Arthroplasty Care Redesign Related to the Comprehensive Care for Joint Replacement: Strategy and Tactics at a Tertiary Academic Medical Center

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Objectives

1. Describe bundled payments and episode of care based patient management strategies
2. Learn to successfully manage total joint replacement bundled payment programs.
3. Learn what data is important to collect and measure under a bundled payment program.
4. Use data to understand costs for the episode of care and to negotiate.
5. Learn clinical service delivery strategies to be positioned for success.
Introduction

• Total hip (THA) and knee replacement (TKA) remain among the most common and most cost-effective procedures performed in the United States.

• THA and TKA’s together represent the single-highest line item in the Centers for Medicare and Medicaid Services (CMS) annual expenditures.

• Largely, this is due to efficacy and markedly increased utilization.
TKA Utilization and Volume[1]

THA and TKA Utilization and Volume[2]

Base Payment Models

A base payment model is the underlying method that defines how a provider gets paid for services. Value Based Purchasing designs can be used with any base payment model. There are three base payment models:

- Fee-for service (FFS) payments
- Bundled payments
- Population-Based payments
Relationship between Financial Risk and Bundled Services [3]

# Fee For Service (FFS)

<table>
<thead>
<tr>
<th>Operational Definition</th>
<th>Potential Impact</th>
<th>Financial Risk/Rates</th>
</tr>
</thead>
</table>
| Providers are paid for each service they render (e.g., an office visit, test, procedure or service). Payments are issued retrospectively, after the services are provided. | Pays providers for doing things to sick people, rather than getting and keeping people well. May be a barrier to coordinated and/or integrated care because it rewards individual clinicians for performing separate treatments. Over-utilization or up coding (coding the service to a category that pays a higher rate) | Payer is at risk for paying for all services

Payers set rates based on the costs of providing the service, based on a percentage of what other payers reimburse for equivalent services, and/or based on negotiations with providers. |
## Bundled Payment

<table>
<thead>
<tr>
<th>Operational Definition</th>
<th>Potential Impact</th>
<th>Financial Risk/Rates</th>
</tr>
</thead>
</table>
| Providers are paid a fixed dollar amount based on the expected costs for defined episode or bundle of related health care services. Bundles can be defined in different ways, cover varying periods of time and include single or multiple health care providers of different types. **Different types include:**  
  * **Case rate**  
  * **Episode-of-Care Payment**  
  * **Global Bundled Payment**  
  * **Prospective Payment System** | Providers have flexibility to decide on necessary services.  
  Reduces the incentive to overuse or provide unnecessary services.  
  May create incentive to provide the lowest level of care possible, not diagnose complications of a treatment before the end date of the bundled payment, or delay care until after the end date of the bundled payment.  
  May not provide incentive to control the number of episodes that the person experiences. | Providers assume financial risk for the cost of services as well as costs associated with any preventable complications.  
  Historical expenditures typically used to determine rates. Rates can be set to increase, decrease, or maintain historical levels.  
  Rate determined by:  
  * Services included  
  * Time window (e.g., week, month, year, episode)  
  * Target group  
  * Provider type |
### Population Based Payment

<table>
<thead>
<tr>
<th>Operational Definition</th>
<th>Potential Impact</th>
<th>Financial Risk</th>
</tr>
</thead>
</table>
| Providers are prospectively paid a set amount for all of the healthcare services needed by a specified group of people for a fixed period of time, whether or not that person seeks care. *Different types include:*  
  • Full Capitation  
  • Risk Adjusted Capitation  
  • Partial Capitation | Removes incentive for volume.  
Providers have flexibility to decide what services should be delivered and when; and provides upfront resources to support services.  
Creates incentive to ensure quality care is delivered because providers receive no added payment for potentially avoided complications.  
May encourage a focus on preventive care. | Provider is accountable for managing the total cost and quality of care.  
Historical expenditures are typically used to determine the initial bundled payment rates. The rate can be set to increase, decrease, or maintain historical levels.  
The amount of the payment may be adjusted based on the characteristics of the services expected and/or the target population.  
Special provisions may include outlier payments or other mechanisms to address unforeseen circumstances. |

Special provisions may include:

- Over stating caseload numbers
- Creating incentives for enrollments
- Underutilization of appropriate care
- Avoidance of high-risk (potentially more expensive) individuals
- Cumbersome appeal / grievance processes;
- Inadequate prior authorization requirements.
Defining an Episode versus a Bundle

- **An "episode" is a clinical service strategy:**
  - can take many forms, but includes all services relating to a particular procedure
  - may combine hospital care and post-acute care
  - covers all treatment associated with a chronic condition for a defined period of time.

- **A “bundle” is a payment strategy:**
  - may cover services furnished by a single entity or services furnished by several providers in multiple care delivery settings
  - may be paid prospectively or retrospectively. An example is global bundled fee for obstetrical services.

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**Example of a Bundled Payment for Joint Replacements**

For a patient who has hip replacement surgery, Medicare, Medicaid, or a health insurance plan would make a “bundled” payment for all services rather than making one payment to the hospital, another to the surgeon, a third payment to the anesthesiologist, and potentially additional payments to other consulting physicians and post acute care providers.

Under bundled payment, providers have an incentive to help the hospital lower its costs because they would have the ability to share in the hospital’s savings. The hospital, surgeon, anesthesiologist, etc. would determine how to divide the payment among themselves.
Alternative Payment Models [4,5,6]


Medicare Heart Bypass Center Demo (1991-96)

Four hospitals each received a single payment covering both Part A and Part B services for coronary artery bypass graft surgery.

PROMETHEUS (2006)

Payment model launched with the support of the Robert Wood Johnson Foundation through four initial pilots.

Geisinger CABG Bundle (2007)

Begins offering a bundled payment rate for CABG surgery, including preoperative evaluation and work-up, inpatient facility and physician services, routine post-operative care, and any required treatment of complications. Guarantees adherence to a set of 40 clinical performance standards specific to the bundle.

CMS Acute Care Episode Demo (2009)

CMS expands the Heart Bypass Demonstration by including three joint replacement bundles and five cardiovascular procedure bundles. Five health systems were chosen for participation.

CMS Bundled Payments for Care Improvement Initiative (2011)

Under ACA authority, CMS launches initiative with four models:

- Model 1: Inpatient stay only (discounted IPPS payment)
- Model 2: Inpatient stay plus post-discharge services (retrospective comparison of target price and actual FFS payments)
- Model 3: Post-discharge services only (retrospective comparison of target price and actual FFS payments)
- Model 4: Inpatient stay only (prospectively set payment)

Comprehensive Care for Joint Replacement (CJR)

**Included Services:**
- Physicians’ services
- Inpatient hospitalizations (including readmissions)
- Inpatient Psychiatric Facility (IPF)
- Long-term care hospital (LTCH)
- Skilled Nursing Facility (SNF)
- Home Health Agency (HHA)
- Independent outpatient therapy
- Clinical laboratory
- Durable Medical Equip. (DME)
- Part B drugs
- Hospice

**Excluded Services:**
- Acute clinical conditions not arising from existing episode-related chronic clinical conditions or complications of the LEJR surgery
- Chronic conditions that are generally not affected by the LEJR procedure or post surgical care
PFCC: Patient and Family Centered Care
Preparing for CJR

- UF Health Shands Hospital is an 852 bed tertiary care academic medical center with a large catchment area.
- It is a level-1 trauma center that functions as a safety net hospital, and as such caters to a diverse group of patients with medical complexity and socioeconomic diversity.
Careful Planning Crucial for Successful Transition to Bundled Payment

**Strategy**
- Understand
- Redesign
- Measure
- Iterate

**Tactics**
- Engage and involve Physicians
- Identify an Administrative Champion
- Own the entire Episode of Care
Strategy

Understand

Redesign

Measure
Preparing for CJR
90 day Benchmarks
Strategy

Understand

Redesign

Measure
Episode
Care Redesign

- Department driven
- Service Line Approach
- Continuum of care
- Multidisciplinary Approach

- Monthly Meeting
  - Preoperative
  - Inpatient
  - Post-Discharge

- Ortho / CM / Rehab / Admin / Quality / Nursing / Anesth / OR...
Pre-operative Strategy: a paradigm shift

- Preoperative assessment
- Careful patient selection
- Preoperative optimization
Pre-op Care Redesign [9, 10, 11]

- Patient Selection
- Patient Optimization
- High Risk Anesth Pathway
- Narcotic Protocol
- Infection Protocol
- RAPT score
- Prehabilitation
- Education / Boot Camp
- PROs
- Discharge Designation
- CM calls patients
Risk vs. Outcome

Screen carefully and optimize:
- Medical
- Functional
- Social

? Benefit
Develop Odds Ratio?

Green light

% Improvement
Acute Care Redesign

- Inpatient Pathway 100% redone
- < 2 days instead of 3-4 days
- APS / Anesth Protocols (Regional)
- Discharge Disposition fixed unless multidisciplinary discussion
- DOS and BID PT/OT
- Less tubes / More Mobility
- CM involvement early
- 6W PT Gym
Post-Acute Redesign

- Enhanced Patient Engagement & Tracking
- Patient Navigator
- Regular Phone calls to patient
- OSMI (7 days) vs. ER
- Preferred SNFs

- Engagement and tracking tools
- Dashboards
Joint Replacement Education Program (JREP)

http://www.ortho.ufl.edu/jrep
Preoperative Pathway: Total Knee & Hip Arthroplasty

- **Initial Evaluation:**
  - Decision for surgery delayed if significant surgical or medical risk per screening tool
  - Modifiable surgical risk factors are referred to appropriate clinical program
  - High Risk Anesthesia referral for those who have appropriate surgical risk but high anesthesia risk

- **RAPT administered at decision for surgery:**
  - SNF / IRF patients and those who live alone referred to RN Navigator / CM
  - Severely deconditioned patients referred for prehabilitation

- **Boot camp / Video education for all patients**

- **Preoperative visit (OSMI):**
  - RN Navigator meets patients & family. Database updated (Proc, DOS, Surg etc)
  - Disposition Plan confirmed & documented in H&P
  - Outpatient PT ordered unless HHC planned. DME ordered
  - Patient Reported Outcomes Completed
  - CHG provided / Mupirocin prescribed
  - Preoperative medical evaluations & testing confirmed. A1C for diabetic patients
  - RAPT score, DVT Prophylaxis, Antibiotics documented in H&P
  - Postoperative Rx given & documented in H&P
  - Informed decision making and consenting done
  - Anesthesia preoperative visit
# Perioperative Pathway: Total Knee Arthroplasty

## POD 0 (Day of Surgery)
- On admission to Preoperative area:
  - Multimodal Pre-emptive medications
  - Confirm CHG / Mupirocin use
- FNB catheter / iPack in block room
- Intraoperative:
  - Spinal unless contraindicated
  - Intraoperative IV agents
  - TEDs (thigh high) / SCDs
  - Ice Machine
  - Hospital Bed with Trapeze
  - No Foley
- PACU:
  - Xray Images
  - No PCA.
  - < 2 hr stay unless medically indicated
- PT/OT evaluation <3 hr after surgery:
  - OOB to chair
  - Ambulate in room (knee Immob)
  - AROM, Bed exercises (Immob off)
- Case management validates preop disposition plan & starts process
- RN education begins for hospitalization plan, POD 1 discharge & post-discharge care (patient and family involved)

## POD 1
- Prior to 7am:
  - FNB infusion stopped at 4am unless plan for home catheter / opioid free protocol
  - Oral analgesics Premedication
  - Labs resulted
  - AM MD rounds
- 8am: FNB & knee Immobilizer per APS
- 8am - 11am:
  - Hospital to street clothes
  - 1st of 2 PT / OT sessions
  - Ambulate in hallway, AROM
  - Exercises in chair
  - No meals in bed
  - Most of day in chair
  - CM confirms plan & DME
  - PA rounds on patient
  - RN education continues w family
  - Rx filled (if not done already)
  - RNNavig speaks with family/CM
  - Multimodal, pre-emptive oral pain medications per protocol
  - No IV narcotics except for severe pain
  - After 11am:
    - 2nd of 2 PT / OT sessions
    - Group class for some patients
    - POD 1 Discharge - most patients
    - Aim for DC before 2pm

## POD 2
- Prior to 7am:
  - AM MD rounds
  - Oral analgesics Premedication
- 8am - 11am:
  - Street clothes
  - PT / OT session
  - Ambulate in hallway
  - AROM
  - Exercises in chair
  - No meals in bed
  - Most of day in chair
  - CM confirms DC plans & needs
  - PA Rounds on patient
  - RN discharge education w family
  - Multimodal, pre-emptive oral pain medications per protocol
  - After 11am:
    - Pre-discharge medications
    - Discharge to home by noon
    - Small percent to SNF
  - Variances to be reported to RN Navigator for tracking:
    - Discharge to home after POD 2
    - Discharge after noon
    - Prolonged use of blocks
    - Unplanned placement to SNF
    - Acute Rehab placement
# Perioperative Pathway: Total Hip Arthroplasty

## POD 0 (Day of Surgery)
- On admission to Preoperative area:
  - Multimodal Pre-emptive medications
  - Confirm CHG / Mupirocin use
- FNB & Capsular Injection in Block Room
- Intraoperative:
  - Spinal unless contraindicated
  - Intraoperative IV agents
  - TEDs / SCDs
  - Hospital Bed with Trapeze
  - No Foley
- PACU:
  - Xray Images
  - No PCA
  - < 2 hr stay unless medically indicated
- PT/OT evaluation <3 hr after surgery:
  - OOB to chair & bed exercises
  - Ambulate
- Case management validates preop disposition plan & starts process
- RN education begins for hospitalization plan, POD 1 discharge & post-discharge care (patient and family involved)

## POD 1
- Prior to 7am:
  - APS infusion stopped at 4am unless plan for home catheter / opioid free protocol
  - Oral analgesics Premedication
  - Labs resulted
  - AM MD rounds
- 8am: APS catheter per APS Protocol.
- 8am -11am:
  - Hospital to street clothes
  - 1st of 2 PT / OT sessions
  - Ambulate in hallway
  - Exercises in chair
  - No meals in bed
  - Most of day in chair
  - CM confirms plan & DME
  - PA rounds on patient
  - RN education continues w family
  - Rx filled (if not done already)
  - RN Navigator speaks with family & CM
  - Multimodal, pre-emptive oral pain medications per protocol
  - No IV narcotics except for severe pain
- After 11am:
  - 2nd of 2 PT / OT sessions
  - Group class for some patients
  - POD 1 Discharge - most patients
  - Aim for DC before 2pm

## POD 2
- Prior to 7am:
  - AM MD rounds
  - Oral analgesics Premedication
- 8am -11am:
  - Street clothes
  - PT / OT session
  - Ambulate in hallway
  - Exercises in chair
  - No meals in bed
  - Most of day in chair
  - CM confirms DC plans & needs
  - PA Rounds on patient
  - RN discharge education w family
  - Multimodal, pre-emptive oral pain medications per protocol
- After 11am:
  - Pre-discharge medications
  - Discharge to home by noon
  - Very small percent to SNF
- Variances to be reported to RN Navigator for tracking:
  - Discharge to home after POD 2
  - Discharge after noon
  - Prolonged use of blocks
  - Unplanned placement to SNF
  - Acute Rehab placement
Postoperative Pathway: Total Knee & Hip Arthroplasty

- **On Discharge:**
  - RN Navigator updates database with LOS, Disposition, Variances. Postoperative follow-up schedule and telephone schedule auto populates

- **Telephone Schedule:** More frequent calls for high risk patients / perioperative issues
  - TKA (Home) – 1 Day, 5-7 Days, 14 Days, 28 Days after Discharge
  - THA (Home) – 1 Day, 14 Days, 28 Days after Discharge
  - TKA / THA (SNF/IRF) – 1, 3, 7, 10 Days – Goal of 10-14 Days Maximum LOS
  - Hip Fx (SNF/IRF) – 1, 3, 7, 10 Days – Discussion with rehab manager on day 7 regarding progress and LOS goal of 14 days maximum
  - Postoperative protocols (Goals: ROM, Ambulation, Walking aids, ADLs, Driving)

- **Postoperative Triage (OSMI):**
  - No ER visits unless for acute, significant medical issue
  - RN Navigator to triage and assist in facilitating care for routine medical issues
  - All surgical issues must be triaged through OSMI – RN Navigator, ARNP or extenders:
    - Adult Reconstruction MD or Extender clinics M-F – primary choice
    - After Hours 7 days per week
    - Hip fracture patients through Trauma clinic preferentially. Ad Recon 2°
  - Patient, family, HHC & Rehab staff given card / flyer with contact information

- **Routine Visits in first year:**
  - 6 Weeks then 10.5 Months (PRO). 2 Weeks & 3 months when clinically indicated
Results: A total of 106,360 TJA patients were analyzed. The most common discharge destinations included home (70%), skilled nursing facility (SNF) (19%), and inpatient rehabilitation facility (IRF; 11%).

Conclusion: SNF or IRF discharge increases the risk of postdischarge adverse events compared to home. Modifiable risk factors for nonhome discharge and postdischarge adverse events should be addressed preoperatively to improve patient outcomes across discharge settings.
Strategy

Understand

Redesign

Measure
# Internal Scorecard

<table>
<thead>
<tr>
<th>Trending Key</th>
<th>Baseline (Nov14-Oct15)</th>
<th>Average Year to Date</th>
<th>Trend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improving</td>
<td>58</td>
<td>69</td>
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</tr>
<tr>
<td>Declining</td>
<td>56</td>
<td>67</td>
<td></td>
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<tr>
<td>Unchanged</td>
<td>1</td>
<td>2</td>
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<tr>
<td>Not Trended</td>
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</table>

<table>
<thead>
<tr>
<th>Metric</th>
<th>Baseline (Nov14-Oct15)</th>
<th>Average Year to Date</th>
<th>Trend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unique Patients</td>
<td>58</td>
<td>69</td>
<td></td>
</tr>
<tr>
<td>MS-DRG470 Major Joint Replacement without MCC</td>
<td>56</td>
<td>67</td>
<td></td>
</tr>
<tr>
<td>MS-DRG469 Major Joint Replacement with MCC</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Average Direct Cost</td>
<td>$14,393.68</td>
<td>$10,696.02</td>
<td>Green</td>
</tr>
<tr>
<td>Average Direct Cost DC to Home/Home Care</td>
<td>$12,889.94</td>
<td>$10,363.38</td>
<td>Green</td>
</tr>
<tr>
<td>Average Direct Cost DC to Rehab</td>
<td>$14,638.54</td>
<td>$9,881.14</td>
<td>Yellow</td>
</tr>
<tr>
<td>Average Direct Cost DC to Skilled Nursing</td>
<td>$14,409.26</td>
<td>$12,614.49</td>
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</tr>
<tr>
<td>Average Direct Cost DC AMA</td>
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<td>Not Trended</td>
</tr>
<tr>
<td>Average Direct Cost DC Expired</td>
<td>$1,326.89</td>
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<td>Not Trended</td>
</tr>
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<td>Average Direct Cost DC to Another Hospital</td>
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<td>Not Trended</td>
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<tr>
<td>Insurance Class % Medicare Pts</td>
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<td>42.88%</td>
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<tr>
<td>Insurance Class % Medicare HMO Pts</td>
<td>14.38%</td>
<td>12.71%</td>
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<tr>
<td>Insurance Class % Medicaid/Medicaid HMO Pts</td>
<td>11.41%</td>
<td>13.77%</td>
<td></td>
</tr>
<tr>
<td>Insurance Class % Managed Care Pts</td>
<td>8.43%</td>
<td>7.90%</td>
<td></td>
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<tr>
<td>Insurance Class % Self Pay Pts</td>
<td>0.88%</td>
<td>0.95%</td>
<td></td>
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<tr>
<td>Insurance Class % Commercial Pts</td>
<td>22.57%</td>
<td>20.94%</td>
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<tr>
<td>Insurance Class % Other Pts</td>
<td>1.52%</td>
<td>0.84%</td>
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<td>Discharge to Home/Home Care</td>
<td>66.77%</td>
<td>86.86%</td>
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<tr>
<td>Discharge to Rehab</td>
<td>11.81%</td>
<td>2.00%</td>
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<tr>
<td>Discharge to Skilled Nursing</td>
<td>18.55%</td>
<td>10.86%</td>
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<td>Discharge AMA</td>
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<td>0.00%</td>
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<td>Discharge Expired</td>
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<td>0.00%</td>
<td>Green</td>
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<tr>
<td>Discharge to Another Hospital</td>
<td>0.00%</td>
<td>0.00%</td>
<td>Not Trended</td>
</tr>
<tr>
<td>Average LOS</td>
<td>3.58</td>
<td>2.23</td>
<td>Green</td>
</tr>
<tr>
<td>Average LOS (MSDRG469)</td>
<td>4.14</td>
<td>2.96</td>
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<td>Average LOS (MSDRG470)</td>
<td>3.51</td>
<td>2.17</td>
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<tr>
<td>Average LOS DC Home</td>
<td>3.34</td>
<td>2.03</td>
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Patient Factors [6, 15]

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>Study Period</th>
<th>NYU</th>
<th>UTMB/ NMS</th>
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<tbody>
<tr>
<td>BMI</td>
<td>Medicare</td>
<td>31.7</td>
<td>31.2</td>
<td>?</td>
</tr>
<tr>
<td>CCI</td>
<td>Medicare</td>
<td>2.04</td>
<td>2.4</td>
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<tr>
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<td>Baseline</td>
<td>Study Period</td>
<td>NYU</td>
<td>UTMB/ NMS</td>
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<tr>
<td>------------------</td>
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<td>--------------</td>
<td>-----</td>
<td>-----------</td>
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<tr>
<td>Medicare only</td>
<td>696</td>
<td>840</td>
<td>785</td>
<td>601,000</td>
</tr>
<tr>
<td>Non-Medicare</td>
<td>288</td>
<td>348</td>
<td>785</td>
<td>601,000</td>
</tr>
<tr>
<td>%Medicare</td>
<td>41%</td>
<td>41%</td>
<td>100%</td>
<td>100%</td>
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DRG 469 and 470 only

Length of Stay
## Length of Stay [6]

<table>
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<tr>
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<th>Baseline</th>
<th>Study Period</th>
<th>NYU</th>
<th>UTMB/NMS</th>
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</thead>
<tbody>
<tr>
<td>Medicare</td>
<td>3.67</td>
<td>2.10</td>
<td>3.6-&gt;3.0</td>
<td>?</td>
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<tr>
<td>Non-Medicare</td>
<td>3.54</td>
<td>2.13</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>All</td>
<td>3.58</td>
<td>2.11</td>
<td>?</td>
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</table>

Discharge Destination
## Readmissions [6, 15]

<table>
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<tr>
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<th>NYU</th>
<th>UTMB/NMS</th>
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<tbody>
<tr>
<td></td>
<td>4.9%</td>
<td>3.9%</td>
<td>13% → 8%</td>
<td>6.3% (TKA), 7% (THA)</td>
</tr>
</tbody>
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### Direct Cost [6, 15]

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>Study Period</th>
<th>NYU</th>
<th>UTMB/NMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medicare</td>
<td>$16,221</td>
<td>$10,479</td>
<td>-20%</td>
<td>?</td>
</tr>
<tr>
<td>All</td>
<td>$14,400</td>
<td>$10,700</td>
<td>?</td>
<td>?</td>
</tr>
</tbody>
</table>

### Cost to Payers

Based on institutional data, with decreased utilization of post-acute facilities, anticipate $1,230 savings per care episode


Lessons Learned

• We can do better for our patients
• Growth, Value and Quality can coexist
• Multidisciplinary collaboration is crucial
• Clear Goals and timelines are needed
• Timely Data is crucial
• Listen to each other and our patients
What’s Next

• AJRR (American Joint Replacement Registry)
• Outpatient Arthroplasty
• Narcotic Free Protocols
• True Bundles – Episode of care payments
• Improved patient engagement and tracking tools
• Other Bundles!
Thank you!

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References


