Standardization for Pediatric Inguinal Hernia Repair- It Works!

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KEEP CALM AND GET A MASTER'S DEGREE
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THE TOYOTA WAY to CONTINUOUS IMPROVEMENT
LINKING STRATEGY AND OPERATIONAL EXCELLENCE TO ACHIEVE SUPERIOR PERFORMANCE
JEFFREY K. LIKER
BESTSELLING AUTHOR OF THE TOYOTA WAY
JAMES FRANZ

Seattle Children's Hospital
The Toronto Way

90 DAY “THINK ABOUT IT” PROGRAM

RESULTS 100% GUARANTEED
All you need is…
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**Project Aim**

To reduce # of instruments on standard pick & preference cards for pediatric IHR by 25-50% for each surgeon performing these surgeries & create a standardized, consolidated, single preference card used by all surgeons, over a 9 month period, commencing October, 2014.
Elements of project: application of improvement science

Opposing Opinions
Strong Emotions
High Stakes

crucial conversations

Taking Improvement from the Assembly Line to Healthcare
The Application of Lean within the Healthcare Industry

Ronald Bercaw

Hunches, theories, and ideas

Changes that result in improvement
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Root Cause

- SickKids **OR culture** has always allowed individual surgeon preference cards + standard “pick” for each operation

  - 14 surgeons who perform this surgery at SickKids & 2 separate services (Pediatric Urology & Pediatric Surgery) → 14 preference cards + standard pick for the same operation! → **variability**
  
  - Increased opportunity for *confusion and error* (*& blame*) due to multiple names for same instrument (*& number*) for other team members, who unlike the surgeon, “rotate”, and are not constants for each case.
Materials & Methods

- Observation & implementation
  - OR
  - CS
- Survey
- Before & after
Root Causes (diagnosing the problem)

- Direct observation of each surgeon (& operating team) in the OR setting
- Ppt presentation & open discussion with each surgical group as a unit & each surgeon individually
- Ppt presentation & open discussion with OR nursing
- Invite feedback
- Develop surveys for pre & post assessment of RNs & MDs
- Direct observation of process of instrument sterilization & re-packing in Central Supply
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The P.D.S.A. Problem Solving Loop

1. PLAN
2. DO
3. STUDY
4. ACT
<table>
<thead>
<tr>
<th>Statement</th>
<th>Surgeons</th>
<th>Nurses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single standardized preference card for inguinal hernia surgery improve patient care</td>
<td>59%</td>
<td>87%</td>
</tr>
<tr>
<td>Single standardized preference card for inguinal hernia surgery improve efficiency in the OR</td>
<td>95%</td>
<td>93%</td>
</tr>
<tr>
<td>Single standardized preference card for inguinal hernia surgery reduce OR supply cost</td>
<td>82%</td>
<td>96%</td>
</tr>
<tr>
<td>We should standardize preference cards for other procedures whenever possible.</td>
<td>80%</td>
<td>98%</td>
</tr>
</tbody>
</table>
### General survey-PRE (surgeons only)

<table>
<thead>
<tr>
<th>Survey Type</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Routine request histopathology</td>
<td>35%</td>
<td>65%</td>
</tr>
<tr>
<td>Routine request clinic visit</td>
<td>58%</td>
<td>42%</td>
</tr>
<tr>
<td># of sutures used in standard hernia repair</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>12%</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>65%</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>23%</td>
<td></td>
</tr>
</tbody>
</table>
Pediatric Surgery - PRE

- pre-packaged tray for Hernia/Hydrocele Repair contains 51 instruments
Urology-PRE:

- pre-packaged tray for Hernia/Hydrocele Repair contains 96 Instruments
Pediatric Surgery

44 cases

51 instruments

16 used in >50% of cases

18 used in <50% of cases

17 never used
Urology

12 cases

96 instruments

16 used in >50% of cases

11 used in <50% of cases

67 never used
New Hernia Tray (March 1, 2015): Consensus—All surgeons & nurse leaders
Tray Weights

<table>
<thead>
<tr>
<th>UROLOGY</th>
<th>PEDIATRIC SURGERY</th>
<th>“New” HERNIA TRAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>13.5 lbs</td>
<td>11.2 lbs</td>
<td>8 lbs</td>
</tr>
</tbody>
</table>
Manual time prepare for decontamination

<table>
<thead>
<tr>
<th>UROLOGY</th>
<th>PEDIATRIC SURGERY</th>
<th>“NEW” HERNIA TRAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 Seconds</td>
<td>40 Seconds</td>
<td>30 Seconds</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Sterilization time (in sec)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urology</td>
<td>120</td>
</tr>
<tr>
<td>Gen. Surgery</td>
<td>40</td>
</tr>
<tr>
<td>New Hernia Tray</td>
<td>30</td>
</tr>
</tbody>
</table>
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### Manual time to check & assemble set before sterilization

<table>
<thead>
<tr>
<th>Category</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urology</td>
<td>9.3 mins</td>
</tr>
<tr>
<td>Pediatric Surgery</td>
<td>7 mins</td>
</tr>
<tr>
<td>&quot;NEW&quot; Hernia Tray</td>
<td>4.5 mins</td>
</tr>
</tbody>
</table>

- **Urology**: 9.3 mins
- **Pediatric Surgery**: 7 mins
- **"NEW" Hernia Tray**: 4.5 mins

[Bar chart showing check and assembly time (in min) for Urology, Gen. Surgery, New Hernia Tray.]
Standardization of operative equipment reduces cost

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John H.T. Waldhausen\textsuperscript{a}, Robert S. Sawin\textsuperscript{a}

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Conclusions: Standardization of operative equipment can result in a significant cost reduction without impacting quality or delivery of care. Based on average case number per year, a total annual cost savings of >$41,000 could be realized. Survey participants agree that standardization improves cost and patient safety, yet perceptions regarding the impact on efficiency and patient care varied by occupation.
Chapter 1. Procedure Card Management

CHAPTER AT A GLANCE

1.1 UNDERSTANDING PROCEDURE CARD MANAGEMENT

Why is procedure card management important? 1-4
What is the difference between a procedure card, a preference card and a pick list? 1-4
How should procedure cards function? 1-5
Do your procedure cards need to be improved? 1-6
What are the benefits of proper procedure card management? 1-7

Optimizing your Perioperative Supply Chain: A Guide to Improvement Projects

Informed by hospitals undertaking improvement projects and written by a committee of subject matter experts, this guide is designed to help executives and a cross-disciplinary team of hospital staff successfully complete their own perioperative supply chain improvement project.

Since first being identified as a key best practice for surgical efficiency, perioperative supply chain improvements have become a growing area of interest. While participating in a pilot program, 14 Ontario hospitals that undertook improvement projects reported significant decreases in supply costs, greater staff efficiencies and an overall more collaborative work environment.

Their experiences, which serve to inform this guide, found savings from a series of foundational projects, mostly focusing on refining inventory data, managing procedure card systems, optimizing surgical inventory and storage, and standardizing product.

The clinical and non-clinical leaders of these projects, supported by a network of subject matter experts, worked together to develop the guide. Divided into five chapters, each examines one of four foundational projects: Procedure Card Management, Data Optimization, OR Inventory Optimization and Product Selection and Standardization, with a fifth chapter serving as a refresher on Project Management.

Download Entire Guidebook
Discussion & Conclusion

1. Standardization & reduction of instruments for a common operation can be done using “improvement science” methodology (*LEAN, MOI, Crucial Conversations*).
2. Standardization & reduction of instruments leads to markedly reduced cycle times which should impact costs favorably.
3. Standardization & reduction of instruments has ergonomic benefits due to weight reduction of trays.
4. Virtually all nurses & the majority of surgeons embrace the concept of standardization.
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If you can’t explain it simply, you don’t understand it well enough.

– Albert Einstein