Cost Analysis of Bundled Care And Short-Stay Arthroplasty

Stephen M. Engstrom, MD
Vanderbilt University Medical Center
Robert L. Barrack, MD
Washington University in St. Louis
Disclosures

None relevant to this study

I (and/or my co-authors) have something to disclose.

Detailed disclosure information is available via:

“My Academy” app;

Printed Final Program; or

AAOS Orthopaedic Disclosure Program on the AAOS website at http://www.aaos.org/disclosure
Objectives

• Compare revenue earned throughout a 2-year commitment to BPCI
  • Washington University in St. Louis/Barnes Jewish Hospital

• Analyze trends in CMS reimbursements/target pricing

• Quantify both direct and holistic costs related to implementing an efficient BPCI model
Bundled Care: Facts/Assumptions

• Single payment for entire episode of care based upon DRG

• Progressive financial rewards/penalties for high/low performers
  • None in year 1, up to 20% in year 5

• Each institution assigned target rate by CMS

• Adjusted quarterly based on previous performance

• Costs and revenue tallied quarterly and collected by the institution as the Net Payment Reconciliation Amount (NPRA)
Bundled Care: Facts/Assumptions

• Streamlining the patient process is the key to excelling in this model

• Short stay, minimization of non-essential post-acute care, eliminating re-admission = higher quality care, and higher financial incentive
Bundled Care: The WashU Experience

• Initial returns excellent
  • Related to already streamlined care pathways

• Target price continually decreased over the course of the program

• NPRA decreased commensurate with decrease in target prices

• Reimbursement remained modestly positive at conclusion of the program
Bundled Care: Direct Costs

- Strategy to reduce post-acute care and minimize readmissions
  - Implementation of outpatient case managers (OCMs)
  - 3 OCM’s and 1 manager = 4 FTE’s

- Project Oversight—40 hours quarterly for project maintenance

- Consulting and guidance: TAVHealth

- Changes to inpatient therapy (combined with SDRP program)
Bundled Care: Holistic costs

• **BPCI Operations Committee**
  • 28 members
  • 1.5hr meeting monthly

• **BPCI Coordination Meeting: 3 Members**
  • 1 hr 2x a month at first, now 1 hr 1x a month
Bundled Care: Holistic costs

<table>
<thead>
<tr>
<th>Dr. Muyibat Adelani</th>
<th>Michele Goad*</th>
<th>Kelly Osterman*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Holger Baumann</td>
<td>Melba Hale</td>
<td>Beth Paige</td>
</tr>
<tr>
<td>Kaitlin Bomar*</td>
<td>Hilary Harris*</td>
<td>Elizabeth Pratt</td>
</tr>
<tr>
<td>Mike Callicott</td>
<td>James Hoerchler</td>
<td>Janene Reeves</td>
</tr>
<tr>
<td>Dr. Cara Cipriano*</td>
<td>Dr. Ivan Kangrqa</td>
<td>Jackie Sauer*</td>
</tr>
<tr>
<td>Dr. John Clohisy</td>
<td>Carolyn Kelly</td>
<td>Lorraine Seiffert*</td>
</tr>
<tr>
<td>Angela Concepcion</td>
<td>Laura McClure</td>
<td>Mary Spencer</td>
</tr>
<tr>
<td>Tara Diebling</td>
<td>Tiffany McGinnis*</td>
<td>Terri St. John</td>
</tr>
<tr>
<td>Julia Eddins*</td>
<td>Dr. Anna Miller*+</td>
<td>Wendi Tillung</td>
</tr>
<tr>
<td>Audra Fishcher-Prince</td>
<td>Sharon Monical*</td>
<td>Karen Zurick</td>
</tr>
<tr>
<td>Maura Garascia*</td>
<td>Dr. Sheyda Namazie-Kummer</td>
<td></td>
</tr>
</tbody>
</table>
Bundled Care: Quarterly Maintenance costs

- Data Reconciliation: 1 BJH mgr and 1 BJC data leader—several hours
- Meeting prep: 1-2 hours per committee
  - Plus 0.5-1hr meeting quarterly
- Quality Sub-Committee: 13 members
- Finance Sub-Committee: 14 members
- ~40 hours quarterly for project lead
# Bundled Care: Holistic costs

<table>
<thead>
<tr>
<th>Costs Associated with BPCI-Classic</th>
<th>Description</th>
<th>BJH</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Category of Effort</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Purchases</td>
<td>Software to facilitate care navigation</td>
<td>$222/patient</td>
</tr>
<tr>
<td>Hires/Incremental Staff</td>
<td>Incremental Care Navigator positions (team members have some outside responsibility)</td>
<td>16 hrs/patient</td>
</tr>
<tr>
<td>Meeting Time</td>
<td>BJH formed up a team to work on care elements including clinical pathway design, post-acute care transitions, multi-disciplinary care. Effort not attributed entirely to BPCI/CJR, as quality of care continued to improve</td>
<td>1 hr/patient</td>
</tr>
<tr>
<td>Meeting Time</td>
<td>Finance, Managed Care, Quality all contributed to moving this work forward (includes dashboarding, reconciliation process, management of the program)</td>
<td>0.98 hrs/pt</td>
</tr>
<tr>
<td>Management</td>
<td>Project management required to run an initiative; time dedicated varied during the life of the program</td>
<td>0.9 hrs/patient</td>
</tr>
<tr>
<td>Revenue Associated with BPCI-Classic/CJR</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Average Annual NPRA/patient (over life of the program)</td>
<td>$690</td>
</tr>
</tbody>
</table>
Bundled Care: What did we conclude?

• NRPA diminished as the program progressed

• Costly system to implement and maintain

• Major complicating factor: Removal of TKA from IPO
  • Major shifts in volume throughout the program

• Institution shifting cases to a new hospital to further streamline care

• Uncertainty: both financially and related to outpatient TJA
Limitations

• Experience of a single academic institution

• Holistic costs are best estimates
  • Impacted by changes in volume, changes in surgical location and TKA removal from IPO

• Financial Data not readily released
Special Thanks

• Drs. Barrack, Clohisy, Nunley, Adelani, Pascual-Garrido, Wright
• Michele Goad
• Sheyda Namazie-Kummer
• Dr. Bruce Hall
Thank You