Clinical Transformation
Moving Towards Lean Thinking
How Does Reducing Utilization Positively Impact Patient Care?

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Lead, CCHS, BPCI Program
Cleveland Clinic

May, 2014
Cleveland Clinic Complete Care: Engaging Patients to Help Optimize Resource Use During an Episode of Care
COI Disclosure (in last 5 years)

• Consultant
  – MCS
  – DePuy Synthes
  – CITI

• Speaker
  – Care Fusion
  – Cadence

• Research Support
  – Stryker

• Leadership/Board Positions
  – MAOA, AAHKS, AAOS, AF

• Editorial Boards/Reviewer
  – JOA, AJO, JBJS
Agenda

• The burning platform …The Cost Reduction Imperative

• Our approach to value: Cleveland Clinic Complete Care

• Identify opportunities for value creation through care redesign
  • Care Path Standardization
  • Connected Care: Rapid Recovery Protocol
  • Care Coordination: Patient and Family Engagement

• Early Results of the Complete Care Program
The Problem is Clear:
National Health Spending in BILLIONS continues to rise

18% of GDP in 2011

Sources: Centers for Medicare and Medicaid Services, National Health Expenditure Fact Sheet
Centers for Medicare and Medicaid Services, Office of the Actuary
National Coalition of Healthcare

Year
The Nation continues to borrow at unprecedented rates
A National Priority: “A Patriotic Duty”
-Toby Cosgrove

Unfunded Medicare Obligations are the #1 driver of the National Debt
($’s in trillions)

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($’s in trillions)
The US spends the most on healthcare but our quality, e.g. average life expectancy, is lower than many other countries

Source: Forbes, OECD Data & Mary Meeker Report - USA, Inc.
Categorical Imperatives for Health Care today are widely recognized and beyond dispute:

- Improve Quality
- Lower Costs
- Increase Access
Principles of Value-Based Health Care Delivery

- The central goal in health care must be **value for patients**, not simply access, volume, convenience, or cost containment.

\[
\text{Value} = \frac{\text{Access and Health outcomes}}{\text{Costs of delivering care}}
\]

- Outcomes are the **full set of patient health outcomes** over the care cycle.
- Costs are the **total costs of care for a patient’s condition** over the care cycle.
- An Episode of Care is a cycle of care for a given medical condition.

Courtesy of Professor Porter
Harvard Business School
Improving Quality

- Care Coordination
- Best Practices
- Care Paths
- Reducing disutility

Reducing Cost

- Streamline Processes
- Eliminate Waste/Redundancy
- Shift Care to Lower Intensity Venue

What is the role of the patient and the family in improving quality and reducing cost?
Can we engage patients in cost reduction efforts that actually lead to improved quality and patient experience? Or Vice Versa?

• Is some care previously prescribed now unnecessary?
• Does some care we provide have marginal or little value?
• Do patients sometimes want more care than they need?
• How do we engage patients to not be disappointed but actually happy when we reduce the quantity of care (e.g. LOS)?
• Can we improve experience and outcomes through a comprehensive approach to resource optimization and streamlining care?
Our Catalyst for Change: 2010 PPACA

The most important Affordable Care Act mandate: the creation of the Center for Medicare and Medicaid Innovation

to explore new payment models for integrating care
ACO Model for Primary care
Bundled Payments for Care Improvement

THE PATIENT PROTECTION AND AFFORDABLE CARE ACT, 2010
NATIONAL PILOT PROGRAM ON PAYMENT BUNDLING, SEC. 1866D
The Secretary shall establish a pilot program for integrated care during an episode of care provided to an applicable beneficiary around a hospitalization in order to improve the coordination, quality and efficiency of health care services under this title.
Health Care Reform: Approaches to Care

Two paradigms in health care reform

**PCMH**
Managing baseline health needs (population health): preventive care, chronic care, health maintenance

**Episode Management**
Managing episodes of care: hospitalizations, surgical interventions (joint replacement)

Health Status

- Healthy
- Healthy
- Episode
- Episode
- Healthy
- Healthy
- Episode
- Healthy
- Healthy

Baseline = 40%
Episode = 60%
Defining an Episode of Care: Rational approach

Requires a process map of care, clearly identifying processes, decisions and resources: aka care path

- Conditions of relevance to the patient
- Outcomes of interest
- Target population
- Treatment preferences of the patient
- Time frame definition
- Assessment of the relative value of the resources
## Define the episode: Example of Joint Replacement

<table>
<thead>
<tr>
<th>Process…</th>
<th>Applied to a condition…</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Medical Condition:</strong> Define clearly the entity to be treated</td>
<td>Advanced, symptomatic, recalcitrant arthritis hip/knee</td>
</tr>
<tr>
<td><strong>2. Health Outcomes of interest</strong></td>
<td>Pain free, functional joint by the end of the episode—interval outcomes that need to be addressed!</td>
</tr>
</tbody>
</table>
| **3. Define population: who are we treating?** | • Patients with the medical condition who are indicated and optimized for this treatment rather than none or alternate  
  • Risk Stratification, Exclusion of certain populations |
| **4. Define intervention** | Primary TKA, THA |
| **5. Define initiating event and timeline** | -7,TJR,+30days, 90, 180 |
| **6. Define resources needed to produce outcomes** | • Includes all professional, lab and technical components  
  • Includes all preop and post op care, inpatient and outpatient care |
The CMS BPCI Program: An opportunity for value creation

Center for Medicare & Medicaid Innovation (CMMI)

Bundled Payment for Care Improvement (BPCI)

Model 1: Retrospective Acute Care Hospital Stay only

Model 2: Retrospective Acute Care Hospital Stay plus Post-Acute Care

Model 3: Retrospective Post-Acute Care only

Model 4: Prospective Acute Care Hospital Stay only
Four Models of Bundled Payment offered by CMMI/BPCI

Only Complete Episode

1. 41%  
   - Use current FFS payment system and retrospectively adjusts
   - Acute Inpatient And Prof

2. 36%  
   - Prospective Payment
   - Acute Inpatient Prof, Post-acute

3. 16%  
   - Acute Inpatient And Prof.

4. 7%  
   - Post-Acute only

450+ providers submitted proposals in 2012
EH one of only 13 to go live “at risk” October 1, 2013

Source: Advisory Board
Traditional Analysis: fragmented care delivered in silos,

- Encounters defined by billing encounters
- Reimbursement for each episode
- Unclear how they are coordinated
Bundled Payment for an Episode: TJR

- Composite product, includes all care for the episode with provider at risk to meet a target price for that care
- Triggered by a Hospitalization/Surgical event
- Coordinated to optimize resource utilization and outcome

$$$ one price for episode

Pre-Admit

TJR

Rehab/ Snf/hc

Readmit?

Care coordinator

7 days pre

30-90 days post
# Euclid Hospital Episode and BPCI summary

<table>
<thead>
<tr>
<th>Bundle</th>
<th>MS DRGs 469 &amp; 470 Primarily Total hip/knee replacements*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Episode Duration</td>
<td>7 days prior and 30 days post</td>
</tr>
<tr>
<td>Episode Initiator</td>
<td>Euclid Hospital (EH)</td>
</tr>
<tr>
<td>Target Price</td>
<td>$18,948 (MS-DRG 470) $28,673 (MS-DRG 469) 3% off 2009-2011 EH MSPB for DRG</td>
</tr>
<tr>
<td>Patient Population</td>
<td>Medicare fee-for-service patients</td>
</tr>
<tr>
<td>Duration of contract</td>
<td>3 years (10/1/13 – 9/30/16)</td>
</tr>
<tr>
<td>Risk</td>
<td>All costs of care above CMS contracted price including readmissions within 30 days</td>
</tr>
<tr>
<td>Reward</td>
<td>Savings beyond 3% cost reduction for episode</td>
</tr>
</tbody>
</table>

*These MS-DRGs also include ankle replacements and some hip fractures
Reducing the costs of episodes of care

- Reduce utilization, number of episodes (volume), but
- Reduce cost of each episode (volume of services)
  - Reduce area under curve

TJR demand increasing significantly
The Business Case: Value is Created by Better Episode Management through Care Redesign

Traditional fragmented delivery

Cost (revenue)

Time

Value creation

Available Margin for Gainsharing

CMS portion of savings limited to 3%

New Model of Care
Creating Value through Episode Management

• **Key Premise:** When change in health status demands intervention, managing the entire episode is preferable to fragmented care delivery.

• Care Redesign focusing on improved Care Coordination and Patient and Provider Engagement yields better care at lower cost

• **Providers who master this approach will gain competitive advantage in the market**
Viewing Care as a Complete Episode is executing on our **Patients First** philosophy

- Establish Shared Expectations with Patients
- Think like a patient
- Start with the end in mind
- What is the relevant outcome for the patient?
The Patient Perspective: Viewing Care as a Complete Episode is What Patients Want

Provider Centered: Bundled Payment

Patient Centered: Complete Care
The Episode Based, Complete Care Philosophy
Our promise to patients: We will deliver all the care needed to get you through entire episode of care

We will follow best practices
   Care Path Utilization---what and how
We will work together seamlessly
   Care Coordination---who
We will provide care in the appropriate venue
   Connected Care---where

Patient Commitment: You must be engaged in every step of the process, bring resources, get educated and work with us to modify your risk
Episode of Care Management: Key Building Blocks

- Complete Care
- Connected Care
- Care Coordination
- Care Path
Value Proposition: Complete Care Management

• Patient Centered
  – Better patient decisions, less anxiety
  – Least disutility of care, complications, pain
  – Improved outcomes
  – Less time away from home/family

• Physician Friendly
  – More efficient care delivery
  – Gain Sharing opportunities
  – Better patient satisfaction, experience = referrals
  – System resources deployed to free surgeon

• Health System Friendly
  – Efficient use of resources
  – Financially remunerative
  – Attracts Physicians and Patients
What’s old is new again…but with better tools to implement

DELINEATING EPISODES OF MEDICAL CARE


MARCH, 1967

VOL. 57, NO. 3, A.J.P.H.

An episode of medical care is a block of one or more medical services received by an individual during a period of relatively continuous contact with one or more providers of service, in relation to a particular medical problem or situation.
Care Redesign: Define desired outcomes and clinical and financial resources to deliver them

How can we streamline? What can be eliminated?

- Preoperative Patient Selection: defining appropriate care
- Preoperative optimization: preparing the patient for surgery
- Operative intervention
- Post Operative Care: Hospital Portion
- Post Hospital to RTW or RT function (30, 90, 180 day)
- Long Term Maintenance

Map Care Process
Care Redesign Opportunities Across the Care Continuum
The Cleveland Clinic Complete Care Framework

Indications for proposed intervention

Shared Decision Making

Resource optimization

Pre Operative Patient Optimization and Risk Assessment

Patient Engagement Family and Community Support and safe home environment

Care Path Implementation
Decision support
Best Practice
Discharge planning: Rapid Recovery protocol
Connected Care Team
Care Coordination

Patient Presents with Medical Condition

Patient Presents with Medical Condition
As we adopt an Episode Based Care and Payment Model, how do we get buy in from…

- Surgeons
- Internists
- Administrators
- Anesthesia
- Nursing
- Therapy
- **Patients**
- Families
- Payers

Culture is everything
Care Redesign Based on Principles

• Clarify the Foundations of Care
  – Common Goals
  – Expectations
  – Responsibilities
  – Philosophy

• Improve or Maintain Quality

• Eliminate unneeded steps or resources

\[
\text{Value} = \frac{\text{Health outcomes}}{\text{Costs of delivering the outcomes}}
\]
## Care Redesign Opportunities: Complete Care Principles

<table>
<thead>
<tr>
<th>Patients do not want interventions they do not need</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients want to go home as soon as it is safe</td>
</tr>
</tbody>
</table>

### It is our job to:

- Arrange and **optimize** the entire episode up front
- **Educate** them on the options for care and enable early return to home
- Make them feel **safe**
- Eliminate unnecessary interventions
Principle Based Approach:

- Understanding the totality of resources needed for a given medical condition over the planned spectrum of intervention
- Advanced planning of the care itinerary
- Patient and Caregiver engagement and activation
Principle: Physician/Surgeon as Team leader—leadership is essential

• Manages the episode: Clinical and financial impact

• Sets the expectations of patient and team

• Needs to direct attention to entire care continuum of care (not just surgery)

• Opportunity exists to enhance value through better care coordination
**Principle**

• Patients should expect to return to their homes (prior status) as soon as it is safe

• Defined Criteria for safe return home:
  – Physiologic Function Return
  – Pain Managed with Oral Meds
  – Safe Environment at Home
  – Follow up care coordinated
Principle: Time in an Institution should be minimized

• Risk of Hospital Acquired Conditions: infections, errors,

• Being in Hospital/SNF is not health promoting

• Terrible Triad: Sleep deprivation, Immobility, Malnourishment
Principle: Patient motivation and education trumps location of rehabilitation

• Rehabilitation (of a THA or TKA, etc.) can be done as effectively at home or as an outpatient

• There is no inherent advantage to being inpatient for rehab

• Educated/motivated patient is key

• Family/Friend support is very helpful

• Clarify and Demystify recovery process
Principle: Engaged and educated patients are our greatest asset

• Patients need to be actively engaged and become drivers of their recovery

• Families and other support personnel must be identified early (preoperatively) and actively engaged and committed to helping the patient recover

• Patients should own their risk factors
Principle: More is not better; Less but appropriate care is generally preferred

- Volume of services does not drive value of care
- Each intervention carries a risk that must be weighed against its intended benefit
- **Increased number of interventions increases risk of unintended interplay**
- Complexity of care plans increases risk
Medicare spend for each category of care for a 30 day TJR episode

Identify areas of relatively high resource utilization during an episode that may provide potential targets for reducing unnecessary or unwarranted variation in use

Can we improve the outcomes through more judicious use of our care teams?

Source: Dobson DaVanzo
Potentially Modifiable Patient Risk Factors impacting the cost of an episode

Number of Episodes and Average Medicare Episode Payment by Number of Chronic Conditions for MS-DRG 470 for 30-day Fixed-length Episodes (2007-2009)

Dobson DaVanzo
Risk and Complete Care Management: Principles

• Modify the risk factors that the patient brings
  — Factors that impact anesthetic/mortality risk
  — Factors that impact wound healing
  — Factors that impact rehabilitation potential

• Inform patient about the impact that risk factors confer on outcomes

• Engage patient in managing and optimizing medical and social determinants of success
Two Separate Processes:
Is this patient indicated for surgery?

- Sufficient symptoms interfering with ADL, work or recreation, QOL
- Inability of alternative treatment to resolve symptoms
- Objective evidence of joint disease amenable to surgical correction

STOP

Is this patient optimized for surgery?

- Should it be scheduled or delayed based on:
  - Psychologically and Medically fit for surgery
  - Adequate support and home environment
TJA Preoperative Planning and Assessment: invest up front in process

• Change the work flow for surgical scheduling from
  —Indication----Scheduling---Optimization
to
  —Indication----Optimization----Scheduling

• Allows optimal patient, family and system preparation to ensure smooth care through episode
Preoperative Checklist: Managing Risk for Readmission and increased LOS after TJR

1. Diabetes: Hgb A1c if >7.9 delay and refer
2. Smoker: if YES then refer to smoking cessation
3. BMI: if >40---refer for counseling, metabolic consult
4. Anemia: if Hgb <12 in females and <13 in males, delay and refer for wu or blood management*
5. Staph colonization: if in HC facility or HC worker or hx of MRSA, screen and decolonize
6. Narcotic dependence, manage upfront
7. Anticoagulation history or need perioperatively
8. Lack of supportive home environment
BMI Alert as technology enabled best practice: Patient needs to own their risk

- Age > 18 < 65
- BMI ≥ 40
- Co-morbid conditions
  - Hypertension
  - Diabetes Mellitus
  - Obstructive Sleep Apnea
  - Hyperlipidemia

“I want to do your knee, but we need to manage your risk—up to 7x for SSI”
Patient/Family Engagement and Home environment: An underutilized opportunity

- Identify a reliable care giver / support
- Must agree on a discharge date and venue of post acute care
  - All patients coming from home should plan to go home
- Decide up front on transportation
- Identify impediments to home DC
  - Stairs/bedroom/bathroom on same floor
  - Distance from hospital

- Go into the home pre-op and make modifications
- Preoperative education and counseling is key
2012: Home-Going rates by Surgeon

% of Patients Discharged to HOME / HOME CARE:
DRG 470, Medicare Patients, All Hips and Knees (n=2,281)

Rapid recovery patients, who go through education

Includes surgeons with >=10 total cases
Dark Blue = Employed surgeon; Light Blue = Community

Traditional unmanaged patients

US News Ortho Top 20 benchmark (51.1%)
Marginal Cost Analysis by care venue

- Medicare Traditional case rates in each setting (other payers will have different amounts)
- Stacked modalities

<table>
<thead>
<tr>
<th>Care Venue</th>
<th>Unit of Measure</th>
<th>Average Cost per Unit</th>
<th>Average Episode Length (# of units per patient episode)</th>
<th>Average Episode Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skilled Nursing Facility (SNF)</td>
<td>Days</td>
<td>$344</td>
<td>24 days</td>
<td>$8,260</td>
</tr>
<tr>
<td>Home Health</td>
<td>Visits</td>
<td>$198</td>
<td>16 Visits</td>
<td>$3,562</td>
</tr>
<tr>
<td>Outpatient Rehab</td>
<td>Visits</td>
<td>$66</td>
<td>16 visits</td>
<td>$1,053</td>
</tr>
</tbody>
</table>

More than 2x the implant!

Source of data: Gage et al, "Examining Post Acute Relationships", Feb 2009; Table 3-15 (derived from sample of Medicare TJR patients)
Cost differential by post acute venue

Average Medicare Episode Payment for MS-DRG 470 by First-setting for 30-day Fixed-length Episodes (2007-2009)

- HHA: $14,901 (26.2%)
- SNF: $21,742 (46.4%)
- IRF: $27,617 (17.9%)
- LTCH: $43,772 (0.2%)
- STACH: $24,957 (0.3%)
- Community: $14,372 (9.0%)

Overall Average = $18,901

Dobson DaVanzo
Post Acute Care represents an opportunity for cost savings

- Relatively under managed
- Unclear as to what determines resource utilization
- Unclear as to factors drive decisions about care venue

Up to 50% of the cost of an episode of care

![Bar chart showing percentages of payment for different services related to MS-DRG 470. The chart includes labels for PAC Paid (32.6%), Physician Paid (11.9%), Index Paid (50.9%), and STACH (53.9%).]
Study of factors impacting Discharge Disposition after TJA: simplified

• Facility Transfer
  – Inpatient Rehab facility
  – Skilled Nursing Facility

• Home
  – Home with home care
  – Home with outpatient care
Methods

• All TJA discharges 2011, 2012 across 8 CCHS hospitals
  – Administrative Data base
  – DRG 469/470: 9,439 total discharges
  – 9,266 discharges included in analysis (173 excluded cases*)

• Outcome of interest: Discharge to home vs. facility

• Variables
  – Surgeon
  – Hospital
  – Procedure
  – Age
  – APR-DRG (risk adjustment tool)
Some surgeons were using a preoperative discharge planning protocol: was there an impact?

- “Rapid Recovery” protocol
- Preoperative education protocol
- Post discharge Home visit by HHC arranged before surgery
- Engaged patient and family and team emphasizing merits of home discharge

- Early mobilization and pain management efforts did not differ from general practice
Significant variation in Home-Going rates by Discharging Hospital

% of Patients Discharged to HOME / HOME CARE:
DRG 470, Medicare Patients, All Hips and Knees

5x difference

2012 US News Ortho Top 20 benchmark (51.1%)
**Readmission Analysis: Correlation between Home-Going rate and 30-day Readmission Rates by Hospital**

DRG 470, Medicare Patients, All Hips and Knees (CCHS avg = 5.6%)

There is a negative correlation ($R^2 = -0.072$) between Home Going Rate and Readmission Rate.

May 30, 2014
## Significant variables impacting discharge to home

<table>
<thead>
<tr>
<th>Effect</th>
<th>Odds Ratio w/ 95% CI</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payor: Commercial vs. Medicare</td>
<td>1.62 (1.41-1.84)</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Surgery type hip vs. knee</td>
<td>1.53 (1.39-1.69)</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Surgeon RR vs. non</td>
<td>2.37 (1.95-2.87)</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Hospital CC vs. community</td>
<td>2.11 (1.86-2.40)</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>APR_DRG</td>
<td>0.21 (.16-.28)</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Age</td>
<td>0.93 (.93-.94)</td>
<td>&lt;.0001</td>
</tr>
</tbody>
</table>
Significant findings

• Discharge disposition Influenced by
  – Age
  – Procedure
  – APR DRG

• Impact of Surgeon and Hospital practice and culture can overtake these factors

• Care redesign by specific surgeons that includes patient and family engagement saves considerable money across the episode and improves quality
Managing the post discharge portion of an episode can be successfully done

\[ f(Saving \text{ A lot of Money}) = \]
Patient/ Family Engagement
+ Care Coordination
+ Team dynamics
+ Eliminate unnecessary resource use
+ Shift Care to Lower Intensity Venue
Proforma Example:
Surgeon A vs. Surgeon B 100 cases each

<table>
<thead>
<tr>
<th></th>
<th>Surgeon A</th>
<th>Surgeon B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home Going</td>
<td>60</td>
<td>30</td>
</tr>
<tr>
<td>IP Post Acute</td>
<td>40</td>
<td>70</td>
</tr>
<tr>
<td>Cost per Case</td>
<td>A</td>
<td>A+$6000</td>
</tr>
<tr>
<td>Impact of extra 30</td>
<td>$180,000</td>
<td></td>
</tr>
<tr>
<td>cases going home</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Margin for the</td>
<td>$1800</td>
<td></td>
</tr>
<tr>
<td>bundle*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Amortize over 100 at average decrease of $1800
Care Redesign Opportunity: Post Acute Disposition
Rapid Recovery Tactics Standardized
Putting a system around the surgeon

• Robust patient and family education
  — Classes, DVD’s, brochures, website, etc.

• Complete episode plan scheduled during preoperative process
  — Acute LOS and discharge destination agreed upon with home care visit scheduled

• Accelerated functional restoration
  — DOS mobilization and BID thereafter
  — Pain Management optimization

• Dedicated care coordinator
  — Manages episode - back to the path

• Synchronized messaging from entire team
One anecdote...

<table>
<thead>
<tr>
<th>Situation:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient could not be discharged because they could not afford a medication</td>
<td></td>
</tr>
<tr>
<td>Attending physician wanted to discharge the patient to SNF solely to obtain the medication</td>
<td><strong>Average SNF stay:</strong> $8,260</td>
</tr>
<tr>
<td>Hospital’s cost to administer the medication in the hospital and discharge patient home</td>
<td><strong>Medication:</strong> $50</td>
</tr>
<tr>
<td>Marriage of clinical and financial</td>
<td><strong>Priceless</strong></td>
</tr>
</tbody>
</table>
Care Path Protocols: Eliminating Unnecessary interventions

- No more daily lab draws
- No X-ray in PACU for knees
- No IV PCA
- No Ice Man or CPM
- No Femoral Block
- No bipolar sealer
- No bulky dressing
- No routine Foley Catheter
We are building out business intelligence tools to track and monitor performance of the program.

<table>
<thead>
<tr>
<th>Process measures</th>
<th>Clinical Outcomes</th>
<th>Patient Safety</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Physical Therapy day of surgery</td>
<td>Core measures</td>
</tr>
<tr>
<td></td>
<td>Decrease in pain medications needed</td>
<td>Patient optimization prior to surgery</td>
</tr>
<tr>
<td></td>
<td>Compliance with Care Path</td>
<td></td>
</tr>
<tr>
<td>Outcomes measures</td>
<td>PRO, Koos/Hoos</td>
<td>Pt safety indicators, SSI,</td>
</tr>
<tr>
<td></td>
<td>Return to work/sports</td>
<td>Readmissions, Re-operations, Post</td>
</tr>
<tr>
<td></td>
<td>Range of motion</td>
<td>Operative falls, Post Op</td>
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<tr>
<td></td>
<td>PT test, Pain free</td>
<td>Nausea/vomiting</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Transfusion</td>
</tr>
<tr>
<td>Process measures</td>
<td>Patient and family education</td>
<td>Efficiency</td>
</tr>
<tr>
<td></td>
<td>Engaged and activated patients</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Family/Support person involvement</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Quality shared decision making</td>
<td></td>
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<tr>
<td></td>
<td>Appt. when wanted</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Feel prepared for discharge</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Joint Class</td>
<td></td>
</tr>
<tr>
<td>Outcomes measures</td>
<td>HCAHPS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Return/second surgery</td>
<td></td>
</tr>
</tbody>
</table>

| Total cost of care | Contributions to cost (acute, post acute venue, complications, readmissions) |

May 30, 2014
## Episode Value Scorecard

### Optimization

<table>
<thead>
<tr>
<th>Metric</th>
<th>2013 Goal</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
<th>2013 Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMI &gt;40</td>
<td></td>
<td>8%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BMI &gt;40 Treated/Referred</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women &lt;12 HGB</td>
<td></td>
<td>24%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women &lt;12 Referred</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men &lt;13 HGB</td>
<td></td>
<td>16%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men &lt;13 Referred</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Smoker</td>
<td></td>
<td>15%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Smoking Referred</td>
<td></td>
<td>0%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Joint Class Participation</td>
<td></td>
<td>43%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Inpatient

<table>
<thead>
<tr>
<th>Metric</th>
<th>2013 Goal</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
<th>2013 Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCIP 1a Antibiotics Within 1 Hour</td>
<td></td>
<td>95%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SCIP Foley Removed By EOD2</td>
<td></td>
<td>95%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SSI Deep</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SSI Superficial</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SSI Organ Space</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Falls w/ Injury</td>
<td></td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caust Acute/Post Acute</td>
<td></td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CMI

<table>
<thead>
<tr>
<th>Metric</th>
<th>2013 Goal</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
<th>2013 Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOS: MS-DRG 469</td>
<td>470</td>
<td>2.0953</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LOS: MS-DRG 470</td>
<td>3.03</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R/A Rate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSI-Postop VTE/PE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSI-Postop Resp Failure</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># Pt Complaints w/ Bundle</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># Compliance Complaints w/ Bundle</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Discharge Disposition

<table>
<thead>
<tr>
<th>Metric</th>
<th>2013 Goal</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
<th>2013 Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home</td>
<td>3%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HHC</td>
<td>50%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SNF</td>
<td>30%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rehab</td>
<td>0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>18%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Financial

<table>
<thead>
<tr>
<th>Metric</th>
<th>2013 Goal</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
<th>2013 Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional</td>
<td>EPSI</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Facility</td>
<td>EPSI</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Revenue Per Case</td>
<td>EPSI</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Post Acute

<table>
<thead>
<tr>
<th>Metric</th>
<th>2013 Goal</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
<th>2013 Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>SNF LOS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Home Health- Number of Visits PT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average cost per Home Health PT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Home Health- Number of Visits OT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average cost per Home Health OT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Home Health- Number of Visits SN</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average cost per Home Health SN</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Tracking CMS reimbursement to targets

BPCI Executive Dashboard

Performance Summary:

- Total Payment: $2,652,000
- No. of Episodes: 138
- Total Target Payment: $3,937,388
- Average Payment per Episode: $21,392

Filter by Period:
- All

Filter by Episode DRG:
- All

Variance: -988,298
% Variance: -0.2502
Outlier Payment: 0

Payment/Episode/Month

January
February
March
April
May
June
July

Total Payment

Episode Level Metrics

<table>
<thead>
<tr>
<th>DRG</th>
<th>EPID</th>
<th>Total Payment</th>
<th>% of Total</th>
<th>Target Payment</th>
<th>Variance</th>
<th>% Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>409</td>
<td>2058-0001100230020</td>
<td>14,161.51</td>
<td>0.46%</td>
<td>10,047.96</td>
<td>-1,796.35</td>
<td>-0.25</td>
</tr>
<tr>
<td></td>
<td>2058-0001303560020</td>
<td>29,104.91</td>
<td>0.99%</td>
<td>18,947.86</td>
<td>10,157.05</td>
<td>0.54</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>43,266.42</td>
<td>1.47%</td>
<td>39,047.82</td>
<td>9,309.72</td>
<td>0.14</td>
</tr>
<tr>
<td>470</td>
<td>2058-0001771882200</td>
<td>11,878.71</td>
<td>0.40%</td>
<td>28,672.74</td>
<td>-16,794.03</td>
<td>-0.59</td>
</tr>
<tr>
<td></td>
<td>2058-000174930058</td>
<td>11,961.38</td>
<td>0.40%</td>
<td>28,872.74</td>
<td>-16,721.38</td>
<td>-0.58</td>
</tr>
<tr>
<td></td>
<td>2058-0001293985027</td>
<td>11,905.84</td>
<td>0.40%</td>
<td>28,872.74</td>
<td>-16,717.90</td>
<td>-0.58</td>
</tr>
<tr>
<td></td>
<td>2058-000111532258</td>
<td>13,143.12</td>
<td>0.45%</td>
<td>28,872.74</td>
<td>-15,529.62</td>
<td>-0.54</td>
</tr>
<tr>
<td></td>
<td>2058-0001239777000</td>
<td>13,257.89</td>
<td>0.45%</td>
<td>28,872.74</td>
<td>-15,384.65</td>
<td>-0.54</td>
</tr>
<tr>
<td></td>
<td>2058-0001173428373</td>
<td>13,323.03</td>
<td>0.45%</td>
<td>28,872.74</td>
<td>-15,348.81</td>
<td>-0.54</td>
</tr>
<tr>
<td></td>
<td>2058-0001285310983</td>
<td>13,534.65</td>
<td>0.40%</td>
<td>28,872.74</td>
<td>-15,138.00</td>
<td>-0.53</td>
</tr>
<tr>
<td></td>
<td>2058-0004071689980</td>
<td>13,554.25</td>
<td>0.46%</td>
<td>28,872.74</td>
<td>-15,118.49</td>
<td>-0.53</td>
</tr>
<tr>
<td></td>
<td>2058-0001306816099</td>
<td>13,795.97</td>
<td>0.47%</td>
<td>28,872.74</td>
<td>-14,878.77</td>
<td>-0.52</td>
</tr>
<tr>
<td></td>
<td>2058-0001055906383</td>
<td>14,111.65</td>
<td>0.48%</td>
<td>28,872.74</td>
<td>-14,581.09</td>
<td>-0.51</td>
</tr>
<tr>
<td></td>
<td>2058-0000060606091</td>
<td>14,268.11</td>
<td>0.48%</td>
<td>28,872.74</td>
<td>-14,384.63</td>
<td>-0.50</td>
</tr>
<tr>
<td></td>
<td>2058-0001037368777</td>
<td>14,843.42</td>
<td>0.50%</td>
<td>28,872.74</td>
<td>-13,829.32</td>
<td>-0.48</td>
</tr>
<tr>
<td></td>
<td>2058-0003935187770</td>
<td>16,058.45</td>
<td>0.51%</td>
<td>28,872.74</td>
<td>-13,814.20</td>
<td>-0.47</td>
</tr>
</tbody>
</table>

Episode Summary

Cleveland Clinic

May 30, 2014 | 68
Tracking resource use by patient
Tracking Home care use by patient

<table>
<thead>
<tr>
<th>Anchors Begin MY</th>
<th>CPT HCPCS</th>
<th>Anchor SL Phys Desc</th>
</tr>
</thead>
<tbody>
<tr>
<td>HH - Non-CCHS</td>
<td>Physical Therapy Assistant Visit</td>
<td>(Multiple values)</td>
</tr>
<tr>
<td></td>
<td>Occupational Therapy Visit</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Skilled Nursing Visit by RN or LPN</td>
<td></td>
</tr>
</tbody>
</table>

The chart represents the tracking of home care use by patients, with different categories and subcategories as specified in the legend. Each bar graph illustrates the distribution of various care types such as physical therapy, occupational therapy, and skilled nursing visits, categorized by patient anchors and CPT HCPCS codes.
Direct cost per case evaluation
Providing physician specific data and transparency
Do we exclude surgeons based on performance? No, but….
How are we doing?
Quality and Process Data

<table>
<thead>
<tr>
<th></th>
<th>Q1 2013</th>
<th>Q4 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAUTI rates</td>
<td>5.2</td>
<td>0</td>
</tr>
<tr>
<td>DC Home</td>
<td>39%</td>
<td>71%</td>
</tr>
<tr>
<td>SNF</td>
<td>56%</td>
<td>28%</td>
</tr>
<tr>
<td>Readmission</td>
<td>5%</td>
<td>2%</td>
</tr>
<tr>
<td>IP LOS</td>
<td>3.4</td>
<td>2.9</td>
</tr>
</tbody>
</table>

Composite SNF Days for 45 pts

- Historic 264
- Current 165

SNF LOS

- Historic 8.2
- Current 7.1
Improving Patient Experience scores

5th Floor H CAHPS Overall Rating Scores
70 = 50th Percentile
81 = 90th Percentile

Q1 2012 | Q2 2012 | Q3 2012 | Q4 2012 | Q1 2013 | Q2 2013 | Q3 2013 | Q4 2013 | Q1 2014
Overall Rating
Linear (Overall Rating)
Patient Video
Complete Care Rapid Recovery Protocol for managing an Episode of Care:

• Better Care Coordination and Patient Education Results in
  – Reduced LOS
  – Higher Discharge to home rate
  – Care at lower intensity venues
  – Reduced readmissions
  – Higher patient satisfaction
  – Reduced disability and secondary costs
Key Takeaways

• Complete episode of care management is a viable concept
• Lower Resource Utilization results in better quality and patient experience
• Main drivers are
  • Patient engagement
  • Better risk assessment and mitigation when possible
  • Planning entire episode up front
  • Team and system approach
  • Transparency of performance
Creating Value: Lessons Learned

• Embrace Change
• Seize the Opportunity to live up to our patients expectations
  —Continue to strive to keep Patients First
• Focus on Improving Care through coordination and alignment
• Cost Reduction follows care redesign, patient engagement and quality improvement
### Only one of CMS 48 Standard Bundles: huge potential

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Diagnosis</th>
<th>Procedures</th>
<th>Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute myocardial infarction</td>
<td>Chest pain</td>
<td>Hip &amp; femur procedures except major joint</td>
<td>Other vascular surgery, Stroke</td>
</tr>
<tr>
<td>AICD generator or lead</td>
<td>Combined anterior posterior spinal fusion</td>
<td>Lower extremity and humerus procedure except hip, foot, femur</td>
<td>Pacemaker, Syncope &amp; collapse</td>
</tr>
<tr>
<td>Amputation</td>
<td>Complex non-cervical spinal fusion</td>
<td>Major bowel</td>
<td>Pacemaker device replacement or revision, Transient ischemia</td>
</tr>
<tr>
<td>Atherosclerosis</td>
<td>Congestive heart failure</td>
<td>Major cardiovascular procedure</td>
<td>Percutaneous coronary intervention, Urinary tract infection</td>
</tr>
<tr>
<td>Back &amp; neck except spinal fusion</td>
<td>COPD, bronchitis/asthma</td>
<td>Major joint replacement of the lower extremity</td>
<td>Red blood cell disorders</td>
</tr>
<tr>
<td>CABG</td>
<td>Diabetes</td>
<td>Major joint upper extremity</td>
<td>Removal of orthopedic devices</td>
</tr>
<tr>
<td>Cardiac arrhythmia</td>
<td>Double joint replacement of the lower extremity</td>
<td>Medical non-infectious orthopedic</td>
<td>Renal failure</td>
</tr>
<tr>
<td>Cardiac defibrillator</td>
<td>Esophagitis, gastroenteritis and other digestive disorders</td>
<td>Medical peripheral vascular disorders</td>
<td>Revision of the hip or knee</td>
</tr>
<tr>
<td>Cardiac valve</td>
<td>Fractures femur and hip/pelvis</td>
<td>Nutritional and metabolic disorders</td>
<td>Sepsis</td>
</tr>
<tr>
<td>Cellulitis</td>
<td>Gastrointestinal hemorrhage</td>
<td>Other knee procedures</td>
<td>Simple pneumonia and respiratory infections</td>
</tr>
<tr>
<td>Cervical spinal fusion</td>
<td>GI obstruction</td>
<td>Other respiratory</td>
<td>Spinal fusion (non-cervical)</td>
</tr>
</tbody>
</table>
Intended additional episodes

Acute Myocardial infarction
Back and neck except spinal fusion
Coronary artery bypass graft
Cardiac valve
Cervical spine fusion
COPD, bronchitis, asthma
Diabetes
Fractures of the femur and hip or pelvis
**Major joint replacement of the lower extremity**
**Major joint replacement of the upper extremity**
Percutaneous coronary intervention
Revision of the hip or knee
Sepsis
Simple Pneumonia and respiratory infections
**Spinal fusion (non-cervical)**
Stroke
Transient ischemia

We’ve submitted an LOI across our 8 hospitals to become episode initiators*

Blue: current bundles in development
Green: current BPCI bundle

*Episode initiators are hospitals where episode trigger occurs
"The significant problems we face cannot be solved at the same level of thinking we were at when we created them."

- Albert Einstein (1879-1955)
Philosophy of accomplishment

• "It's amazing how much you can accomplish when you don't care who gets the credit."

• Harry S. Truman
Cleveland Clinic

Every life deserves world class care.
Bundled Payment Universe: Current state & opportunity

Key:
Green: Go for risk
Yellow: Non risk phase
Blue: Proposed bundle
Red: Service is not appropriate

May 30, 2014
SNF utilization by CCHS hospital

DRG 470 SNF Average LOS By Hospital - DRAFT

Average LOS - 17.7

- Euclid: 11.3
- Fairview: 16.9
- Hillcrest: 20.5
- Lakewood: 17.9
- Lutheran: 17.3
- Cleveland Clinic, FL: 20.8
- Main Campus: 19.6
- Medina: 17.7
- South Pointe: 26.1

Source: 2012 Medicare spend per beneficiary (MSPB)