Improving “Cost Awareness” in Laparoscopic Hysterectomy at the Lois Hole Hospital for Women: Effect on Cost of Operating Room Disposable Surgical Supplies

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Disclosures

The authors have no actual or potential conflict of interest in relation to this topic or presentation.
Background

- Healthcare budgets are constrained!
  - prudent to identify sources of savings to reduce costs
  - use of reusable instruments might help surgeons to make savings

- 150-200 laparoscopic hysterectomies (LH)/year at LHHW (increasing about 10%/year)

- LH instrument cost varied from $200 to > $2000 per case (in 2011-3)

- “Cost Awareness” campaign targeted at reducing use of disposable instruments for LH
Research question

• Does a Cost Awareness campaign for gynecologists lead to a reduction in use and costs of disposable instruments for LH without reducing patient safety?

• (Will surgeons change their behaviour?)
Method

• **Before and after study**
• Before = Jan 2011 to Aug 2013 costs/safety (audit)
• Intervention = Cost Awareness Campaign from 13 March 2015 – end of May 2016
• After = 12 month data collection (costs/safety) June 2016 - May 2017
Intervention – Cost Awareness Campaign

• 2015 (March to May)
  – LHHW site meeting / rounds / Research Day theme with keynote speakers
  – Skills lab for participants – use of reusable instruments (staff, residents, OR nurses)

• 2016 (March to May)
  – OR comparative cost posters – changed posters over 3 months, cards for each LHHW gyne
  – OR demonstrations of reusable equipment (with coffee and relatively healthy muffins)
A Simple Step Toward Cutting Costs

REUSABLE Equipment

FAST FACTS
- About 400 lap abdominal surgeries will be done here in 2016
- If 50% used reusable instruments, cost = $1,195,000
- If 50% used reusable dissectors + re-users, cost = $39,674
  Potential savings = $1,155,326

Cost Awareness Research Study
S Ross, G Rakowski (780) 735-6490

A Simple Step Toward Cutting Costs

REUSABLE Equipment... as appropriate

From 2014 to 2015:
- Lap cholecystectomy lap cases increased by 26%
- Disposable dissectors use increased by 17% ($35,000)
- Use of more disposable dissectors = BPater WOR costs

A Simple Step Toward Cutting Costs

REUSABLE Equipment... where appropriate

SAMPLES on DISPLAY at WOR
11:00am - 1:00pm
Tues 10Nov, Thurs 17Nov, Mon 26Nov, Wed 28Nov

Refreshments Provided!
Cost Awareness Research Study
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Participants/cases

• Participants
  – 12 surgeons with ≥ 4 LH/year “before”
  – consent to participate

• Surgical cases (“before” and “after”)
  – women aged ≥ 18yr
  – total/subtotal LH, LAVH, TAH
  – any indication
Data collection – before/after

- **Disposable device use and cost**
  - Cost standardised to constant 2016 prices
- **OR time**
- **Intra- and post-operative complications**

- **Data sources**
  - OR VAX system (device use, time, complications)
  - Patient charts (patient characteristics, complications)
### Results: selected characteristics of cases

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Before intervention N=201</th>
<th>After intervention N=229</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Patient characteristics</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age (yrs)</td>
<td>48.3</td>
<td>44.1</td>
<td><strong>-4.7</strong> *</td>
</tr>
<tr>
<td>BMI (mean)</td>
<td>28.5</td>
<td>30.5</td>
<td><strong>3.0</strong> *</td>
</tr>
<tr>
<td>SVD (mean)</td>
<td>1.5</td>
<td>1.1</td>
<td><strong>-0.4</strong> *</td>
</tr>
<tr>
<td>Nulliparous (%)</td>
<td>23.0</td>
<td>30.7</td>
<td><strong>7.7</strong></td>
</tr>
<tr>
<td>At least 1 CS (%)</td>
<td>12.6</td>
<td>24.0</td>
<td><strong>11.4</strong> *</td>
</tr>
<tr>
<td><strong>Surgical details</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>TLH (%)</td>
<td>93.0</td>
<td>96.1</td>
<td><strong>3.1</strong></td>
</tr>
<tr>
<td>Complications (%)</td>
<td>9.5</td>
<td>3.1</td>
<td><strong>-6.4</strong> *</td>
</tr>
<tr>
<td>Duration of surgery (min)</td>
<td>150.1</td>
<td>139.9</td>
<td><strong>-10.2</strong> *</td>
</tr>
<tr>
<td><strong>Health services</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospital stay (days)</td>
<td>1.3</td>
<td>1.2</td>
<td><strong>-0.1</strong> *</td>
</tr>
<tr>
<td>Quantity of disposable devices (mean n)</td>
<td>14.2</td>
<td>16.5</td>
<td><strong>2.3</strong> *</td>
</tr>
<tr>
<td>Cost of disposable devices (mean $)</td>
<td>1073</td>
<td>943</td>
<td><strong>-130</strong> *</td>
</tr>
</tbody>
</table>
Main findings

• Unadjusted average disposable device cost/case
  – Pre-intervention $1073
  – Post-intervention cost of $943

• Regression analysis (adjusted for relevant factors) found cost reduction for disposable devices was $236/case (statistically significant difference)
Interpretation

• Temporal association between our intervention AND

  – Increase in # of disposable devices/case
  – Reduction in disposable costs for LH (2016 prices)
  – Fewer patients with complications
Interpretation

• But – the before and after study design is not ideal
• Many potentially confounding factors:
  – Changes in surgical practice? eg new indication for LH
  – Changes in OR setup/practice? eg new set-up tray
  – Changes in AHS policy re device purchasing/use?
    eg AHS cost reduction strategy
Points for discussion

• Why DID cost /case reduce while number of number of devices increased?
  – What products were used:
    • Before but not after?
    • After but not before?
    • Substitution?
  – Are these differences the source of cost reduction?
Post script: Resident project – Helen Yang

Survey of obstetrician/gynecologists’ attitudes about disposable/reusable surgical instruments

• Surveys of UofA gynecologists
  – 2015 and 2017
• 76% responded before and after
• Ranking of factors influencing device choice:
  2015: #1 safety, #2 effectiveness, #3 own experience
  2017: #1 effectiveness, #2 safety, #3 ease of use
  – Device cost ranked #6 (2015) and #4 (2017)
• Does this suggest a greater awareness of importance of cost?
Conclusion

- Our cost awareness campaign was temporally associated with a reduction in disposable device cost/case for LH
- Simple cost awareness campaigns may contribute to OR cost reduction
- Many additional questions remain about surgeon practice and attitudes towards cost awareness and cost containment
Acknowledgements

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