Effect of Physician Reimbursement Methodology on the Rate and Cost of Cataract Surgery

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Financial Incentives in Healthcare

• Majority of previous studies have shown that financial incentives to provide less care lead to reduced hospitalization rates, resource use, and costs
• Fee-for-service patients have been shown to receive more diagnostic tests and certain procedures than managed care patients.
Cataract Surgery

• The impact of financial incentives is a question of particular interest for cataract surgery, which:
  – Has been shown to be highly effective
  – Is among the most common surgical procedures and represents Medicare’s single largest expenditure for any procedure
  – Is a highly elective procedure, and financial incentives may have a greater influence on utilization of elective (vs. non-elective) procedures

Previous Literature

• Goldzweig et al. (1997) found that FFS beneficiaries were twice as likely to undergo cataract extraction as prepaid beneficiaries
• However, interpretation of findings limited by physician and patient selection bias
• Our study used a natural experiment to compare the impact of changing from a fee-for-service (FFS) methodology to contact capitation (CC) among a stable physician population with little potential for patient selection
Study Setting

- Barnes Eye Care Network (BECN) in St. Louis
  - Created in 1994
  - 65 ophthalmologists, 85 optometrists
  - Received capitated payments from MCOs for the provision of all eye care services of their members
- Study population included all 1997-98 commercial and Medicare BECN patients (N=91,473 commercial and 14,084 Medicare)
- No change in MD population and stable patient enrollment during study period

Fee-for-Service (FFS)

- First 9 months of study period (Feb 1, 1997 through Sept 30, 1997) discounted FFS system was used to reimburse MDs from fixed pool
  - Physicians reimbursed for each procedure
  - However, more procedures overall reduced the MD reimbursement pool -> decrease in reimbursement per procedure
- MDs notified mid-Sept about change in reimbursement as of Oct 1st
Contact Capitation (CC)

• Next 15 months (Oct 1, 1997 through Dec 31, 1998) providers received lump sum for each “new” patient (1st visit of any patient after CC reimbursement started)
  – Compensation depended on MD specialty, new contacts per provider, and total #new contacts in group
  – No additional reimbursement for procedures
  – More procedures overall -> facility costs increase, less money to reimburse MDs

Methods

• Used t-tests to compare the mean rates and associated costs of cataract and non-cataract surgery between the last 6 months of the discounted FFS period and the first 6 months of the CC period.
• Adjudicated claims used to calculate aggregate procedure rates by month
  – Procedures identified using CPT codes
Comparison Data

• Compared the time trend among our Medicare study cohort with national trends among Medicare patients

• Medicare carrier-level data in Missouri used to identify local trends in cataract surgical rates among FFS population during study period

Cataract Procedure Rates per Month per 1000 Beneficiaries

Table 1. Cataract Procedure Rates per Month per 1000 Beneficiaries

<table>
<thead>
<tr>
<th>Physician Reimbursement Methodology</th>
<th>Medicare Beneficiaries</th>
<th>Commercial Beneficiaries</th>
<th>Total Beneficiaries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cataract procedures under FFS, No./1000 beneficiaries (SE)*</td>
<td>4.59 (.27)</td>
<td>0.23 (.02)</td>
<td>0.67 (.04)</td>
</tr>
<tr>
<td>Cataract procedures under CC, No./1000 beneficiaries (SE)t</td>
<td>2.57 (.11)</td>
<td>0.13 (.02)</td>
<td>0.43 (.03)</td>
</tr>
<tr>
<td>Percentage change, % (P-value)</td>
<td>-48 (&lt;.001)</td>
<td>-55 (&lt;.001)</td>
<td>-51 (&lt;.001)</td>
</tr>
</tbody>
</table>

Abbreviations: CC, contact capitalism; FFS, fee-for-service.
†Contact capitalism: October 1997 to March 1998.

Cataract procedure rates per month per 1000 beneficiaries

Noncataract Surgical Rates (per Month per 1000 Beneficiaries) During Fee-for-Service and Contact Capitation Reimbursement Periods

Table 2. Noncataract Surgical Rates (per Month per 1000 Beneficiaries) During Fee-for-Service and Contact Capitation Reimbursement Periods

<table>
<thead>
<tr>
<th>Physician Reimbursement Methodology</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Noncataract surgical procedures under FFS, No. hr/p per 1000 beneficiaries*</td>
<td>0.63</td>
<td>0.15</td>
<td>0.21</td>
</tr>
<tr>
<td>Noncataract surgical procedures under CC, No. hr/p per 1000 beneficiaries†</td>
<td>0.05</td>
<td>0.10</td>
<td>0.17</td>
</tr>
<tr>
<td>Percentage change, %</td>
<td>-3.2</td>
<td>-37</td>
<td>-10</td>
</tr>
</tbody>
</table>

Abbreviations: CC, contact capitation; FFS, fee-for-service.
†Contact capitation physician reimbursement: October 1997 to December 1998.

Summary of Findings

• Both commercial and Medicare patients were about half as likely to have cataract extraction under CC vs. FFS
• Decrease corresponded roughly to date of change in reimbursement methodology
• Cataract extraction rates quite stable among national and Missouri Medicare patients during same time period
• Cataract surgical rates affected much more than other ophthalmologic procedures.

Impact on Physician Compensation

• FFS Reimbursement:
  – High resource use led to reduced reimbursement per relative value unit
• CC Reimbursement:
  – Facility fees for network decreased by 45% in 6 months after change to CC
  – Savings increased funds available for MD reimbursement
  – Overall, MD reimbursement increased 9% in the 6 months after change to CC
Conclusion

• CC associated with a significantly lower rate of cataract surgery and related surgical costs than FFS
• Cataract surgical rates decreased more than other procedures
  – Supports hypothesis that elective procedures are more responsive to MD incentives than non-elective procedures

Implications

• Studying short-term effects
  – All patients with cataracts likely to receive surgery eventually, unless mortality intervenes
• Our data cannot speak to whether there was overuse of cataract surgery under FFS or underuse under CC
• More work needed on impact on quality and equity (whether disproportionate effects on certain subgroups of patients)
Indications for Cataract Surgery

• Both FFS and CC periods:
  – Community standards in metropolitan St. Louis
  – All procedures reviewed by BECN utilization committee
  – Minimum Criteria:
    • Visual acuity of 20/40 or less (incl. Glare testing)
    • Subjective decrease in vision by the patient.
  – No outcome analysis of vision-related quality-of-life
Limitations

- Lack of controls for variables known to increase the prevalence of cataracts
- Cannot tell the exact number of patients who entered and exited BECN during study period, or whether outside care was sought
- Possible pent-up demand for cataract surgery during the FFS portion of the study.