INTRODUCTION:

• Health care spending has increased steeply and may be unsustainable 1
  • ~80% of spending is influenced by physicians decisions 2
• Therefore, physician ordering behavior has become a target for cost containment.

• Prolific area of research with multiple methodologies 3-15
  o Audit and feedback
  o Inservices on cost and test appropriateness
  o Reminder messages for appropriateness
  o Discussion of cost and appropriateness criteria
  o Publishing cost
  o National efforts such as Choosing Wisely
  o Etc.

• Presenting cost at the time of ordering has shown promise and may be cheap, simple and “exportable” practice. 15

• However, no systematic review has been performed to assess its reproducibility.

PURPOSE:

To evaluate the influence of cost acknowledgement on laboratory test ordering behavior.

METHODS:

Systematic search:

• EMBASE, Medline, Pubmed, and Web of Science on (date).

• Search designed by a research librarian

Review Process:

• 2 reviewers independently reviewed articles

• 3rd reviewer available for disagreements

Data Collection:

• 2 reviewers independently reviewed articles

• 3rd available for disagreements

• Data collected in a standardized manner

• Study characteristics

• Study methods

• Outcomes

• Quality of methods using EPOC guidelines 16

• Bibliography was reviewed for pertinent studies

RESULTS:

Tierney (1990)
Bates (1997)
Binnis (1999)
Seguin (2002)
Schilling (2010)
Ellermeden (2011)
Feldman (2013)

% change lab costs  % change number of labs  % change total cost

-40 -35 -30 -25 -20 -15 -10 -5 0 5 10 15 20 25 30 35 40

Figure 2. Percent change in physician ordering behavior.

• Percent change in laboratory test ordering behavior.

Table 1. Study characteristics and outcomes of included studies.

<table>
<thead>
<tr>
<th>Author (year)</th>
<th>Study Type</th>
<th>Setting</th>
<th>Area</th>
<th>Outcome</th>
<th>Change</th>
<th>Study Type</th>
<th>% Change in Cost</th>
<th>% Change in Lab Costs</th>
<th>% Change in Lab Utilization</th>
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</thead>
<tbody>
<tr>
<td>Feldman (2013)</td>
<td>CBA</td>
<td>Hospital-Wide</td>
<td>Inpatient Med/surg</td>
<td>USA</td>
<td>Change</td>
<td>CPOE</td>
<td>3536</td>
<td>3554</td>
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<td>Tierney (1990)</td>
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<td>Pediatric ED</td>
<td>Y USA</td>
<td>Charge CPOE</td>
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<td>(&lt;0.01)</td>
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<td>Schilling (2010)</td>
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<td>Adult Surgical ICU</td>
<td>France</td>
<td>Price Paper order form</td>
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<td>128</td>
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<td>Change</td>
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<td>Y USA</td>
<td>Charge</td>
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<td>(0.35)</td>
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<td>18276</td>
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</tbody>
</table>

CONCLUSIONS:

Reproducible decrease in labs use / costs despite:

• Varied methodologies, settings and demographics

• Different media (paper vs. computer)

Limitations:

• Inherent weakness of methodologies

• Hawthorne effect risk high (Goldfish study)

• Homogenous (such as all academic centers) limiting external validity

Areas of Future Research:

• Comparable outcome reporting

• Cost shifting

• Mortality

• Radiology Ordering Behavior

• Therapeutics Ordering Behavior

REFERENCES:


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