Population Health:  
The Path from Volume to Value

Mark Carroll, MD  
January 14, 2015
International Comparison of Spending on Health, 1980–2010

Average spending on health per capita ($US PPP)

Total health expenditures as percent of GDP

Notes: PPP = purchasing power parity; GDP = gross domestic product.
Source: Commonwealth Fund, based on OECD Health Data 2012.
Moving from “volume to value”
“Triple Aim”
What is the path forward?
“POPULATION HEALTH”
New Partnerships
Working together – working together differently - to bring care to our patients and communities when, where, and how that care is needed ...
To improve the health of specific populations of people.
How are we to work together differently?
“Care Traffic Control”

- Functioning as a “care traffic controller”, a Care Manager coordinates service connections for each patient’s diverse needs - over time – with an emphasis on what each patient needs to get and stay well.
“Care Management”
Community-Based Collaborations
Care Process Models (CPMs)
A Definition

- **Care Process Model (CPM):** A guideline for delivering consistent, evidence-based care for a patient with a specific diagnosis
  - Not cookbook medicine!
  - Practice patterns grounded by evidence
  - Physician judgment always trumps the CPM when there is a conflict, because no two patients are exactly the same
CPM Goals

- To improve quality of care by reducing unnecessary variation
- Reduce mortality, readmissions and complications
- Provide the best, evidence-based, appropriate care to our patients
Provider References

Osteoarthritits CPM

Provider Reference for the Management of Total Knee Arthroplasty

Provider Reference for the Management of Total Hip Arthroplasty

Provider Reference for Total and Reverse Shoulder Arthroplasty

Spine Surgery Care Process Model

This guideline has been developed to provide uniform care and consistent care to referring specialists for patients presenting with suspected pathologic fractures due to osteoporosis. This guideline is not meant to substitute for clinical judgment and must be meet the needs of each individual patient.

The Guidelines...


Features of Spine Surgery at Flagstaff Medical Center:
- A multi-disciplinary approach: Our Spine and Joint Surgery Center team includes patients, coaches, family, nurses, technicians, physical therapists, occupational therapists, pharmacists, secretaries, case coordinators, administration, public relations, physician assistants, nurse practitioners, anesthesiologists, certified registered nurse anesthetists, internists, surgeons, volunteers, nutrition services, education specialists, and environmental services personnel. Our Spine and Joint Surgery Center is a 12-bed unit that admits only patients free of infection.
- Patient education, involvement, and empowerment: Designed to help patients contribute to their successful outcomes. Individualized, well-informed patients are more involved in treatment decisions and receive positive outcomes. We realize the spine is a part of your life.
Guidelines for the Diagnosis and Management of Heart Failure 7/1/14

**Management**

- **Suspect Diagnosis of HF**
- **Echo I,c/BNP I,A**
- **Heart Failure Confirmed**
  - If isolated Cor Pulmonale, refer to Cor Pulmonale CPM

**Consider Cardiology Consult for all HF patients**
- Mandatory Cardiology Consult:
  - Newly diagnosed HF
  - When prescribing spironolactone
  - Ischemic Evaluation
  - Consideration for device therapy
  - Consideration of changes to anti-arrhythmics or requiring two diuretics

**Labs , EKG, CXR review (class I,A)**

**If suspected ischemic disease:**
- **Cardiology consult**
- Consider cardiac cath if angina present (IIa,C) or no known CAD (IIa,C)
- Non-invasive cardiac imaging if h/o CAD and angina absent unless not eligible for cath/stent or CABG in which case NO imaging (IIa,C)

**Classify Type of HF**
- **Classification (38)**

**Classify HF based on stage and NYHA symptom severity**
- **Obtain prior Dry Weight (LA)**

**Table a**

<table>
<thead>
<tr>
<th>ICD 10 Diagnoses</th>
<th>Classification</th>
<th>EF (%)</th>
<th>Description</th>
<th>NYHA Functional Classification (38)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systolic heart failure, specify</td>
<td>I. Heart failure</td>
<td>≤40</td>
<td>Also referred to as systolic HF. Randomized controlled trials have mainly enrolled patients with HFrEF, and it is only in these patients that efficacious therapies have been demonstrated to date</td>
<td>None</td>
</tr>
<tr>
<td>acute/chronic</td>
<td>with reduced</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ejection</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>fraction</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(HFrEF)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diastolic Heart Failure, specify</td>
<td>II. Heart failure</td>
<td>≥50</td>
<td>Also referred to as diastolic HF. Several different criteria have been used to further define HFrEF. The diagnosis of HFrEF is challenging because it is largely one of excluding other potential noncardiac causes of symptoms suggestive of HF. To date, efficacious therapies have not been identified.</td>
<td>I</td>
</tr>
<tr>
<td>acute/chronic</td>
<td>with preserved</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ejection</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>fraction</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(HFrEF)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diastolic heart failure</td>
<td>a. HFrEF,</td>
<td>41 to 49</td>
<td>These patients fall into a borderline or intermediate group. Their characteristics, treatment patterns, and outcomes appear similar to those of patients with HFrEF.</td>
<td>I</td>
</tr>
<tr>
<td>failure combined with systolic</td>
<td>borderline</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>heart failure, specify</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>acute/chronic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No ICD-10 dx, consider systolic</td>
<td>b. HFrEF,</td>
<td>&gt;40</td>
<td>It has been recognized that a subset of patients with HFrEF previously had HFrEF. These patients with improvement or recovery in EF may be clinically distinct from those with persistently preserved or reduced EF. Further research is needed to better characterize these patients.</td>
<td>IV</td>
</tr>
<tr>
<td>heart failure, chronic/improved</td>
<td>improved</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+/- acute exacerbation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table b**

<table>
<thead>
<tr>
<th>ACCF/AHA Stages of HF (37)</th>
<th>NYHA Functional Classification (38)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>None</td>
</tr>
<tr>
<td>B</td>
<td>I</td>
</tr>
<tr>
<td>C</td>
<td>II</td>
</tr>
<tr>
<td>D</td>
<td>IV</td>
</tr>
</tbody>
</table>

**TIP:** Dry Weight can be obtained from patient, PCP, Cardiologist, Dialysis unit, or on Health Summary for all HFS pt’s. Use recent lowest value**

**Tip Box**

- Known heart failure with acute exacerbation
- New signs or symptoms of heart failure including: dyspnea, fatigue, exercise intolerance, weight gain, pulmonary edema, orthopnea, peripheral edema, elevated BNP, hyponatremia with volume overload

**Tip Box**

- In ambulatory patients with dyspnea, measurement of BNP or N-terminal pro-B-type natriuretic peptide (NT-proBNP) is useful to support clinical decision making regarding the diagnosis of HF, especially in the setting of clinical uncertainty. (I,A)
- ECHO indicated for initial evaluation of pts presenting with HF, pts who have had significant change in clinical status, pts who have received treatment that might affect cardiac function or for consideration of device therapy. (IIa,C)
- Repeat ECHO in the absence of clinical status change or treatment interventions should NOT be performed (III,B)

**Tip Box**

- Labs: fasting lipids (only if new onset HF), CBC, CMET, Troponin, Mg, U/A, TSH (all are class I,A)

**Justification of classification: Correct recognition of the type of heart failure (preserved EF vs. reduced EF rEF) allows appropriate tailoring of guideline-directed medical therapy and, as a result, better clinical outcomes with the potential for reduced morbidity and mortality and improved HRQOL**
“Shi’ Hooghan” Project
“Care Beyond Walls and Wires”
Regional Infectious Disease Council

• Collaborative council – to include representatives from many organizations across the region – to help identify opportunities for improved:
  – Formulary alignment
  – Antibiotic “stewardship”
  – Diagnosis, treatment, and prevention
Vision
PathfinderHealth is a regional, clinically integrated care delivery system that empowers providers to enhance health while improving quality and lowering costs. Furthermore, the vision encompasses the Triple Aim of improving care, improving outcomes, and reducing costs.

Guiding Principles
In support of the ACO vision, the ACO guiding principles help provide direction on certain components of PathfinderHealth and include:
• Enhances patient- and family-centered care.
• Facilitates clinical and financial alignment to ensure a sustainable care model.
• Is physician-driven, with an emphasis on primary care and strengthening the provider community.
• Aligns like-minded providers and facilities with a shared vision.
• Partners with patients to enhance care through all stages of life.
• Uses best practices and IT to improve care.
• Provides timely access to appropriate care.
• Rewards quality care, creates new relationships.
• NAH and the physician community determined the need for an ACO in March 2014.

• PathfinderHealth ACO was developed by a physician-led and physician-driven approach.

• PathfinderHealth ACO was rolled out August 6, 2014 to providers to become members.

• Within 3 weeks, over 300 providers had joined PathfinderHealth.

• Board was seated September 29, 2014.
PAYOR COLLABORATIONS

• Improved care management
  – For adult members of the American Indian Health Plan with high need, high cost conditions
  – Through collaboration with key partners in behavioral health, primary care, and community-based services
Figure 13: HF 30-Day Readmission Rates

FMC Readmission Reduction
Patient Risk Stratification

**High-risk**
- Goal: Monitor & manage
- Tools: Registries

**Rising-risk**
- Goal: Identify & intervene
- Tools: Predictive analytics

**Low-risk**
- Goal: Engage & empower
- Tools: Portals & education
Thank you

mark.carroll@nahealth.com