Webinar: Are your cost estimates leading to the wrong decisions? (And what to do about it)

Becker’s Hospital Review webinar
Are your cost estimate leading you to the wrong decisions?

- Most hospitals use cost-to-charge ratios
- Cost-to-charge ratios can lead to sub-optimal operational and strategic decisions
- Without implementing cost accounting, hospitals can make some adjustments to improve
Influential strategy and healthcare leaders recognize how critical it is for hospitals to improve on cost-to-charge ratios (RCCs)

- Rising health care costs are busting the federal budget as well as those of states, counties and municipalities.
- Few acknowledge a fundamental source of escalating costs: the system by which those costs are measured. To put it bluntly, there is an almost complete lack of understanding of how much it costs to deliver patient care, much less how those costs compare with the outcomes achieved.
- Providers themselves do not measure their costs correctly. They assign costs to patients based on what they charge, not on the actual costs of the resources, like personnel and equipment, used to care for the patient.
- Poor costing systems have disastrous consequences. It is a well-known management axiom that what is not measured cannot be managed or improved.
- The result is that attempts to cut costs fail, and total health care costs just keep rising.

What percentage of US hospitals use cost-to-charge ratios (RCCs) as primary form of cost estimation in their patient data?

A. 10-20%
B. 30-40%
C. 50-60%
D. 70-80%
What percentage of US hospitals use cost-to-charge ratios (RCCs) as primary form of cost estimation in their patient data?

Are your cost estimate leading you to the wrong decisions?

- Most hospitals use cost-to-charge ratios
- **Cost-to-charge ratios can lead to sub-optimal operational and strategic decisions**
- Without implementing cost accounting, hospitals can make some adjustments to improve
Who is Valley Hospital?

<table>
<thead>
<tr>
<th># of beds</th>
<th>250</th>
</tr>
</thead>
<tbody>
<tr>
<td>Setting</td>
<td>Rural</td>
</tr>
<tr>
<td>Cost accounting method</td>
<td>Procedural</td>
</tr>
<tr>
<td>Region</td>
<td>East North Central (IL, IN, MI, OH, WI)</td>
</tr>
</tbody>
</table>
Over 10 top drugs, RCC-based costing approach overestimates some drugs and underestimates others...

<table>
<thead>
<tr>
<th>Drug</th>
<th>Rachelle's Cost (%)</th>
<th>Actual Cost (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ceftriaxone, Rocephin Ivpb 1Gm</td>
<td>216%</td>
<td></td>
</tr>
<tr>
<td>Piperacillin/Tazo, Zosyn VI 3/0.375Gm</td>
<td>119%</td>
<td></td>
</tr>
<tr>
<td>Enoxaparin, Lovenox Inj 40Mg 0.4MI</td>
<td>71%</td>
<td></td>
</tr>
<tr>
<td>Moxifloxacin, Avelox Ivpb 400Mg</td>
<td>30%</td>
<td></td>
</tr>
<tr>
<td>Doripenem, Doribax VI 500Mg</td>
<td>21%</td>
<td></td>
</tr>
<tr>
<td>Fentanyl, Sublimaze Amp 0.05Mg/MI 2ML</td>
<td>-12%</td>
<td></td>
</tr>
<tr>
<td>Ondansetron, Zofran VI 2Mg/MI 2ML</td>
<td>-25%</td>
<td></td>
</tr>
<tr>
<td>Insulin Reg Human VI 10MI</td>
<td>-76%</td>
<td></td>
</tr>
<tr>
<td>Esomeprazole, Nexium Cap 20Mg</td>
<td>-81%</td>
<td></td>
</tr>
</tbody>
</table>
...And over their top 200 drugs, the RCC-based costing approach also overestimates some drugs and underestimates others.\(^1\)

<table>
<thead>
<tr>
<th>Drug</th>
<th>Cost per dose, $</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tylenol 325gm</td>
<td>RCC overestimates</td>
</tr>
<tr>
<td>Enoxaparin, Lovenox 40mg</td>
<td>RCC overestimates</td>
</tr>
<tr>
<td>Vancomycin, Vancocin vial 1gm</td>
<td>RCC overestimates</td>
</tr>
<tr>
<td>Doripene, Doribax vial 1mg</td>
<td>RCC overestimates</td>
</tr>
</tbody>
</table>

Across all drugs,
- Low cost drugs (<$10) are underestimated
- High cost drugs (> $10) are overestimated

\(^1\) Only drugs with per dose cost of less than $70 are shown
Within one DRG (Septicemia), we see 2 different docs: one who has most of his drugs overestimated, the other underestimated

DRG-871-Septicemia

**RCC cost per dose, $  Dr. Chan**

- RCC overestimates
  - Doripenem 500MG
    - +10%
  - 10%

**RCC cost per dose, $  Dr. Monroe**

- RCC overestimates
  - Linezolid 600MG
- RCC underestimates
...And therefore when we look at the average drug cost/case of these 2 docs, RCC approach switches who appears to have the lowest cost.

- RCC approach could lead the hospital to ask Dr Chan to use drugs more like Dr Monroe – which appears to be $11,000 / year savings...
- ...But it would actually lose $ 6,500 / year
If you look across the top 20 DRGs in an average hospital, what % look like a “Dr Chan / Dr Monroe” case?

A. <5%
B. 5-20%
C. 20-40%
D. 40-60%
If you look across the top 20 DRGs in an average hospital, what % look like a “Dr Chan / Dr Monroe” case?

- RCC lowest cost is lowest cost: 65%
- Lowest cost physician in RCC is not actual lowest cost: 35%
Across 200 hospitals, the same message appears: low cost drugs are underestimated and high cost drugs are overestimated.

Drug cost/case; n=200 hospitals

- 67% of drugs >$10 are overestimated
- 67% of drugs >$10 are overestimated

**RCC overestimates**

- Enoxaparin, Lovenox INJ 40MG 0.4ML
- Doripenem, Doribax VL 1MG
- Vancomycin, Vancocin VL 1GM
- Pantoprazole, Protonix I.V. VL 40MG

**RCC underestimates**

- Total spend by actual costs
- ±10% error

- 100+ hospitals: Drugs
## Contribution of top service lines

$ millions

<table>
<thead>
<tr>
<th>Service line</th>
<th>RCC approach</th>
<th>Actual costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pulmonary Medicine</td>
<td>2.08</td>
<td>2.08</td>
</tr>
<tr>
<td>Cardiovascular Medicine</td>
<td>1.12</td>
<td>1.20</td>
</tr>
<tr>
<td>Infectious Diseases</td>
<td>1.01</td>
<td>0.97</td>
</tr>
<tr>
<td>Gastrointestinal Medicine</td>
<td>0.94</td>
<td>0.96</td>
</tr>
<tr>
<td>Neurological Medicine</td>
<td>0.50</td>
<td>0.53</td>
</tr>
<tr>
<td>Endocrinology Medicine</td>
<td>0.34</td>
<td>0.34</td>
</tr>
<tr>
<td>General Surgery</td>
<td>0.35</td>
<td>0.32</td>
</tr>
<tr>
<td>Urology Medicine</td>
<td>0.31</td>
<td>0.31</td>
</tr>
<tr>
<td>Orthopedic Surgery</td>
<td>0.47</td>
<td>0.30</td>
</tr>
<tr>
<td>Nephrology</td>
<td>0.33</td>
<td>0.29</td>
</tr>
</tbody>
</table>

1 DRGs are grouped by removing complication flags like mcc and cc. Profitability is defined as (NR-total cost)/NR*100.
Contribution of hip replacement using RCC vs actual costs

$ per case

**RCC approach**

- Revenue: 14,020
- VC - Implant: 4,400
- VC - Other: 4,500
- Contribution: 5,120 (37%)
- FC: 4,450
- Profit: 670

**Actual costs**

- Revenue: 14,020
- VC - Implant: 7,200
- VC - Other: 4,500
- Contribution: 2,320 (17%)
- FC: 4,450
- Profit: -2,130
Contribution of knee replacement using RCC vs actual costs

$ per case

**Valley Hospital: Implants**

### RCC approach

- **Revenue**: 13,700
- **VC - Implant**: 3,850
- **VC - Other**: 4,200
- **Contribution**: 5,650 (41%)
- **FC**: 4,050
- **Profit**: 1,600

### Actual costs

- **Revenue**: 13,700
- **VC - Implant**: 5,100
- **VC - Other**: 4,200
- **Contribution**: 4,400 (32%)
- **FC**: 4,050
- **Profit**: 350
Many hospitals overestimate the costs of CV - Cath with RCC approach
N=114 hospitals

This hospital would overestimate the costs of CV-Cath by 15% if they were using an RCC approach.

1 Represents total average cost per case across all payors
2 Hospitals > $5 Million in total spend on cath service line
Many hospitals underestimate the costs of Orthopedic Surgery with RCC approach

N=184 hospitals

RCC cost per case

$1 Represents total average cost per case across all payors

2 Hospitals with > $5M in total spend on orthopedic surgery service line

This hospital would underestimate the costs of orthopedic surgery by 20% if they were using an RCC approach

1 Represents total average cost per case across all payors

2 Hospitals with > $5M in total spend on orthopedic surgery service line
Recap of what we’ve learned and what it means

- Most hospitals use some form of cost-charge ratios (RCCs) to estimate patient costs.
- Historically hospitals have used cost estimations to prioritize service lines and DRGs for growth. For this purpose, RCCs are OK – not perfect, but mostly suitable.
- However, hospitals are increasingly looking at their cost data to determine more detailed insights …
  - Who is my lowest cost physician in drugs, for a given DRG?
  - Who is my lowest cost physician in big $ implants, for a given DRG?
  - How do I become more competitive in a world of increased cost and price transparency?
- … and here RCCs are largely not suitable and an improved form of patient cost accounting is a fundamental need.

Source for all analyses: De-identified Objective Health client data; Premier discharge database; Objective Health analysis.
Are your cost estimate leading you to the wrong decisions?

- Most hospitals use cost-to-charge ratios
- Cost-to-charge ratios can lead to sub-optimal operational and strategic decisions
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Most hospitals today do not connect patient files (where they estimate costs) to purchasing files (which have actual costs).
Connecting these datasets brings accurate costs to patient data

Patient charges/encounter files with estimated costs

Better cost estimates fed into base files

Drug purchasing file with actual costs

Benchmark costs (from database of 200+ hospitals)

Supercharged Patient charges/encounter files with more accurately estimated costs
The disconnect can be bridged by categorizing drugs into a common language across disparate data sources

<table>
<thead>
<tr>
<th>Source</th>
<th>Taxonomy</th>
<th>Pharmaceutical class</th>
<th>Therapeutic class</th>
<th>Drug name</th>
<th>Route of administration</th>
<th>Dosage strength</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Enoxaparin, Lovenox INJ 40mg 0.4ml</strong></td>
<td></td>
<td></td>
<td>Blood modifier</td>
<td>Enoxaparin</td>
<td>Injection</td>
<td>40</td>
<td>MG</td>
</tr>
<tr>
<td><strong>Lovenox SAF Syr 40 mg/0.4 ml 10</strong></td>
<td></td>
<td></td>
<td>Anticoagulant</td>
<td>Enoxaparin</td>
<td>Injection</td>
<td>40</td>
<td>MG</td>
</tr>
<tr>
<td><strong>Tylenol Cap 325 mg Hosp 1000</strong></td>
<td></td>
<td></td>
<td>Central Nervous</td>
<td>Acetaminophen</td>
<td>Capsule</td>
<td>325</td>
<td>MG</td>
</tr>
<tr>
<td><strong>Acetamin, Tylenol Cap 325 mg</strong></td>
<td></td>
<td></td>
<td>System Agent</td>
<td>Acetaminophen</td>
<td>Capsule</td>
<td>325</td>
<td>MG</td>
</tr>
<tr>
<td><strong>Albuterol, Proventil Syrp 2mg/5ml 1ml</strong></td>
<td></td>
<td></td>
<td>Respiratory agent</td>
<td>Albuterol</td>
<td>Oral</td>
<td>0.4</td>
<td>MG</td>
</tr>
</tbody>
</table>

Detailed charge file

Source
Q & A
Are your cost estimate leading you to the wrong decisions?

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