Value-Based Purchasing in Orthopedics

AAOS
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James C. Robinson
Leonard D. Schaeffer Professor of Health Economics
Director, Berkeley Center for Health Technology
University of California, Berkeley
School of Public Health
Overview

- Principles of value-based purchasing
- The problem: variations, costs, complications
- Employer strategies
  - Payment reform: physician incentives
  - Benefit design: consumer incentives
Value-based Purchasing: Components

- Valid, comparable metrics and data systems that measure performance across the care continuum
- Payment methods that align incentives among all contributors and promote both quality & efficiency
- Organizational structures that support coordination and foster a culture of cooperation
The Purchasers’ View: Value Deficiencies in Orthopedic Surgery

- Unjustified variation in rates of procedures
- Unjustified variation in cost per procedure
- Unjustified variation in cost per device
- Unjustified variation in patient outcomes
Dartmouth Atlas - Rate of Total Knee Replacement in Medicare Beneficiaries

Total Knee Replacement per 1,000 Medicare Beneficiaries
by Hospital Referral Region (2003-07)

- 9.8 to 13.8 (64)
- 8.7 to < 9.8 (60)
- 7.9 to < 8.7 (63)
- 7.1 to < 7.9 (60)
- 2.9 to < 7.1 (59)
- Not populated
## Total Knee Replacement Surgery in California Hospitals 2008

<table>
<thead>
<tr>
<th>Percentile</th>
<th>Device Cost</th>
<th>Total Surgical Cost</th>
<th>Device Cost as % of Medicare FFS Reimbursement</th>
<th>Device Cost as % of Commercial HMO/PPO Reimbursement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st percentile</td>
<td>$1,797</td>
<td>$7,668</td>
<td>13%</td>
<td>4%</td>
</tr>
<tr>
<td>25th percentile</td>
<td>$4,166</td>
<td>$10,590</td>
<td>29%</td>
<td>18%</td>
</tr>
<tr>
<td>Median</td>
<td>$5,071</td>
<td>$12,619</td>
<td>36%</td>
<td>29%</td>
</tr>
<tr>
<td>75th percentile</td>
<td>$6,977</td>
<td>$14,969</td>
<td>51%</td>
<td>40%</td>
</tr>
<tr>
<td>99th percentile</td>
<td>$12,093</td>
<td>$24,476</td>
<td>126%</td>
<td>119%</td>
</tr>
</tbody>
</table>

### Additional Information

- **Number of Hospitals**: 45
- **Number of Patients**: 6,848
Figure 4
Total Knee Replacement Surgery in California Hospitals, 2008
Average Length of Stay (Day)
Figure 5
Total Knee Replacement Surgery in California Hospitals, 2008
Complication Rate
Rate of Back Surgery per 1,000 Medicare Enrollees, by Hospital Referral Region, 2007 (Dartmouth Atlas)
## Costs and Reimbursements for Lumbar Fusion Surgery in California Hospitals, 2008

<table>
<thead>
<tr>
<th>Percentile</th>
<th>Device Cost</th>
<th>Total Surgical Cost</th>
<th>Device Cost as % of Medicare FFS Reimbursement</th>
<th>Device Cost as % of Commercial HMO/PPO Reimbursement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Percentile</td>
<td>$3,239</td>
<td>$12,318</td>
<td>3.6%</td>
<td>3.2%</td>
</tr>
<tr>
<td>25th Percentile</td>
<td>$7,077</td>
<td>$20,630</td>
<td>18.0%</td>
<td>25.5%</td>
</tr>
<tr>
<td>Median</td>
<td>$8,695</td>
<td>$26,175</td>
<td>31.0%</td>
<td>32.8%</td>
</tr>
<tr>
<td>75th Percentile</td>
<td>$12,868</td>
<td>$29,469</td>
<td>43.5%</td>
<td>52.0%</td>
</tr>
<tr>
<td>99th Percentile</td>
<td>$37,323</td>
<td>$51,049</td>
<td>97.3%</td>
<td>2365%</td>
</tr>
</tbody>
</table>

Number of Hospitals: 38  
Number of Patients: 6,848
Lumbar Fusion Surgery in California Hospitals, 2008
Average Length of Stay (Days)
Lumbar Fusion Surgery In-Hospital Complication Rate, California 2008

The bar chart shows the complication rates for lumbar fusion surgery in California in 2008, with rates ranging from 10% to 40%.
Key Choices for Improving Efficiency

1. Choice among **therapeutic alternatives**
   - Medical v. surgical v. endovascular…
   - “Appropriateness strategy”

2. Choice among **provider organizations**
   - Given the procedure is to occur, where and by whom should it be performed?
   - “Channeling strategy”

3. Choice among **sites of care**
   - Inpatient v. outpatient, hospital OP v. free ASC
   - “Site of care strategy”

4. Choice among **clinical inputs (devices)**
   - Drugs, devices, diagnostics, imaging
   - “Formulary strategy”
Incentive Instruments

1. Improved information
   - Patient and/or device registry

2. Improved patient education, engagement
   - Shared decision-making

3. Aligned physician-hospital incentives
   - Episode of care (EOC) payment

4. Aligned patient-provider incentives
   - Benefit design: reference pricing or COE
Purchasing Strategy Focus: Episode-of-Care Payment

- Many high-cost services naturally occur in episodes that can be measured and reimbursed as episodes
  - Orthopedic joint replacement
  - Back surgery (fusion)
  - Cardiac rhythm management procedures
  - Bariatric surgery
  - Ambulatory surgery in orthopedics
- Considerable interest but serious challenges of implementation
Knee Replacement Procedure Episode Group
Average Commercial Population Costs, by Type of Service

- **Pre-Surgery**
  - $179
  - 0.7% of Total
  - Pre-Window

- **Pre-Surgery I**
  - $273
  - 1.0% of Total
  - Post-Window

- **Inp Stay**
  - $21,855
  - 82.3% Tot

- **Recovery**
  - $2,720
  - 10.2% of Tot

- **Follow Up I**
  - $1,019
  - 3.8% of Tot

- **Follow Up II**
  - $519
  - 2.0% of Tot

**Total Cost** $26,565

- **Total Allowed Costs (000)**
  - Lab: $57
  - PT: 40
  - Radiology: 39
  - Vis, PCP: 33
  - Vis, Ortho: 22
  - Rx: 16
  - Others: 66
  - IP Stay: $17,568
  - Surgery: 40
  - Anesthesia: 773
  - IP Vis, PCP: 58
  - IP Vis, Other: 54
  - Rx: 41
  - Others: 158
  - Rehab: $1,025
  - PT: 978
  - DME: 279
  - Home Hlth: 176
  - Rx: 82
  - Others: 180
  - PT: $982
  - Others: 37
  - Others: 44

**ALOS=3.9 Days**

1) Source: Ingenix Claims Data - 602 complete episodes
Episode of Care Payment: Principles

- Incentives for **physician-hospital alignment**
  - Single payment makes physician co-responsible for efficiency as well as quality of services
  - This creates new MD interest in device performance and registry
  - Physician payment includes ‘gain-sharing’
  - Reduce ‘conflicts of interest’ for physicians and medical device firms
  - Consistent with broader movement towards physician-hospital integration (employment, joint ventures, ‘accountable care organization’)

Episode of Care Payment: Principles

- Incentives for medical device purchasing
  - Device costs are paid out of bundled EOC payment; hence physician income depends on device cost, value
  - This counter-balances physician financial relations with vendors (‘conflict of interest’)
  - Value assessment committees in hospital
  - Physician cooperation with device evaluation and purchasing (limit number of vendors?)
Benefit design and consumer cost sharing

- Traditional forms of consumer cost sharing do not provide strong incentives for cost consciousness, and hence are changing
  - For acute interventions: all patients exceed deductible and thus are cost-indifferent when choosing providers
  - Dollar copayments do not reflect variations in bundled case rates and episode costs across provider teams
- If consumers are not sensitive to cost differences across provider teams, they will favor high-cost teams (assuming high price=high quality), which will encourage price increases and non-price competition among providers
The Impetus for Benefit Redesign

Range in Average Price per Procedure Across 178 California Hospitals for CalPERS Patients Undergoing Knee and Hip Replacement
2009

- KNEE
- HIP

0
$20,000
$40,000
$60,000
$80,000
$100,000
$120,000

0
20
40
60
80
100
120
140
160
180
Benefit design: new principles

- **Reference pricing:** Insurer establishes a maximum benefit limit for each procedure and pays hospitals up to that benchmark. The employee/patient pays the difference between that benchmark and the rate actually charged by the provider team chosen by the consumer.
  - Anthem PPO for PERS (orthopedics)
  - Safeway self-insured (radiology, lab tests)
- **Centers of Excellence:** Insurer/employer contracts with one hospital nationally or in each region for particular classes of procedures. Benefits for employees strongly favor use of those facilities
  - Blue Shield HMO (orthopedics)
  - Lowes self-insured (cardiology)
Conclusion

- There exists considerable unjustified variation in use, costs, and outcomes for ortho surgery
- Purchasers and payers are experimenting with episode payment and benefit redesign
- Value includes outcomes and costs
- Value improvement will be the unifying goal of physicians, hospitals, and device firms