Performance Measures and Provider-Specific Attribution: Physician-Hospital Networks

Julie Bynum, MD MPH
Associate Professor
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Goals for Today

• Describe brief history and development of our Physician-Hospital Networks (PHN)

• Compare how two approaches evaluate the same provider: PHN and End-of-Life
Variations in practice and spending

The Dartmouth Atlas

The Quality of Medical Care in the United States:
A Report on

U.S. Hospital Referral Regions
Limits of Provider-Based Performance Measures

Case of Hospital-Based Surgical Care

- Measurement of what occurs based on hospital data
  - Peri & Post op management (process measures)
  - Complication rates
  - Mortality rates
- How do we get at underuse?
  - Ex. Unmet need in vulnerable population or disparities
- How do we get at overuse?
  - Ex. Rates of surgery in excess of expected benchmarks

➤ Provider-Based Performance Measures lack the denominator that represents the population at risk
Population denominators allows study of:

- Rates of Surgery
- Access
- Total spending
- Disease treatment when multiple approaches available
  - (ex. Prostate cancer - medical, surgical, observation)
- Outcomes that span multiple providers
  - (ex. long-term diabetes outcomes such as amputation)
- Person-centered measurement
  - (ex. care for person with disease across system)
Variations in practice and spending

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Actionable?
Physician-Hospital Networks (PHN)

Physicians and beneficiaries make naturally occurring groups centered around hospitals

Determining Physician Network

Primary care specialists

Surgeons

Other specialties

Medical sub-specialists
Determining Person’s Primary Physician

Primary care specialists

Surgeons

Other specialties

Medical sub-specialists
Physician-Hospital Networks

PHN A

PHN B

PHN C

HRR

PHN D
### Example: Four Boston Hospitals

<table>
<thead>
<tr>
<th>Hospital Name*</th>
<th>MGH</th>
<th>BMC</th>
<th>Faulkner</th>
<th>N.E. Baptist</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;2 chronic conditions</td>
<td>31%</td>
<td>32%</td>
<td>34%</td>
<td>35%</td>
</tr>
<tr>
<td>Medicaid Eligible</td>
<td>12%</td>
<td>37%</td>
<td>16%</td>
<td>15%</td>
</tr>
<tr>
<td>Live in hospital HSA</td>
<td>43%</td>
<td>70%</td>
<td>77%</td>
<td>38%</td>
</tr>
</tbody>
</table>

### Characteristics of Assigned Patient Cohort

<table>
<thead>
<tr>
<th>Affiliated Physician Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total #MDs linked</td>
</tr>
<tr>
<td># Different Specialties</td>
</tr>
</tbody>
</table>

* MGH=Massachusetts General Hospital, BMC=Boston Medical Center, N.E. Baptist=New England Baptist Hospital
Most of their care from a single identifiable providers grouped around a hospital

<table>
<thead>
<tr>
<th>Reliance on their hospital and its extended medical staff</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of hospitals</strong></td>
</tr>
<tr>
<td><strong>Number of beneficiaries</strong></td>
</tr>
<tr>
<td><strong>Concentration of Care, medical staff</strong></td>
</tr>
<tr>
<td>% of E&amp;M billing to assigned staff</td>
</tr>
<tr>
<td>Primary hospital</td>
</tr>
<tr>
<td>Primary and secondary hospital</td>
</tr>
<tr>
<td><strong>Hospital Concentration of Care</strong></td>
</tr>
<tr>
<td>% of admissions</td>
</tr>
<tr>
<td>Primary hospital</td>
</tr>
<tr>
<td>Primary and secondary</td>
</tr>
</tbody>
</table>
Health Policy Implications

• Current Medicare markets beneficiaries concentrate care in virtual networks
  – Especially if large hospital with broad services
  – If not, it is possible to determine referral hospital

• Population-basis and size allow measurement of outcomes and costs

• With measureable performance for populations comes potential for accountability
  ➢ Became underpinnings of attribution for ACOs that do not require patients to be locked in
What does this mean for performance measurement?

• We have a way to determine a provider-specific yet (nearly) population-based measurement approach.

• Method is based on Primary Care as the longitudinal link between people and their healthcare system.

• We can begin to under care that occurs “within” and “outside” the network even when crossing geographic boundaries
How do hospitals compare using a Population- vs. Provider-centric attribution?

**PHN Decedent Cohort**
- Attribution based on 2009
- Linkage to PHN (centered on a hospital) through primary care visits
- All decedents in 2010

**Atlas End-of-Life Cohort**
- Attribution based on 2010
- Linkage made to hospital when spent most time in last 2 years of life
- Chronic Disease decedents in 2010
<table>
<thead>
<tr>
<th>Number</th>
<th>PHN Anchor Hospital</th>
<th>Academic Medical Center (COTH)</th>
<th>Non-COTH Medical Center</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>215</td>
<td>2114</td>
<td></td>
</tr>
</tbody>
</table>
Difference in O:E Ratio for Total Hospital Days using PHN Attribution

Graphs include only if >200 decedents

*Red Line No Diff Between PHN & EOL O:E
O:E Ratio of Total Hospital Days in the Last 6 mo of Life

Based on PHN Attribution

Based on EOL Attribution Method

Non-COTH

Academic Medical Center

Graphs include only if >200 decedents

R²=0.91

R²=0.88
### Boston Medical Center

<table>
<thead>
<tr>
<th>Percent Same Assignment</th>
<th>61%</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHN</td>
<td></td>
</tr>
<tr>
<td>EOL</td>
<td></td>
</tr>
<tr>
<td>Percent Medicaid</td>
<td>34%</td>
</tr>
<tr>
<td>O:E Hospital Days</td>
<td>0.91</td>
</tr>
</tbody>
</table>

### Massachusetts General Hospital

<table>
<thead>
<tr>
<th>Percent Same Assignment</th>
<th>56%</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHN</td>
<td></td>
</tr>
<tr>
<td>EOL</td>
<td></td>
</tr>
<tr>
<td>Percent Medicaid</td>
<td>17%</td>
</tr>
<tr>
<td>O:E Hospital Days</td>
<td>1.11</td>
</tr>
</tbody>
</table>
Summary

• PHN attribution allows population-based performance measures of specific providers

• Physician affiliation is based on where patients choose to go – not corporate/employment relationships.

• Patient attribution is based on where patients choose to go – not where they live

• Early results show both PHN & EOL methods largely agree on intensity measures
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P01 Co-investigators:
Jon Skinner
David Wennberg*
Jack Wennberg*
Elliott Fisher

Team Members
Jeremy Smith*
Don Carmichael*
Dan Gottlieb
Yunjie Song
Valerie Lewis

*Team for PHN-EOL comparison