Labor Productivity Benchmarking
Best Practice Performance and How to Get There

March 24, 2011

Who We Are

- HFS is an Oakland, California based Healthcare Consulting Firm established in 1991
- Approximately 100 Professionals based in 5 offices in California
- Management & Operations Practice established in 2003 focusing on:
  - Hospital Turnarounds
  - Productivity Management and Benchmarking
  - Cost Benchmarking and Cost Control Systems Development and Implementation
  - Operational Improvement and Workflow Redesign
  - Clinical Integration & ACO Development
  - Physician Contracting
  - Post-Acute Strategies
  - Clinical Laboratory Management
What We Will Talk About Today

- Hospital operating margins have been stable for the past five years, but reimbursement decline to Medicare levels along with increased investments in facilities and technology are expected to erode margins in the next three years.

- Progressive hospital executives will do what they can to improve Revenue Capture, but greater opportunities exist in cost reduction, both non-labor and labor.

- Hospital executives naturally want to understand how much they can reduce costs while maintaining quality – benchmarking their cost performance to similar comparators and measuring quality relative to labor and non-labor performance can help leaders build a cost reduction Business Case with their boards, senior executive team, staff and community.

- Hospital Finance Departments and strategists have other priorities than conducting benchmarking studies – this is a task that lends itself to hiring out to a specialist that has economies and expertise of scale – as a result, HFS has developed a proprietary tool that uses OSHPD data to benchmark our clients’ labor productivity and cost performance vs. similar comparators.

What We Will Talk About Today - Continued

- Hospital executives should consider reducing non-labor costs before or concurrently with labor costs – improving each to Top Quartile performance levels, while maintaining quality, can drive sustainable 1-3% margin improvement within six months – since many hospitals have already addressed non-labor improvement, we will focus on labor productivity today.

- Case Mix and Quality cannot be used as excuses for not addressing productivity, which we have found to be independent of one another; high-quality and high case mix hospitals often have better productivity than lower-quality, average case mix hospitals.

- Key levers for improving productivity include: Staffing to Demand, Patient Flow Optimization, Skill Mix and Cross Training, Span of Control, Process Redesign, Staff Scheduling, Compensation Practices, and Quality Improvement to Eliminate Waste.
Hospital Operating Margin Trends

- Operating Margins have followed a consistent trend for past five years.
- They have bounced up and down but generally between 2 – 4%.
- At the end of Q2, 2010, average margin = 3.5% with major teaching hospitals having the highest margins.

Source: Thompson Reuters

Hospital Key Performance Levers

HFS’s experience has found that improving productivity as part of an overall labor cost management program, can generate cost savings that can contribute a 1 – 3% improvement in operating margins.

- Optimize Market Share
- Optimize Inpatient/Outpatient Mix
- Optimize Service Offerings
- Net Reimbursement
- Payer Mix
- Sourcing Clinical Resource Management
- Productivity
- Skill Mix
- Scheduling
- Sourcing Outsourcing
- 1% increase
- 1-3% increase
- 1-2% increase
Client Examples

Client 1: County Hospital
- Identified 34 – 120 FTEs of opportunity, when compared to 2nd and Top quartile benchmarks
- Potentially save $2.9M - $10.2M annually
- Currently prioritizing areas of focus to realize productivity improvements

Client 2: District Hospital
- Identified over 120 FTEs of opportunity
- Potentially save over $17M annually
- Hospital is currently undergoing major performance improvement initiative using benchmarking data to identify areas for improvement

Client 3: District Hospital
- Identified 35 – 130 FTEs of opportunity
- Potentially save $4M - $13M annually
- Diagnostic work recently completed and next steps being evaluated

Client 4: Urban Hospital
- Identified over 35 – 90 FTEs of opportunity
- Potentially save over $2M – $6M annually
- Hospital is overall very efficient but competes in a very competitive environment

Quality vs. Cost

The issue of sacrificing Quality is a consistent reason we hear why hospitals shouldn’t focus on costs or productivity. HFS’ experience has been that Quality and Cost are independent of each other and that there are several examples of high-quality, highly productive hospitals in California.
Patient Acuity vs. Productivity

The other issue used to justify lower productivity is patient acuity – “our patients are sicker”. Again, HFS’ experience and the data show that hospitals with high patient acuity can also be highly productive.

<table>
<thead>
<tr>
<th>Hospitals with CMI &gt; 1.3</th>
</tr>
</thead>
<tbody>
<tr>
<td>TriCity Medical Center: 8.15 HPPD</td>
</tr>
<tr>
<td>Lakewood Regional Medical Center: 8.38</td>
</tr>
<tr>
<td>St. John’s Regional Medical Center: 8.76</td>
</tr>
<tr>
<td>Mercy Medical Center, Redding: 8.88</td>
</tr>
<tr>
<td>USC University Hospital: 9.40</td>
</tr>
<tr>
<td>Novato Community Hospital: 9.37</td>
</tr>
</tbody>
</table>

Median Productivity = 11.23 HPPD

<table>
<thead>
<tr>
<th>Hospitals with CMI &lt; 1.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Southern California Hospital 1: 14.87 HPPD</td>
</tr>
<tr>
<td>Southern California Hospital 2: 14.02</td>
</tr>
<tr>
<td>Northern California Hospital 1: 14.17</td>
</tr>
<tr>
<td>Northern California Hospital 2: 13.23</td>
</tr>
<tr>
<td>Central Coast Hospital: 13.11</td>
</tr>
</tbody>
</table>

Median CMI = 1.12

Macro Productivity: Paid FTE per Adjusted Occupied Bed

The OSHPD data allows us to compare hospital productivity at a macro, facility-level point of view. Comparing 322 Adult General Acute Care Hospitals in California, Top quartile performance for Paid FTE per AOB is at 4.84 or better.

<table>
<thead>
<tr>
<th>Top Quartile</th>
<th>2nd Quartile</th>
<th>3rd Quartile</th>
<th>Bottom Quartile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average = 5.93</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Median = 5.76
Departmental Productivity Comparison

The data also allows us to look at productivity at a departmental level.

- **Med/Surg Acute - Hours per Patient Day**: 4.5
- **Emergency Services - Hours per Visit**: 2.5
- **Clinical Lab - Hours per Billed Test**: 0.45
- **Engineering – Hours per Gross Sq. Ft.**: 0.24

Emergency Services Productivity Comparison

**Productive Hours per Patient Day**

*2009 Data – 262 California Hospitals*

- **Top Quartile**: Comparator = 3.78 Level II Trauma Center
- **2nd Quartile**: Comparator = 3.44 Level III Trauma Center
- **3rd Quartile**: Comparator = 2.90 Level II Trauma Center
- **Bottom Quartile**: Comparator = 2.24 Level II Trauma Center

Average = 2.83
Clinical Lab Productivity Comparison

Productive Hours per Billed Test
2009 Data – 285 California Hospitals

<table>
<thead>
<tr>
<th>Quartile</th>
<th>Top Quartile</th>
<th>2nd Quartile</th>
<th>3rd Quartile</th>
<th>Bottom Quartile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
<td>0.173</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Client Hospital = 0.137

Median = 0.174

HFS looked at 2 similar client hospitals’ laboratory performance and found significantly different levels of performance in productivity and cost.

<table>
<thead>
<tr>
<th>Category</th>
<th>St. Elsewhere Hospital</th>
<th>Superior General</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Beds</td>
<td>281</td>
<td>408</td>
</tr>
<tr>
<td>Total Hospital Operating Expense</td>
<td>$251M</td>
<td>$253M</td>
</tr>
<tr>
<td>Total Adjusted Patient Days</td>
<td>97,399</td>
<td>106,020</td>
</tr>
<tr>
<td>Laboratory Billed Tests</td>
<td>657,395</td>
<td>839,605</td>
</tr>
<tr>
<td>Laboratory Productive FTEs</td>
<td>86</td>
<td>48.9</td>
</tr>
<tr>
<td>Laboratory Productive Hours per Billed Test</td>
<td>0.252</td>
<td>0.121</td>
</tr>
<tr>
<td>Laboratory Annual Direct Expenses</td>
<td>$12.2M</td>
<td>$7.8M</td>
</tr>
<tr>
<td>Laboratory Direct Expenses per Billed Test</td>
<td>$18.55</td>
<td>$9.31</td>
</tr>
<tr>
<td>Laboratory Staff Average Hourly Rate</td>
<td>$29.03</td>
<td>$31.42</td>
</tr>
</tbody>
</table>
Looks Easy, Why Can’t We Do This?

The benchmarking data HFS uses is publicly available OSHPD data and, theoretically, anyone could use this data for benchmarking purposes. However, compiling all 400+ hospitals’ data from a 135 page OSHPD report is too difficult and time consuming for most facilities.

HFS has developed a proprietary tool to extract OSHPD data from PDF format to Excel format to create “On Demand” cost and productivity reports.

<table>
<thead>
<tr>
<th>Native OSHPD Data</th>
<th>HFS Conversion Process</th>
<th>HFS Database Tool</th>
<th>Productivity/Cost Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>
HFS Productivity & Cost Database Tool

HFS’ productivity and cost benchmarking database is a comprehensive tool covering all California hospitals and is highly customizable depending on client needs.

- Uses latest OSHPD data available – HFS downloads updated data each month
- Can be used for multiple purposes
  - Labor productivity
  - Cost benchmarking
  - Revenue vs. cost analysis
  - Utilization analysis
- Comparator set can be customized based on client request
  - Bed Size
  - Hospital Type: County, District, CAH, Rural, Teaching
  - By Zip Code/ Location
  - By Similar Volumes: Patient Days/Adjusted Patient Days, Discharges/ Adjusted Discharges
  - Case Mix
  - Wage Index

How Can Hospitals Use Benchmarking Data to Improve Productivity?

Identifying opportunity is relatively simple. However, actually realizing that opportunity by implementing the necessary process and staffing changes can be very difficult.

- Unionized labor force makes staffing changes difficult
- Lack of political will across the organization – productivity is never a “fun” topic
- Lack of data and management reports
- Even if they have the data, Managers lack the appropriate tools and/or experience to make effective decisions
- Everyone is too busy with their regular jobs
- It’s just really, really hard to make sustainable changes

It sounds really difficult, so how do we do it?
HFS Experience in Labor Productivity Management

- Hospitals devote 55% - 60% of Total Operating Expenses on Labor Costs
  - During “good times” labor costs tend to increase at a rate higher than revenues and non-labor spending
  - During “challenging times” hospitals are often reluctant to address labor spending due to political, union, or community issues
  - Increasingly, however, hospital leadership teams are examining labor spend to achieve normal margins when reimbursement is expected to decline and non-labor reductions have already been taken

- Due to sensitivity of reducing staff, leadership teams must devote appropriate level of attention to managing change and communicating with affected stakeholders
  - In our experience, it is important to start with the Board
  - Leadership team from CEO down to VP/Director level must be united, visible and accountable
  - HR department and internal/external communications resources need to be involved in planning the process
  - Outside change management expertise may be helpful for design and early implementation periods
  - Need to emphasize change based on data and successful practices used by similar-type facilities and that quality and patient satisfaction will not be sacrificed for cost reduction are important messages to share

- Rigorous benchmarking is a critical step – comparing a hospital’s FTE and labor cost performance with others in the same regulatory environment is just a first step
  - Quality must be taken into account
  - Department leaders should be interviewed to understand organizational and historical factors that may skew the results and adjustments must be made
  - Targets should be set based on organizational need but also for realistic chance of achievement

- The highest performing hospitals for managing labor tend to adopt successful practices that include:
  - Setting challenging productivity targets for FTEs and Labor Cost per Unit of Service
  - Staffing to demand
  - Managing patient flow
  - Skill mix and cross-training of staff
  - Extending the span of management control
  - Redesigning inefficient processes
  - Reducing re-work by improving quality
  - Scheduling staff more effectively to avoid overtime, double time, on-call/call-backs, registry and per diem spending
Key Levers: Staffing to Demand

- Staffing to demand reduces costs by matching departmental staffing schedules to daily peaks and valleys in volume
  - Staffing to demand increases the ability to respond to schedule changes
  - Staffing to demand reduces idle staff time
- Staffing to demand can be used to analyze schedule variations by time of day, day of week and/or time of year
- It can be monitored on a daily basis as well as analyzed for trends over time, i.e., quarterly

Key Levers: Patient Flow – Operating Room Example

- Each OR case can be divided into its component processes. These can be analyzed separately or in combination
- Any strategy to improve efficiency must also maintain or improve the quality of care
- Shown below is an example of a process flow chart and cost savings calculation

Cost Savings Calculation

<table>
<thead>
<tr>
<th>Case Set Up</th>
<th>Anesthesia Induction</th>
<th>Prep</th>
<th>Surgeon Time</th>
<th>Anesthesia Emergence</th>
<th>Clean Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facility Actual Avg = 24 min Benchmark = 11 min</td>
<td>Facility= 19 min Benchmark = 10 min</td>
<td>Facility = 13 min Benchmark = 16 min</td>
<td>Facility = 76 min Benchmark = 54 min</td>
<td>Developing Benchmark</td>
<td>Facility = 16 min Benchmark = 10 min</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time of Day</th>
<th>Demand in Excess of Staff</th>
<th>Staff in Excess of Demand</th>
</tr>
</thead>
<tbody>
<tr>
<td>6:00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7:00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8:00</td>
<td></td>
<td></td>
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<tr>
<td>9:00</td>
<td></td>
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</tr>
<tr>
<td>10:00</td>
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<tr>
<td>11:00</td>
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<td>15:00</td>
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<td>16:00</td>
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<tr>
<td>17:00</td>
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</tr>
</tbody>
</table>

If OR volume is 6000 cases per year, this time savings is equivalent to 2 ORs open 40 hrs/week. Closing 2 ORs at 2.5 FTEs per OR is a potential savings of $500,000.
**Key Levers: Managing Patient Flow – Discharge & Admissions**

Managing timely discharges can be a major issue impacting hospitals’ ability to manage patient flow effectively as it can impact multiple areas. This issue also impacts departments ability to manage productivity.

**HFS Client Example**

Administrative policy requires discharges occur before 11:00 AM

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**Key Levers: Skill Mix & Cross Training – Operating Room Example**

- Skill mix analysis looks at the percentage of direct caregiver RNs as compared to non-RN caregivers, e.g., OR Techs
- It calculates the cost savings associated with the difference in wages between RNs and non-RNs
- In this example, a shift of 1.00 FTE from RNs to Techs in the Operating Room results in yearly cost savings of about $47,000

<table>
<thead>
<tr>
<th>Starting Data Needed</th>
<th>Calculations</th>
<th>Description of Calculation</th>
</tr>
</thead>
<tbody>
<tr>
<td>RN Actual Ratio 72%</td>
<td>Percent Reduction in RNs 7% RN Actual Ratio - RN Proposed Ratio</td>
<td></td>
</tr>
<tr>
<td>RN Proposed Ratio 65%</td>
<td>Reduction in RN FTEs 1.00 Percent RN Reduction x FTEs Needed</td>
<td></td>
</tr>
<tr>
<td>Total FTEs Needed 16</td>
<td>Hourly Cost Reduction $22 Wage Differential x RN FTE Reduction</td>
<td></td>
</tr>
<tr>
<td>OR Tech Hourly Wage $28</td>
<td>Yearly Cost Reduction $46,592 Hourly Cost Reduction x 2,080 Hours per year</td>
<td></td>
</tr>
<tr>
<td>RN Hourly Wage $48</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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**Key Levers: Span of Control**

Span of Control analysis looks at each level of the organization or department to identify opportunities to eliminate layers of management and/or rebalance staff amongst managers as appropriate.

### Current Structure

- A
  - B
    - C (5 FTEs)
    - C (7 FTEs)
  - B
    - C (3 FTEs)
    - C (2 FTEs)
  - B
    - C (8 FTEs)
    - C (6 FTEs)

### Redesigned Structure

- A
  - B (9 FTEs)
  - B (9 FTEs)
  - B (9 FTEs)
  - B (10 FTEs)

Management FTEs: 10
Staff FTEs: 31
Total FTEs: 41
Span of Control: 3.1 to 1

Management FTEs: 5
Staff FTEs: 37
Total FTEs: 41
Span of Control: 7.4 to 1

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**Key Levers: Scheduling – On Call Client Example**

A recent HFS client utilized a significant amount of On Call hours for multiple departments. However, the actual Call Back percentage for most of those areas was below 15%.

<table>
<thead>
<tr>
<th>Department</th>
<th>On Call Hours</th>
<th>Average Hours per Day</th>
<th>Call Back Hours</th>
<th>Call Back %</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVOR</td>
<td>32,941</td>
<td>90</td>
<td>865</td>
<td>2.6%</td>
</tr>
<tr>
<td>Cardiac Cath Lab</td>
<td>16,248</td>
<td>45</td>
<td>1,992</td>
<td>12.3%</td>
</tr>
<tr>
<td>Radiology</td>
<td>13,105</td>
<td>36</td>
<td>2,550</td>
<td>19.5%</td>
</tr>
<tr>
<td>Recovery</td>
<td>12,078</td>
<td>33</td>
<td>892</td>
<td>7.4%</td>
</tr>
<tr>
<td>Surgery</td>
<td>11,879</td>
<td>33</td>
<td>3,466</td>
<td>29.2%</td>
</tr>
<tr>
<td>Emergency Department</td>
<td>9,358</td>
<td>26</td>
<td>1,92</td>
<td>1.9%</td>
</tr>
<tr>
<td>Delivery Room</td>
<td>8,992</td>
<td>25</td>
<td>2,658</td>
<td>29.6%</td>
</tr>
<tr>
<td>Nursery</td>
<td>8,612</td>
<td>24</td>
<td>2,183</td>
<td>25.3%</td>
</tr>
<tr>
<td>Cardiology</td>
<td>8,587</td>
<td>24</td>
<td>960</td>
<td>11.2%</td>
</tr>
<tr>
<td>Endoscopy</td>
<td>5,580</td>
<td>15</td>
<td>1,489</td>
<td>28.7%</td>
</tr>
<tr>
<td>Plant Maintenance</td>
<td>5,279</td>
<td>14</td>
<td>446</td>
<td>8.4%</td>
</tr>
<tr>
<td>CT Scan</td>
<td>4,339</td>
<td>12</td>
<td>339</td>
<td>7.8%</td>
</tr>
<tr>
<td>Information Services</td>
<td>4,305</td>
<td>12</td>
<td>2,035</td>
<td>47.3%</td>
</tr>
<tr>
<td>MRI</td>
<td>2,842</td>
<td>8</td>
<td>619</td>
<td>21.8%</td>
</tr>
<tr>
<td>Drug Services</td>
<td>2,804</td>
<td>8</td>
<td>6</td>
<td>0.2%</td>
</tr>
<tr>
<td>Pharmacy</td>
<td>2,752</td>
<td>8</td>
<td>363</td>
<td>13.2%</td>
</tr>
<tr>
<td>Sterile Process</td>
<td>2,427</td>
<td>7</td>
<td>43</td>
<td>1.8%</td>
</tr>
<tr>
<td>Other</td>
<td>15,027</td>
<td>41</td>
<td>3,191</td>
<td>21.2%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>167,155</strong></td>
<td><strong>461</strong></td>
<td><strong>24,279</strong></td>
<td><strong>14.5%</strong></td>
</tr>
</tbody>
</table>
Final Thoughts

- Operating Margins will trend downward over the next 3 years

- Improving labor productivity to Median or Top Quartile levels while maintaining quality can drive sustainable 1-3% operating margin improvement in six months

- After looking at Revenue Cycle and Supply Chain improvements, if your organization hasn’t looked at improving Labor Productivity, you may be leaving significant cost savings on the table

- Benchmarking, if applied correctly, can be a powerful tool in identifying priority areas for productivity and cost improvements