settings, patient populations and communities.
Chronic Care Model with PATHS Framework Components

**Community Resources and Policies**
- Activated Community
- Informed Activated Patient

**Health System Health Care Organization**
- Delivery System Design
- Decision Support
- Guideline Implementation
- Use of I.T.
- Clinical Information Systems

**Productive Interactions**
- Prepared Proactive Practice Team
- Prepared Proactive Community Partners

**Improved Outcomes**
- 1. Shared Care
- 2. Care coordination and planning
- 3. Guideline Implementation
- 4. Use of I.T.
- 5. Linkages to community services and supports
- 6. Patient self-management support

**PATHS Framework Components**
- Informed
- Activated
- Patient
- Prepared
- Proactive
- Community
The **PATHS** Model: 
**Patient-Centered Accelerated Improvement Teams**
for **Heart Failure through Shared Care**
# Key Components of Standards care for people with MCC

## Program and team work
1. Interdisciplinary Primary Care Teams
2. Patient enrolment and assessment
3. Interdisciplinary Primary Care Team Meetings
4. Individualized care plans
5. Single entry point
6. Mental health management
7. Medication management

## Care coordination across the continuum
8. Case management
9. Involvement of patient and family in decision making
10. Integration of home and community-based services
11. Support for self-management
12. Caregiver education and support
13. Continuity of care and transition management

## Support structure
14. Electronic health records
15. Guidelines for MCC
16. Performance measurement
17. Blended capitation remuneration system adjusted to patient need
18. Team-based financial payments
Improving Health Outcomes
A Patient-Centred Approach

• Risk Factor Modification
  – Smoking Cessation, Diet and Exercise, Weight Control

• Management of Multimorbidity
  – Risk Factors: Hypertension, Diabetes, Cholesterol Management
  – Other Chronic Conditions: Osteoarthritis, Osteoporosis

• Management of Geriatric Syndromes
  – Falls, Urinary Incontinence, Cognitive Impairment

• Address Psychosocial Issues

• Care Coordination and Integration

• Patient Preferences and Goal Setting

• Interdisciplinary Teams and Shared Care

• Linkages to Community Services
Mrs D.

- Goal Setting
- Patient Self Management Support
- Focus on
- Interdisciplinary Team
- Shared Care
- Address Polypharmacy
- Advanced Care Planning
- Community Supports