Background:

Quality healthcare means maximizing patient care (positive outcomes) and minimizing costs if applicable, and where able. Traditional costing approaches at AHS function in a top-down manner and although of value for macroscopic planning and modelling, are unable to capture the nuance and variability of patients and physician practice. Activity-Based Costing leverages the data streams of clinical information systems (i.e. Connect Care or Sunrise Clinical Manager) to accurately sum (bottom-up) the component activities of patient visits (i.e. labs, DI, meds, consults, OR supplies, etc.) to better understand variability in resource consumption and cost from patient-to-patient. When individualized patient costs are then compared to outcomes, clear opportunities for quality improvement emerge. A pilot project at Alberta Children’s Hospital (query appendicitis population) has been completed and demonstrates the utility of Activity-Based Costing to front-line staff, and what Connect Care should endeavour to provide across the Province.

COSTING TYPES AT AHS:

1) Top-Down Resource Allocation:
   a) Allocates $10B back to record level.
   b) Helps illustrate relative cost of disease and variation in spending per capita.

2) Case Costing:
   a) More granular (middle layer) – useful in funding models
   b) Submitted to CIHI for RIW development
   c) Used by AH in public reports
   d) Not granular enough to be meaningful to clinicians
   e) Not granular enough to evaluate value for money

3) Activity-Based Costing (ABC):
   a) Most granular – highlights variability in patients and resources
   b) Is a by-product of delivering care
   c) Can be provided in real-time
   d) Much more meaningful to clinicians
   e) Aligns costs with who is accountable (i.e. clinicians own orders, others’ the unit cost to deliver those orders)

Activity-Based Costing Methods:

<table>
<thead>
<tr>
<th>ORDER_ID</th>
<th>ORDER_DATE</th>
<th>ORDER_CATEGORY</th>
<th>ORDER_NAME</th>
<th>UNIT_COST</th>
<th>UNIT_CNT</th>
<th>COST</th>
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<tr>
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<td>medications and iv</td>
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<td>cK</td>
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<td>9210584227 01-03-2017 14:14</td>
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<td>application</td>
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<td>9210853720400780 01-03-2017 12:00</td>
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<td>creatine level</td>
<td>test</td>
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<td>us appendix</td>
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</tr>
</tbody>
</table>

**Patient Cost = \sum (Units \times Unit\ Cost)**

Comparing Costs With Outcomes (Appendicitis)

Patient-Level Detail

Select a Patient

Range of Per Patient Cost

Non-Medication Orders

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Medication Orders 4521.00</td>
<td>$54,858.00 (0.00)</td>
</tr>
<tr>
<td>w/o antibiotics</td>
<td>$4521.00</td>
</tr>
<tr>
<td>w/ antibiotics</td>
<td>$54,858.00 (0.00)</td>
</tr>
</tbody>
</table>

Cost V.s. Outcomes

Medication Administration

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>[200 mg] sodium bicarbonate</td>
<td>$114.96</td>
</tr>
<tr>
<td>[500 mg] sodium bicarbonate</td>
<td>$235.21</td>
</tr>
<tr>
<td>[0.9%] sodium chloride</td>
<td>$1.02</td>
</tr>
<tr>
<td>[0.45%] sodium chloride</td>
<td>$1.71</td>
</tr>
</tbody>
</table>

Project Workflow

- [186x508] Activity-Based Costing: Leverage SCM to Examine Cost and Outcomes at a Clinical Pathway Level

- [248x485] Background:
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- [22x25] Brett Simms, Stafford Dean, Graham Thompson, Mary Brindle & David Johnson

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