“Seeing is Believing”

Surgical Patient Flow Project
Child Health Program

Leslie Galloway, Dr. Jack McPherson
Child Health Program
November 21, 2011
Disclosure of Potential for Conflict of Interest

Leslie Galloway
Dr. Jack McPherson
Surgical Patient Flow Project

No Disclosures
Objectives

• To review principles of flow

• To describe the MPAN funded Surgical Patient Flow Project in the Child Health Program

• To understand how the partnership with the Faculty of Engineering increased our understanding and utilization of flow charts, value stream maps, and Lean methodology

• To highlight 4 of over 80 Surgical Patient Flow Projects
What is flow?

• Progressive, uninterrupted movement of products, information and people through a sequence of processes.

• In healthcare, flow is the movement of patients, information or equipment between departments, teams or organizations as part of their care. Ideally, patients should move from one step to the next without delay (continuous flow).
How can we improve flow?

• In order to achieve continuous flow, we need to:
  - Have an accurate understanding of the process
  - Identify any bottlenecks
  - Know the causes of the bottlenecks
  - Balance demand with capacity at each stage of the process
Ann Thomas (CSRP)
February 2007

1. New Physical Set Up
2. New Slating System
3. New Equipment System

= Growing Pains
Surgical Patient Flow Project
2008

- Funded by MPAN
Goals of the Surgical Patient Flow Project

• To improve the child and families journey from referral to a surgeon to the post-operative period
• To identify “non-value added” activities and prioritize opportunities to redesign and improve processes of care
Met with staff in all areas of the surgical program and asked them to identify “non-value added” activities in the following areas:

- Correction
- Waiting
- Transportation
- Over processing

- Inventory
- Motion
- Overproduction
First Case Starts of the Day

[Flowchart showing the surgical patient flow for elective and emergency cases, including steps such as Surgical Office, Admitting Dept., Day Surgery Unit, Operating Room Dept., Post-Anesthesia Care Unit (PACU), Ward, Intensive Care Unit (Paediatric or Neonatal ICU), and Discharge.]
A3 Problem Solving Process

• Understand the “Current” state
• Analyze the reasons for delay
• Develop the “Target” state
• Identify the counter-measures
• Establish an implementation and follow up plan
First Case Starts of the Day - “Current” State

Transporting Children from Paediatric Day Surgery to the Children’s Hospital Operating Room

A1. Child arrives in Admitting

A2. Child is registered in admitting

A3. Child is sent to Day Surgery

A4. Pre-op Checklist is completed

A5. Nurse checks: Patient’s chart, Patient’s armband, and verifies name and HSC Chart #

B1. OR Transport Attendant performs duties in the OR and orders laundry

B2. OR Transport Attendant picks up families

B3. OR Transport Attendant takes 3-4 families to the Pre-Op Waiting Area

B4. Families arrive in Pre-Op Waiting Area 0740 - 0755

C1. OR Nurses in report until 0730

C2. OR staff delay in starting their work

C3. OR Charge Nurse calls Day Surgery to ask if the patient is ready

C4. Pre-Op Waiting Area

Families start to Arrive 0630

Porter comes to work 0715

Draft #1
January 13, 2010

++ calls to Day Surgery during the day causing interruptions in the flow of work asking if a patient is ready.
First Case Starts of the Day

People
- Not NPO
- Late
- Speaking w/ family
- Surgeon
- Anesthetist
- OR Staff
- PDS Staff
- Not aware of practice change
- Assessing pt
- Ordering of pre-op medications
- Practice variation

Equipment
- Computer
- Telephone
- Post-op Bed
- Waiting PICU
- 8 SDA Guideline
- Old PDS location
- Pre-op sedation
- TYLENOL
- Atropine
- Waiting on order
- Hospital Layout
- General Way Finding
- ICU medical
- Not previously done
- Bloodwork

Materials
- History and Physical
- Missing/last minute search

Environment
- Road conditions
- Not previously done

Methods
- Pre-op sedation
- Waiting on order

Children not arriving in the CHOR waiting room on time
First Case Starts of the Day - “Target” State

1. Child Arrives in admitting, is registered & sent to DS

2. Pre-op done. DS Staff calls CHOR Charge Nurse that child is ready

3. Porter Arrives in DS

4. Porter & Child leave DS for CHOR

5. Child Arrives in CHOR
First Case Starts of the Day

Percentage of Children that arrived at CHOR by Ideal Time*

* 15 minutes prior to scheduled case start

<table>
<thead>
<tr>
<th>Period</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec 1-11/09</td>
<td>41.0%</td>
</tr>
<tr>
<td>Dec 14/09-May 14/10</td>
<td>61.65%</td>
</tr>
<tr>
<td>May 17/10-Oct 14/11</td>
<td>67.9%</td>
</tr>
</tbody>
</table>
Telehealth

Pre-Admit Clinic and Telehealth

Surgical Patient Flow (Elective)

Surgical Patient Flow (Emergency)

Telehealth
Rationale for Telehealth in PAC

Total Cancellations from Remote Communities
Dec 08-June 09

- 33, 59%
- 23, 41%

# cancelled on the day of surgery  # cancelled prior to the day of surgery
Rationale for Telehealth in PAC

Patients Cancelled from Remote Communities on the Day of Surgery
Dec 08-June 09

22, 67%
11, 33%

# eligible for Telehealth  # not eligible for Telehealth
Pre-Admit Clinic and Telehealth

PRE-ADMIT CLINIC PROCESS (TELEHEALTH)

Telehealth Visit:

1. Surgeon books surgery and sends Pre-OP H&P form to Nursing Station
2. PAC Clerk books Telehealth appointment with Nursing Station and faxes fasting instructions
3. PAC receives faxed H&P done
4. PAC Nurse does the Pre-Op assessment and education
5. Anesthesiologist assesses child for use of Smart Steth
6. Child Life Pre-Op preparation
7. Child fit for surgery
8. Child fit for surgery - Travel to Winnipeg

Decision Points:

- Child Fit for Surgery
  - Yes: Child fit for surgery
  - No: OR Cancelled or OR Time replaced
Pre-Admit Clinic and Telehealth

Evaluation May - Sept. 2011

- A total of 30 children were seen between May 1 – Oct 28, 2011 by telehealth
- Four surgeries were cancelled due the child being ill, prior to the family leaving the community
  - In all four cases the OR time was replaced
- 69 travel/hotel days were saved
- Less stress and disruption for families who did not travel with a sick child
- A total of 11.5 hours of OR time were saved
“Turnover Time”

Surgical Patient Flow (Elective)

- Surgeon's Office
- Pre-Admit Clinic
- Admitting Dept.
- Day Surgery Unit
- Operating Room
- Post-Anaesthesia Care Unit (PACU)
- Mixed
- Intensive Care Unit (Pediatric or Neonatal ICU)
- Discharge
So: Measure Times of Steps in OR
9 Most Common Procedures

Total Elapsed Time

Set Up  Anesthesia  Clean Up

Surgery

Vs Scheduled Time
Surgeries with multiple procedures are excluded
Data is only shown for surgeries where the same surgeon performed the same procedure 10 or more times

*Scheduled Difference = Actual Elapsed - Scheduled Elapsed (∴ a positive number indicates an underestimation of the actual elapsed time)

<table>
<thead>
<tr>
<th>PROCEDURE</th>
<th>SURGEON</th>
<th>Count</th>
<th>Median</th>
<th>Scheduled Elapsed</th>
<th>Actual Elapsed</th>
<th>Anaes Elapsed</th>
<th>Setup Elapsed</th>
<th>Anaes Pre&amp;Post Op</th>
<th>Surg Elapsed</th>
<th>Clean Elapsed</th>
<th>Scheduled Difference*</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADENOIDECTOMY</td>
<td>SPT025</td>
<td>16</td>
<td></td>
<td>45</td>
<td>45</td>
<td>28</td>
<td>7</td>
<td>18</td>
<td>9</td>
<td>11</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>SPT017</td>
<td>12</td>
<td></td>
<td>45</td>
<td>45</td>
<td>26</td>
<td>6</td>
<td>18</td>
<td>10</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>CIRCUMCISION</td>
<td>SPT013</td>
<td>10</td>
<td></td>
<td>60</td>
<td>86</td>
<td>59</td>
<td>10</td>
<td>26</td>
<td>11</td>
<td>11</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td>SPT006</td>
<td>16</td>
<td></td>
<td>60</td>
<td>86</td>
<td>61</td>
<td>14</td>
<td>29</td>
<td>13</td>
<td>13</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td>SPT001</td>
<td>15</td>
<td></td>
<td>60</td>
<td>73</td>
<td>49</td>
<td>10</td>
<td>24</td>
<td>12</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>DENTAL RESTORATIONS</td>
<td>SPT024</td>
<td>111</td>
<td></td>
<td>90</td>
<td>100</td>
<td>79</td>
<td>8</td>
<td>57</td>
<td>11</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>SPT019</td>
<td>97</td>
<td></td>
<td>90</td>
<td>101</td>
<td>80</td>
<td>8</td>
<td>57</td>
<td>11</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>SPT018</td>
<td>48</td>
<td></td>
<td>90</td>
<td>108</td>
<td>87</td>
<td>8</td>
<td>63</td>
<td>11</td>
<td>11</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>SPT012</td>
<td>122</td>
<td></td>
<td>90</td>
<td>97</td>
<td>76</td>
<td>8</td>
<td>54</td>
<td>11</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>SPT010</td>
<td>65</td>
<td></td>
<td>90</td>
<td>95</td>
<td>70</td>
<td>9</td>
<td>48</td>
<td>10</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>SPT007</td>
<td>56</td>
<td></td>
<td>90</td>
<td>101</td>
<td>78</td>
<td>8</td>
<td>56</td>
<td>11</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>SPT002</td>
<td>46</td>
<td></td>
<td>90</td>
<td>110</td>
<td>82</td>
<td>11</td>
<td>56</td>
<td>13</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>DENTAL TREATMENT AS REQUIRED</td>
<td>SPT021</td>
<td>121</td>
<td></td>
<td>90</td>
<td>100</td>
<td>77</td>
<td>8</td>
<td>52</td>
<td>12</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>INGUINAL HERNIA REPAIR</td>
<td>SPT013</td>
<td>26</td>
<td></td>
<td>75</td>
<td>85</td>
<td>60</td>
<td>10</td>
<td>28</td>
<td>12</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>SPT008</td>
<td>51</td>
<td></td>
<td>90</td>
<td>100</td>
<td>71</td>
<td>10</td>
<td>37</td>
<td>13</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>SPT001</td>
<td>44</td>
<td></td>
<td>75</td>
<td>87</td>
<td>64</td>
<td>11</td>
<td>27</td>
<td>12</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>ORCHIOPEXY</td>
<td>SPT020</td>
<td>20</td>
<td></td>
<td>120</td>
<td>134</td>
<td>112</td>
<td>15</td>
<td>36</td>
<td>11</td>
<td>14</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>SPT001</td>
<td>15</td>
<td></td>
<td>90</td>
<td>119</td>
<td>95</td>
<td>10</td>
<td>61</td>
<td>12</td>
<td>29</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>SPT006</td>
<td>16</td>
<td></td>
<td>98</td>
<td>136</td>
<td>91</td>
<td>13</td>
<td>54</td>
<td>11</td>
<td>38</td>
<td>38</td>
</tr>
<tr>
<td>STRABISMUS REPAIR</td>
<td>SPT022</td>
<td>30</td>
<td></td>
<td>90</td>
<td>110</td>
<td>84</td>
<td>10</td>
<td>58</td>
<td>13</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>SPT005</td>
<td>87</td>
<td></td>
<td>75</td>
<td>75</td>
<td>55</td>
<td>7</td>
<td>26</td>
<td>10</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>SPT004</td>
<td>10</td>
<td></td>
<td>75</td>
<td>85</td>
<td>62</td>
<td>10</td>
<td>40</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>TONSILLECTOMY</td>
<td>SPT023</td>
<td>24</td>
<td></td>
<td>60</td>
<td>56</td>
<td>37</td>
<td>7</td>
<td>15</td>
<td>12</td>
<td>-5</td>
<td>-5</td>
</tr>
<tr>
<td></td>
<td>SPT017</td>
<td>20</td>
<td></td>
<td>45</td>
<td>55</td>
<td>34</td>
<td>5</td>
<td>14</td>
<td>11</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>SPT014</td>
<td>29</td>
<td></td>
<td>60</td>
<td>56</td>
<td>38</td>
<td>7</td>
<td>19</td>
<td>10</td>
<td>-4</td>
<td>-4</td>
</tr>
<tr>
<td></td>
<td>SPT009</td>
<td>16</td>
<td></td>
<td>60</td>
<td>65</td>
<td>44</td>
<td>7</td>
<td>19</td>
<td>11</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>TONSILLECTOMY / ADENOIDECTOMY</td>
<td>SPT025</td>
<td>66</td>
<td></td>
<td>60</td>
<td>61</td>
<td>41</td>
<td>5</td>
<td>20</td>
<td>12</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
**Booking Time Guidelines for Common Procedures in CHOR**

<table>
<thead>
<tr>
<th>PROCEDURE TYPE</th>
<th>Total Number of Cases Analyzed*</th>
<th>Total Number of Surgeons Included in Analysis</th>
<th>Range of Median Total Elapsed Times per Surgeon</th>
<th>Recommendation based on 60th Percentile (Median)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADENOIDECTOMY</td>
<td>327</td>
<td>6</td>
<td>52 min - 71 min</td>
<td>60 minutes</td>
</tr>
<tr>
<td>CIRCUMCISION</td>
<td>198</td>
<td>5</td>
<td>81 min - 93 min</td>
<td>75 minutes or 90 minutes**</td>
</tr>
<tr>
<td>DENTAL RESTORATIONS / DENTAL TREATMENT AS REQUIRED</td>
<td>1649</td>
<td>9</td>
<td>105 min - 111 min</td>
<td>105 minutes</td>
</tr>
<tr>
<td>INGUINAL HERNIA REPAIR</td>
<td>354</td>
<td>3</td>
<td>88 min - 117 min</td>
<td>90 minutes</td>
</tr>
<tr>
<td>ORCHIOPEXY</td>
<td>217</td>
<td>5</td>
<td>114 min - 154 min</td>
<td>120 minutes</td>
</tr>
<tr>
<td>STRABISMUS REPAIR</td>
<td>345</td>
<td>3</td>
<td>76 min - 106 min</td>
<td>75 minutes or 90 minutes**</td>
</tr>
<tr>
<td>TONSILLECTOMY</td>
<td>319</td>
<td>6</td>
<td>57 min - 76 min</td>
<td>60 minutes</td>
</tr>
<tr>
<td>TONSILLECTOMY / ADENOIDECTOMY</td>
<td>1047</td>
<td>7</td>
<td>61 min - 91 min</td>
<td>75 minutes</td>
</tr>
<tr>
<td>T-TUBE INSERTION</td>
<td>1409</td>
<td>8</td>
<td>36 min - 58 min</td>
<td>30 minutes; 45 minutes for every other Case Booked</td>
</tr>
</tbody>
</table>

*From February 2007 to July 2009

**Scheduling System only allows for 16 minute intervals

Revision Status: Rev 2
Date Revised: 4-Nov-09
Process Times

- Educational – Feedback to surgeons/offices
  Fast = Efficient/Good
- Functional Booking/Guidelines
  50% vs 75%
- Measure change over time
## Comparison of TDSA

<table>
<thead>
<tr>
<th>Procedures</th>
<th>Feb ’07 - Jul’09</th>
<th>Jan-Feb ’10</th>
<th>Mar-Aug’10</th>
<th>Sep-Dec’10</th>
<th>Jan-Jun’11</th>
<th>% Difference (B-A)/B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adenoidectomy</td>
<td>14</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>1.64%</td>
</tr>
<tr>
<td>Circumcision</td>
<td>30</td>
<td>12</td>
<td>10</td>
<td>27</td>
<td>23</td>
<td>23.47%</td>
</tr>
<tr>
<td>Dental Restorations &amp; Dental Treatment as Required</td>
<td>16</td>
<td>17</td>
<td>16</td>
<td>15</td>
<td>15</td>
<td>14.29%</td>
</tr>
<tr>
<td>Inguinal Hernia Repair</td>
<td>20</td>
<td>18</td>
<td>1</td>
<td>7</td>
<td>20</td>
<td>18.18%</td>
</tr>
<tr>
<td>Orchiopexy</td>
<td>23</td>
<td>7</td>
<td>5</td>
<td>35</td>
<td>14</td>
<td>10.45%</td>
</tr>
<tr>
<td>Strabismus Repair</td>
<td>7</td>
<td>7</td>
<td>6</td>
<td>7</td>
<td>20</td>
<td>21.05%</td>
</tr>
</tbody>
</table>
| Tonsillectomy                                   | 16               | 10          | 4          | 6          | 20         | 9.09%                **
| Tonsillectomy / Adenoidectomy                    | 7                | 11          | 1          | 16         | 11         | 15.49%               **
| T-Tube Insertion                                 | 12               | 5           | 4          | 0          | 12         | 28.57%               **

**NOTE:**

TDSA stands for the “Time difference between the schedule and the actual surgical time.

TDGA stands for the “Time difference between the guidelines and the actual surgical time.

** Scheduled time assumed at max established guidelines.
6S Project

Surgical Patient Flow (Elective)

- Surgeon’s Office
- Admitting Dept.
- Day Surgery Unit
- Operating Room (OR)
- Post Anesthesia Care Unit (PACU)
- Medication and Supply Room

Discharge
• Goals of the 6S project are:
  - Sort
  - Straighten
  - Shine
  - Standardize
  - Safety
  - Sustain
6S Project - Pre-work
6S Project - During
6S Project - Update
### Local Procedures

<table>
<thead>
<tr>
<th>Child Health Scheduling Clerk</th>
<th>Pre Adm/Clinic Clerk</th>
<th>Pre Adm/Clinic Clerk</th>
<th>Admitting</th>
<th>Health Information</th>
<th>Medical Records</th>
<th>Nurse Clinician</th>
<th>PAC Nurses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Booking Request form: Received by Child Health Scheduling Clerk</td>
<td>Orders addressograph from Children's Clinic (2 mins)</td>
<td>Orders chart from Health Information for nurse consultant to review (2 mins)</td>
<td>Receives and keeps copy of Booking Request Form (1 min)</td>
<td>Pulls chart and send to Nurse Clinician (5 mins)</td>
<td>Pulls Chart for PAC (5 mins)</td>
<td>Reviews Charts (5-10 mins)</td>
<td>Separate Charts and Attaches paper work (5 mins)</td>
</tr>
<tr>
<td>Reviews Booking Request Form (3 mins)</td>
<td>Stamps Minor Procedure for Regional Anesthetic Form (3 mins)</td>
<td>Orders Old chart prior to date of local procedure based on slate from Medical Records (2 mins)</td>
<td></td>
<td></td>
<td>Staff Refill Charts (1 min)</td>
<td>Send Charts back to Medical Record (3 mins)</td>
<td>Charts are taken to Day Surgery (5 mins)</td>
</tr>
<tr>
<td>Send Information to PAC and Centralized Scheduling (3 mins)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>6 mins</td>
<td>2 mins</td>
<td>10 mins</td>
<td>3 mins</td>
<td>5 mins</td>
<td>6 mins</td>
<td>8-13 mins</td>
</tr>
</tbody>
</table>

**Total Number of Process:** 18 steps  
**Total Process Owner:** 9  
**Total Time Consumed:** 50 - 55 minutes per patient
## Local Procedures

### PRE – LOCAL PROCEDURE : CURRENT STATE

<table>
<thead>
<tr>
<th>Time</th>
<th>Task Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 min</td>
<td>Physician gives information to Surgical Office Assistant (SOA) (1 min)</td>
</tr>
<tr>
<td>2 mins</td>
<td>Surgical Office Assistant (SOA) enters data into the MSI BOOKING SYSTEM (1.0 min)</td>
</tr>
<tr>
<td></td>
<td>MSI SYSTEM automatically orders the charts (0.5 min)</td>
</tr>
<tr>
<td>3 mins</td>
<td>Health Information Staff sends charts and sends them on the bulkveyor to Children’s Clinic (3.0 mins)</td>
</tr>
<tr>
<td>2 mins</td>
<td>Day Surgery Staff prepares an OR package prior to the child’s arrival (1 min)</td>
</tr>
</tbody>
</table>

Total Number of Process: 4 steps  
Total Process Owner: 4  
Total Time Consumed: 8 minutes per patient
Local Procedures

DAY OF LOCAL PROCEDURE: CURRENT STATE

Family checks in and is registered in the MSI System
- An addressograph and armband is crafted
- A progress note is stamped
- All documentation is placed in an envelope and given to the family to take to Day Surgery

Child is prepared in Day Surgery
The form is addressographed and documentation begins
Child is transported to MS3 OR Nurse
- Child changes and is given a drink
- Child is discharged from Day Surgery

- Confirms the Pre-Op checklist
- Confirms and verifies consent
- Brings the child into the theatre
- Places the BP cuff and O2 saturation monitor on the child
- Completes an OR Data Collection Form
- Assist Surgeon as necessary
- Assesses patient

- Places all dirty used products on the case cart
- Completes the MS3 Supplies Order Sheet
- Takes the dirty case cart and unused ordered products from MDR back to the OR

Procedure is Completed
Child is transported back to Days Surgery

Total Number of Processes: 10 steps
Total Process Owners: 4
Total Time Consumed: 50 minutes
## Local Procedures

### Day of Local Procedure: Current State

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 mins</td>
<td>Family checks in and is registered in the MSI System (3 mins)</td>
</tr>
</tbody>
</table>
| 8 mins | An addressograph and armband is crafted  
- A Record of Treatment for Local Anesthesia Procedure is stamped  
- All documentation is placed in an envelope and given to the family to take to Day Surgery (2 mins) |
| 30 mins | Child and Family transported to MS3 (3 mins) |

**Children’s Clinic**
- Confirms the Pre-Op checklist  
- Confirms and verifies consent  
- Brings the child into the theatre  
- Places the BP cuff and O2 sat monitor on the child  
- Completes an OR Data Collection Form  
- Assist Surgeon as necessary  
- Assesses patient (15 mins)

**MS3 Nurse**
- Places all dirty used products on the case cart  
- Completes the MS3 Supplies Order Sheet  
- Takes the dirty case cart and unused ordered products from MDR back to the OR (15 mins)

**Theatre**
- Procedure is completed  
- Child is discharged directly from MS3 (2 mins)

**Total Number of Process:** 7 steps  
**Total Process Owner:** 3  
**Total Time Consumed:** 40 minutes per patient
Critical Success Factors

• Leadership support
• Partnerships with the Faculty of Engineering
• Grass roots involvement
• Start small - Quick wins
• Focused effort – dedicated resources
• Data is crucial
• Use of Lean methodology
• Project Management methodology
Lessons Learned

• Improved outcomes takes time and patience
• Resources are required to sustain outcomes
Conclusions

• A culture of continuous quality improvement has been created in the Child Health Surgical Program

• Sustainment is a key factor

• This methodology could be used in other areas to address flow
Accreditation Canada Leading Practice, February 2010

Surgical Patient Flow Project (Child Health - Surgical Services)

The Surgical Patient Flow Project has been a unique opportunity to review all aspects of the surgical program. The innovative aspect of this project is that the Project Team has partnered with the Faculty of Engineering at the University of Manitoba. Two graduate students in the Faculty of Engineering are working with the team; one does simulation exercises and the other is doing his Master's thesis on the link between cancellation of surgeries and the link with Paediatric Intensive Care Unit (PICU) beds and also uses simulations in his work. LEAN methodology was used to assist the staff identify patient flow and improvement opportunities. A review of other Children's Hospitals across Canada was done to look at other practices. The improvement projects that have been implemented so far are: an electronic booking form; improvement in the transportation of children from the Emergency Department, Inpatient Unit and Day Surgery to ensure that the patient is at the door of the Operating Room within 15 minutes of the scheduled time of the surgery; improvement in the transportation of the patient from the PACU to the Inpatient Unit; and revision of the discharge criteria in Day Surgery. Extensive data collection and analysis has been done and continues to be done. Simulations are used in almost all of the quality improvement initiatives. (Surgical Care Services)
Acknowledgements

• Karen Amos
• Jeff Arsenio
• Erin Billson
• Wendy Chusid
• Dr. Gerarda Cronin
• Kellen Dick
• Karin Dixon
• Dr. Tarek ElMekkawy
• Heather Falk
• Susan Fogg
• Denise Felbel
• Leslie Galloway
• Lisa Gardewine

• Dr. Cheryl Greenberg
• Karolyn Harding
• Kendall Hobbs
• Cindy Holland
• Betty Hunter
• Sandie Kowalski
• Dr. Jack McPherson
• Karen McLachlan
• Nasim Norouzi
• Dr. Heinz Reimer
• Yin Yin Tan
• Colleen Weppler
• Brenda Willcox
• Willow Yakiwchuk
Thank you!