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Evidence Facilitating Culture Change: Should Everyone Have Routine Supplemental Oxygen?

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Evidence Facilitating Culture Change: Should Everyone Have Routine Supplemental Oxygen?

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Background

Multiple case studies reported in literature describe postoperative patients who experience sedation, hypercapnia, and untoward effects as a result of routine supplemental oxygen administration.

Purpose Statement

To evaluate the use of routinely administered supplemental oxygen in postoperative total joint replacement patients compared to like patients who had not had supplemental oxygen applied routinely as measured by SpO₂.

Routine Supplemental Oxygen

Benefits
• Simple, inexpensive, and well-tolerated
• Doubles subcutaneous tissue oxygenation
• Halves infection risk
• Decreases nausea and vomiting

Risks
• Nursing habit, patient need undetermined
• Prevents detection of atelectasis, transient apnea, and hypoventilation
• High CO₂ levels may go unrecognized due to adequate SpO₂ levels

Inclusion Criteria

• Total knee or hip replacement surgery
• Adult <75 years old
• ASA level 1 or 2; or 3 (if no COPD or RAD)
• Any type of anesthesia

Pilot

Pilot Results & Outcomes

<table>
<thead>
<tr>
<th>All patients with total joint DRGs</th>
<th>Baseline</th>
<th>Pilot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Encounters</td>
<td>374</td>
<td>111</td>
</tr>
<tr>
<td>Cost of Hospital Stay (USD)</td>
<td>17,920</td>
<td>17,570</td>
</tr>
<tr>
<td>LOS (days)</td>
<td>3.4</td>
<td>2.9</td>
</tr>
<tr>
<td>No O₂</td>
<td>70 (19%)</td>
<td>36 (32%)</td>
</tr>
<tr>
<td>Some O₂</td>
<td>304 (81%)</td>
<td>75 (68%)</td>
</tr>
</tbody>
</table>

Supplemental Oxygen Post-Op Percent of Total Patients

<table>
<thead>
<tr>
<th>Percent</th>
<th>Baseline</th>
<th>Timeframe</th>
<th>Pilot</th>
</tr>
</thead>
<tbody>
<tr>
<td>80%</td>
<td>5%</td>
<td>94%</td>
<td></td>
</tr>
<tr>
<td>60%</td>
<td>25%</td>
<td>75%</td>
<td></td>
</tr>
<tr>
<td>40%</td>
<td>45%</td>
<td>50%</td>
<td></td>
</tr>
<tr>
<td>20%</td>
<td>15%</td>
<td>25%</td>
<td></td>
</tr>
</tbody>
</table>

Estimated Cost Savings

<table>
<thead>
<tr>
<th>Per Patient</th>
<th>$830</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annualized (FY 2012)</td>
<td>$931,260</td>
</tr>
</tbody>
</table>

References