Can we use the health care workforce more efficiently?  
*Insights from variations in practice*

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VA Outcomes Group  
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Variations in spending and physician labor inputs among USN&WR top ten “honor roll” academic medical centers

Resource inputs per Medicare beneficiary with severe chronic disease
(Last 2 years of life, 2000-2003)

<table>
<thead>
<tr>
<th>Resource Inputs</th>
<th>Spending</th>
<th>MD FTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>UCLA Medical Center</td>
<td>72,793</td>
<td>50.4</td>
</tr>
<tr>
<td>New York-Presbyterian</td>
<td>69,962</td>
<td></td>
</tr>
<tr>
<td>Johns Hopkins</td>
<td>60,653</td>
<td></td>
</tr>
<tr>
<td>UCSF Medical Center</td>
<td>56,859</td>
<td></td>
</tr>
<tr>
<td>Univ. of Washington</td>
<td>50,716</td>
<td></td>
</tr>
<tr>
<td>Mass. General</td>
<td>47,880</td>
<td></td>
</tr>
<tr>
<td>Barnes-Jewish</td>
<td>44,463</td>
<td></td>
</tr>
<tr>
<td>Duke University Hosp.</td>
<td>37,765</td>
<td></td>
</tr>
<tr>
<td>Mayo Clinic (St. Mary's)</td>
<td>37,271</td>
<td></td>
</tr>
<tr>
<td>Cleveland Clinic</td>
<td>35,455</td>
<td>24.1</td>
</tr>
</tbody>
</table>
Spending, quality and the physician workforce

Is it possible to provide care with fewer physicians?

Higher intensity treatment -- what are we getting?

What’s going on?

What we need to know: how to identify and foster high performing health systems
Is it possible to provide care with fewer physicians?

Prepaid group practices use fewer physicians

<table>
<thead>
<tr>
<th></th>
<th>Total providers per 100,000</th>
<th>Reduction compared to US</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. supply</td>
<td>270</td>
<td>-</td>
</tr>
<tr>
<td>Group Health</td>
<td>204</td>
<td>24%</td>
</tr>
<tr>
<td>HealthPartners</td>
<td>202</td>
<td>25%</td>
</tr>
<tr>
<td>Kaiser</td>
<td>174</td>
<td>36%</td>
</tr>
</tbody>
</table>

Adjusted physician supply per 100,000 in selected prepaid group practices

Weiner et al.  Health Affairs 2004
Is it possible to provide care with fewer physicians?

Prepaid group practices use fewer physicians

Low intensity U.S. regions achieve equal or better results with fewer physicians
Is it possible to provide care with fewer physicians?

Prepaid group practices use fewer physicians
Low intensity U.S. regions achieve equal or better results with fewer physicians

Academic medical centers also differ dramatically in their intensity and use of physician labor

<table>
<thead>
<tr>
<th></th>
<th>Mayo</th>
<th>Duke</th>
<th>UCSF</th>
<th>UCLA</th>
<th>Cedars</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital days (L6M)*</td>
<td>12.9</td>
<td>14.0</td>
<td>13.2</td>
<td>19.2</td>
<td>23.1</td>
</tr>
<tr>
<td>Physician visits (L6M)*</td>
<td>23.8</td>
<td>23.3</td>
<td>30.4</td>
<td>52.1</td>
<td>71.3</td>
</tr>
<tr>
<td>Total Physician FTE (L2Y)**</td>
<td>20.3</td>
<td>21.1</td>
<td>24.5</td>
<td>40.6</td>
<td>52.2</td>
</tr>
<tr>
<td>Primary care FTE inputs (L2Y)**</td>
<td>7.0</td>
<td>6.4</td>
<td>10.8</td>
<td>9.3</td>
<td>12.8</td>
</tr>
<tr>
<td>Medical specialist FTE (L2Y)**</td>
<td>8.4</td>
<td>8.8</td>
<td>9.0</td>
<td>22.9</td>
<td>29.9</td>
</tr>
</tbody>
</table>

* Measures are per person / per decedent
** Measures are per 1000 decedents
Spending, quality and the physician workforce

Is it possible to provide care with fewer physicians?

Higher intensity treatment -- what are we getting?
The paradox of plenty

What do higher intensity regions -- and systems -- get?

Content / Quality of Care\(^1,2\)

- Technical quality worse
- No more major surgery
- Greater use of supply sensitive services

(2) Health Affairs web exclusives, October 7, 2004
(3) Health Affairs, web exclusives, Nov 16, 2005
(4) Health Affairs web exclusives, Feb 7, 2006
## Content of care

*higher vs lower intensity academic medical centers*

Risk adjusted use of physician services during the first six months of follow-up among patients cared for by U.S. Academic Medical Centers

<table>
<thead>
<tr>
<th>Quintile of AMC Intensity</th>
<th>Lowest</th>
<th>Middle</th>
<th>Highest</th>
<th>Ratio High to Low</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hip Fracture</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evaluation and Management</td>
<td>$894</td>
<td>$1,054</td>
<td>$1,628</td>
<td>1.82</td>
</tr>
<tr>
<td>Imaging</td>
<td>471</td>
<td>503</td>
<td>596</td>
<td>1.26</td>
</tr>
<tr>
<td>Diagnostic tests</td>
<td>96</td>
<td>134</td>
<td>181</td>
<td>1.90</td>
</tr>
<tr>
<td>Minor Procedures</td>
<td>366</td>
<td>409</td>
<td>535</td>
<td>1.46</td>
</tr>
<tr>
<td>Major Procedures</td>
<td>1,517</td>
<td>1,526</td>
<td>1,538</td>
<td>1.01</td>
</tr>
<tr>
<td><strong>AMI</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evaluation and Management</td>
<td>1,120</td>
<td>1,234</td>
<td>1,548</td>
<td>1.56</td>
</tr>
<tr>
<td>Imaging</td>
<td>1,054</td>
<td>1,139</td>
<td>1,265</td>
<td>1.20</td>
</tr>
<tr>
<td>Diagnostic tests</td>
<td>180</td>
<td>209</td>
<td>311</td>
<td>1.73</td>
</tr>
<tr>
<td>Minor Procedures</td>
<td>302</td>
<td>335</td>
<td>467</td>
<td>1.54</td>
</tr>
<tr>
<td>Major Procedures</td>
<td>2,769</td>
<td>2,777</td>
<td>2,852</td>
<td>1.03</td>
</tr>
</tbody>
</table>

Fisher et al.  *Health Affairs* web exclusives, Oct 7, 2004
The paradox of plenty

What do higher intensity regions -- and systems -- get?

Content / Quality of Care\(^{1,2}\)
- Technical quality worse
- No more elective surgery
- Greater use of supply sensitive services

Health Outcomes\(^{1,2}\)
- Slightly higher mortality
- No better function

Physician’s perceptions\(^{5}\)
- Worse communication among physicians
- Greater difficulty ensuring continuity of care
- Greater difficulty providing high quality care
- Greater perception of scarcity

Patient-perceived quality\(^{1,3}\)
- Lower satisfaction with hospital care
- Worse access to primary care

Trends over time\(^{4}\)
- Greater growth in per-capita resource use
- Lower gains in survival (following AMI)

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(2) Health Affairs web exclusives, October 7, 2004
(3) Health Affairs, web exclusives, Nov 16, 2005
(4) Health Affairs web exclusives, Feb 7, 2006
Spending, quality and the physician workforce

Context: why is this an important question?

Is it possible to provide good care with fewer physicians?

Higher intensity treatment -- what are we getting?

What’s going on?
Differences in spending
What are the underlying causes?

Patient preferences?\textsuperscript{1,2}

\textit{Slight preference for specialist care in high spending}
\textit{No difference for tests (if MD says not needed)}
\textit{No difference in preferences for aggressive EOL care}

Malpractice environment\textsuperscript{3,4}

\textit{Explains less than 10\% of state differences in spending}
\textit{Little impact on growth in utilization across states}

Capacity / payment system\textsuperscript{5}

\textit{Capacity strongly correlated, but explains less than 50\%}
\textit{Payment system ensures all stay busy}

Clinical judgment\textsuperscript{6,7}

\begin{itemize}
  \item (1) Pritchard et al. \textit{J Am Geriatric Society}; 46:1242-1250, 199
  \item (2) Anthony et al, under review
  \item (3) Kessler et al. Quarterly Journal of Medicine 1996;111(2):353-90
  \item (4) Baicker, Chandra, NBER Working Paper W10709
  \item (5) Fisher et al. \textit{Ann Intern Med}. 2003; 138: 273-298
  \item (6) Sirovich et al. \textit{Archives of Internal Medicine}. 165(19):2252-6.
  \item (7) Sirovich et al, J Gen Intern Med. 2006;21(Suppl4):164.
\end{itemize}
### Physician propensity to intervene

*Primary Care Physician Surveys*

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Low Spending Regions</th>
<th>High Spending Regions</th>
<th>Trend significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiology referral for chest pain and abnormal stress test</td>
<td>91</td>
<td>93</td>
<td>no</td>
</tr>
<tr>
<td>MRI for back pain and mildly abnormal nerve function</td>
<td>69</td>
<td>82</td>
<td>yes</td>
</tr>
<tr>
<td>Drug treatment of high cholesterol with no other risk factors</td>
<td>44</td>
<td>53</td>
<td>yes</td>
</tr>
<tr>
<td>Urology referral for mild symptoms of prostatic enlargement</td>
<td>23</td>
<td>32</td>
<td>yes</td>
</tr>
<tr>
<td>Prostate cancer screening test for 60 year old white male</td>
<td>68</td>
<td>78</td>
<td>yes</td>
</tr>
<tr>
<td><strong>Visit for patient with isolated high blood pressure in 3 months or less</strong></td>
<td><strong>22</strong></td>
<td><strong>49</strong></td>
<td><strong>yes</strong></td>
</tr>
</tbody>
</table>

Sirovich *Archives of Internal Medicine*. 165(19):2252-6, 2005 Oct 24
Sirovich, *Journal of General Internal Medicine, Suppl May 2006*
Differences in spending  
*What are the underlying causes?*

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
</table>
| Patient preferences?\(^1,2\)     | *Slight preference for specialist care in high spending  
No difference for tests (if MD says not needed)  
No difference in preferences for aggressive EOL care*                                                                                     |
| Malpractice environment\(^3,4\)  | *Explains less than 10% of state differences in spending  
Little impact on growth in utilization across states*                                                                                     |
| Capacity / payment system\(^5\)  | *Capacity strongly correlated, but explains less than 50%  
Payment system ensures all stay busy*                                                                                                        |
| Clinical judgment\(^6,7\)        | *No difference in decisions with strong evidence  
More likely to intervene in “gray” areas  
(when to see patient, when to refer, when to admit)*                                                                                     |

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(1) Pritchard et al. *J Am Geriatric Society*; 46:1242-1250, 199  
(2) Anthony et al, under review  
(4) Baicker, Chandra, NBER Working Paper W10709  
What I think I know

Local capacity and clinical culture drive practice and spending

Clinical evidence (e.g. RCTs, guidelines) is a critically important -- but very limited -- influence on clinical decision-making.

Physicians practice within a local organizational context and policy environment that profoundly influences their decision-making. Payment system ensures that existing (and new capacity) is fully utilized. Growth in capacity helps drive the evolution of new (more intensive) local social norms.

Consequence: reasonable individual clinical and local decisions lead, in aggregate, to higher utilization rates, greater costs -- and inadvertently -- worse outcomes.

Clinical Evidence Professionalism

Physician - Patient Encounter
Spending, quality and the physician workforce

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Higher intensity treatment -- what are we getting?

What’s going on?

What we need to know: how to identify and foster high performing health systems
Some thoughts on moving forward

We need to consider underlying causes of rising costs, poor quality

<table>
<thead>
<tr>
<th>Underlying cause</th>
<th>General Approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Failure to recognize key role of local system (capacity, clinical culture) as</td>
<td>Foster development of local organizations (delivery systems) accountable for care</td>
</tr>
<tr>
<td>driver</td>
<td>(with incentives to limit future growth)</td>
</tr>
<tr>
<td>Assumption that more is better</td>
<td>Balanced information on risks / benefits</td>
</tr>
<tr>
<td>Equating less care with rationing</td>
<td>Comprehensive performance measures</td>
</tr>
<tr>
<td>Payment system that rewards more care, increased capacity, high margin</td>
<td>Reform of payment system (long term)</td>
</tr>
<tr>
<td>treatments, entrepreneurial behavior</td>
<td>Shared savings as interim approach</td>
</tr>
</tbody>
</table>
Payment reform: group accountability, shared savings
Per-beneficiary spending in EHMS (n = 4772) sorted into quintiles by magnitude of per-beneficiary growth (1999-2003)

* Using standardized payments, using 2003 RVU
** Percent increase calculated relative to average 1999 per-beneficiary spending
Payment reform: group accountability, shared savings

Per-beneficiary spending in EHMS by BETOS category (highest and lowest quintiles of per-beneficiary growth (1999-2003))

Differences in growth likely due to:
- active recruitment of physicians
- physician location decisions
- expansion of facilities (imaging)

Control of spending will require altering incentives for growth

Each Quintile includes approximately 20% of the Medicare population
Moving forward

Further expansion of the active physician workforce should be carefully considered

The perception of scarcity does not necessarily imply shortages, but rather a mismatch between demand and “availability”.

There are risks to expansion: actual costs; potential harms; opportunity costs.

Different regions -- and organizations -- appear to produce equal or better health outcomes with fewer physician labor inputs -- and a different mix.

A key question: how can we foster the development of high performing organizations -- those capable of providing high quality care with fewer resources.