Evaluating Environmental Sustainability in the Perioperative Value Analysis Team

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Introduction

Perioperative Value Analysis Team mission:

- Cost
- Quality
- Patient Safety
- Innovation
- Sustainability
Environmental Impact: U.S. healthcare & Perioperative Departments

8-10% of U.S. GHG

4 billion lbs MSW/yr

470,000 DALYS/year

30% waste
2/3 regulated med waste
3-6x > energy/sqft

Anesthetic gases
HVAC
Consumable devices/textiles
Life Cycle Analysis: Laryngoscopes

<table>
<thead>
<tr>
<th></th>
<th>SUD</th>
<th>Reusable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Climate change</td>
<td>34.5</td>
<td>8.7</td>
</tr>
<tr>
<td>(CO2 equivalents)</td>
<td></td>
<td></td>
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<tr>
<td>Carcinogen</td>
<td>411.3</td>
<td>3.5</td>
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<tr>
<td>(comparative toxin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>equivalents)</td>
<td></td>
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<tr>
<td>Cost ($/use)</td>
<td>$15.77</td>
<td>$6.16</td>
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Rusch Snaplight Fiber Optic Blade
Rusch Green Spec FibreOptic Handle

BOMImed Fiber Optic Blade
BOMImed Fiber Optic Handle

Laryngoscope LCA/LCC System Boundary

SUD Laryngoscope

Raw Materials \rightarrow Laryngoscope Materials Production \rightarrow Laryngoscope Manufacturing \rightarrow SUD Packaging \rightarrow USE \rightarrow SUD + packaging \rightarrow Solid Waste Management

Reusable Laryngoscope

Raw Materials \rightarrow Laryngoscope Materials Production \rightarrow Laryngoscope Manufacturing \rightarrow Reusable Component Packaging \rightarrow USE \rightarrow Degraded unit + packaging \rightarrow Solid Waste Management

- LLD
- HLD
- Sterilization
- Refurbish

Fuel/Electricity \rightarrow Cleaning Supply Manufacturing \rightarrow Cleaning Supply Packaging

Hot Water/Steam/Electricity

Life Cycle Cost Categories

<table>
<thead>
<tr>
<th>Initial Procurement + Refurbish Components</th>
<th>LABOR</th>
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<tbody>
<tr>
<td>LLD</td>
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<tr>
<td>HLD</td>
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<tr>
<td>Sterilization</td>
<td>Waste Disposal Fees</td>
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<tr>
<td>Refurbish</td>
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not included:
Machinery/Capital Equipment
Building Operations
Environmentally Preferable Purchasing Principles

Guidelines

Specific Environmental Considerations for Purchasing

Implications for Manufacturers and Suppliers

Contact: Environmental-Supply-Chain@kp.org
This document will be updated as priority chemicals and concerns emerge.

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Why now?

- Significant cost savings: Kaiser Permanente, Beaumont
- University of Michigan Carbon Neutrality, final recommendations September 2020
- Opportunity to be leaders within Michigan Medicine, and for perioperative departments across Michigan
- Operating Room staff demonstrate willingness & excitement
Develop simplified ‘Environmental Impact Calculator’

- Prototype incorporating CO2 emission related to instrument, packaging, use and reprocessing
- Opportunity to expand for PVAT needs
Adopt Environmentally Preferable Procurement and Supply Principles

● Modeled after Kaiser Permanente’s Environmentally Preferable Purchasing Principles

● Perioperative-specific principles to evaluate potential products

● Incorporating:
  ● General guidelines
  ● Specific considerations about toxic or dangerous chemicals
  ● Expectations for suppliers/manufacturers
Thank you for your time!
Questions?