Using Lean Principles to Decrease Outpatient Registration Wait Times

‘It’s a Journey not a Destination’
AnMed Health

- 533 Bed Acute Care System
  - 461 Beds at AnMed Health Medical Center
  - 72 Beds at AnMed Health Women’s and Children’s Hospital
  - 45 Bed AnMed Health Rehabilitation Hospital
- 21,700 Inpatients/year
- 205,400 Outpatient visits
- 105,900 Emergency visits
- 3500 Employees
- 380 Physicians on staff
Objectives

• Brief history of Lean & review of the 5 principles

• Review the 8 categories of “waste” within an organization or process

• Describe how Lean was applied to the outpatient registration process across AnMed Health

• Strategies to sustain improvement results
When you hear the term LEAN what comes to mind???
Eli Whitney & Interchangeable Parts

Frank Gilbreth – process charting, efficiency expert

Henry Ford & assembly lines, mass production

Frederick Taylor & standardized work, time, & motion studies

Deming, Juran, Ishikawa – quality management work in Japan

Taichi Ohno, Shigeo Shingo Toyota Production System

Lean Manufacturing
Goal of LEAN

“to get the right things to the right place at the right time, the first time, while minimizing waste and being open to change”.

Taiichi Ohno
LEAN

A systematic approach to improving systems and processes through *identification* and *elimination* of non-value added activities.
Principles of LEAN

1. Specify **value** from the customer’s viewpoint
2. Identify all steps in the **value stream**
3. Maximize **flow** within the value stream
4. Develop “**pull**” systems
5. Strive for perfection in all work – continue to make improvements

*Lean Thinking – J. Womack*
Value added activities in healthcare?

- Accurate billing
- Diagnostic studies
- Lab tests
- Physician interaction with patient
- Patient Registration
- Surgical procedures
- Therapy treatments
Value Add – Doctor Office Visit

CHECK-IN → 2.5
VITALS → 4.0
EXAM PREP → 2.0
EXAM → 10.0
DR. CONSULT → 5.0
CHECK OUT → 2.5

30.0 Wait
1.0 Move
20.0 Wait
1.0 Move
20.0 Wait
15.0 Wait
2.0 Move
15.0 Wait

Time in minutes: 26.0 104.0
Can we identify non-valued added activities within the process?
How to identify non-value added activities or “Waste”???
8 Types of Waste

Transportation
• Any excessive movement of what flows in the process (documents, patients)

Intellect
• Any failure to fully utilize the time and talents of healthcare staff

Inventory
• Excessive supplies, medications, equipment to get the job done (just in case, hoarding)

Waiting
• Observe Patients and/or Staff waiting

Overproduction
• Delivering too much, too soon, or duplication of effort

Rework
• The “Do Over’s” - readmit, redraws, retest, rebills

Motion
• Unnecessary staff movement, extensive walking, searching, looking for, confusion,

Processing
• Additional effort with no value - over ordering, extensive paperwork,
How to “tackle” identified waste?

• Some forms of waste are obvious and easier to eliminate
  – Low-hanging fruit
  – Within the control of the department or area

• Some forms of waste cross multiple areas and are going to be difficult to remove or reduce
  – Business non-value added (regulatory requirements)
  – Value stream mapping to highlight waste
  – Establish priorities
Outpatient Registration – Get With the Flow....
The Need for Change...

• Patient dissatisfaction with the amount of time spent waiting prior to registration

• Patients late for scheduled procedures

• Staff frustrated with process and crowded waiting rooms

• Physician offices complaining of wait times for their patients

• Additional staff was not an option
Preparing for Change.....

Kaizen Planning Session
Team Composition

- Business Services
- Radiology
- Laboratory
- Information Services
- Centralized Scheduling
- Marketing
- Physician Network Services
- Training and Organizational Development
- Quality and Process Improvement

Outpatient Registration
Team Charter

**Team Name:** Outpatient Registration – “Get with the Flow”

**Champions/Sponsors:** Jerry Parrish CFO, Bill Manson President & COO

**Process Owners:** Julianne Dreon, Sherry Simmons

**Background:**
Over the last year, patients have experienced an increase in the amount of wait time prior to outpatient registration. This increase in wait time prior to registration creates patient and staff dissatisfaction. As wait times have increased, the overall patient volumes have remained stable or they have decreased slightly.

**Problem Statement:**
Patients presenting to outpatient Service Area’s are experiencing long wait times before being able to register for their outpatient test/procedure.

**Event Objectives:**
Decrease the Average Time from patient arrival to registration by 50%, and increase patient satisfaction with the Registration process to 80th percentile.
Setting the stage with data ....
AnMed Health
Avg. Number of Patients per Service Area per Day
(Jan- May 2011)

Area

SA1

Unscheduled patients

SA4

Unscheduled & scheduled patients

WD

Scheduled patients

SA3

Scheduled patients

Avg. Number

0 20 40 60 80 100 120 140

14.4
55.4
67.4
132.9
Waiting.....
AnMed Health
Patient Arrival Time and Avg. Wait Time
SA1
(Jan - May 2011)
n = 12,621

<table>
<thead>
<tr>
<th>Hour of Day</th>
<th>Arrivals by Hour of Day</th>
<th>Avg. mins prior to Registration</th>
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<tbody>
<tr>
<td>6</td>
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<td>17</td>
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Outpatient Registration
AnMed Health
Patient Arrival Time and Avg. Wait Time
SA4
(Jan - May 2011)
n= 6,399

Outpatient Registration
Motion & Rework....
Voice of the Customer

Source: PRC
Laboratory North Campus (SA1)

<table>
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<tr>
<th>Month</th>
<th>Jun 10</th>
<th>Jul 10</th>
<th>Aug 10</th>
<th>Sep 10</th>
<th>Oct 10</th>
<th>Nov 10</th>
<th>Dec 10</th>
<th>Jan 11</th>
<th>Feb 11</th>
<th>Mar 11</th>
<th>Apr 11</th>
<th>May 11</th>
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<tr>
<td>Mean Score</td>
<td>89.4</td>
<td>85.9</td>
<td>82.4</td>
<td>80.0</td>
<td>82.4</td>
<td>77.6</td>
<td>85.0</td>
<td>75.3</td>
<td>86.3</td>
<td>84.7</td>
<td>71.8</td>
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</tr>
<tr>
<td>% Excellent Trend Line</td>
<td>51.9</td>
<td>50.0</td>
<td>48.2</td>
<td>46.3</td>
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<td>42.6</td>
<td>40.7</td>
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<td>37.0</td>
<td>35.1</td>
<td>33.3</td>
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<tr>
<td>% Excellent</td>
<td>58.8</td>
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<td>N of Cases</td>
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<td>16</td>
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<td>16</td>
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<td>14</td>
<td>14</td>
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</tbody>
</table>

*Rankings are based on PRC Norm data.

**The data in this chart has been filtered.
What are possible solutions / ideas to reduce the non-value added activities in the Outpatient Registration process?
1. Centralize registration areas or combine areas
2. Develop online pre-reg capability
3. Utilization of Guest Ambassador to maximize flow
4. Interface ADT info between systems
5. Initial appropriate sheets but sign only once
6. Provide consents and info sheets prior to patient registration
7. Create consolidate form (use Optio)
8. Change walk-down expectations, develop process to handle walk-downs
9. Install cash drawer at each reg desk
10. Develop/implement roving registrar process for MD office
11. Implement roving registrar to deal with issues
12. Modify Kids Care reg area/ waiting area
13. Have Pre-Reg run Recondo instead of Registration staff
14. Training program formalized & dedicated trainer (mentors)
15. Adjust staff to meet patient volume demand
16. Reassign experienced registrars to Service Areas with to meet patient volume demands
17. Standardize reg/work stations (equip to minimize motion)
18. Create face sheet to give patient to verify at registration— reduce need for pt to give info
19. Develop process to communicate with MD offices regarding complete orders etc.
20. Execute renovations to SA 4
21. Stagger patient arrival times (WD), change patient arrival from 30 to 15 mins

Outpatient Registration

Solutions: Impact/Effort Matrix

Potential Solutions

1. Centralize registration areas or combine areas
2. Develop online pre-reg capability
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Process Changes

- Developed **face sheet** to facilitate patient registration process (reduced the need for patients to verbally give the same info every time)

- **Leveled scheduled patient arrivals** through Centralized Scheduling department (staggered appointments vs. batched appointments)

- **Adjusted staff hours** to match patient demand

- **Duties** of registration staff were streamlined (less motion & walking)

- **Patient call back reminders** to facilitate on-time appointments

- **Physician order** form was modified

- **Patient itinerary modified** to ensure consistent patient information
Kaizen Event Timeline

• Women’s Diagnostic’s – Aug/Sept 2011

• Service Area 1 (Lab) - Oct 2011

• Service Area 4 (Radiology) - Dec 2011

• Fant St (Lab) – Feb 2012

• Service Area 3 (Radiology, Cardiology) – Mar 2012
### Women’s Diagnostic’s Improvement Metrics:

<table>
<thead>
<tr>
<th>Key Kaizen Metrics</th>
<th>Jan – July 2011</th>
<th>Mon</th>
<th>Tues</th>
<th>Wed</th>
<th>Thurs</th>
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</thead>
<tbody>
<tr>
<td>Avg. Number of Patient Registrations</td>
<td>54.8 pts</td>
<td>67 pts</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><em>(Monday historical avg = 62 pts)</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amount of Time Pts Wait prior to Reg.</td>
<td>6.9 mins</td>
<td>2.2 mins</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% of Patients registered within 10 minutes</td>
<td>76.4 %</td>
<td>98.5%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% of Patients registered within 5 minutes</td>
<td>Not tracked prior</td>
<td>89.4 %</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patient Satisfaction with Registration (Percent Excellent)</td>
<td>52.1 %</td>
<td></td>
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Outpatient Registration

We’re in this together.
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<tr>
<td>Avg. Number of Patient Registrations</td>
<td>54.8 pts</td>
<td>67 pts</td>
<td>42 pts</td>
<td>45 pts</td>
<td>80 pts</td>
</tr>
<tr>
<td>(Monday historical avg = 62 pts)</td>
<td></td>
<td>(Tuesday historical avg = 48 pts)</td>
<td>(Wednesday historical avg = 48 pts)</td>
<td>(Thursday historical avg = 68 pts)</td>
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</table>
“Staff comments”....

• It was not as bad as I thought it was going to be.... In fact, it’s a whole lot better

• The little things do matter

• Like not having to get up and down so much

• Patients like not having to fill out additional paperwork or give same info over and over

• Some days are going to run smoothly and some may be bumpy....

• Keeping the “waste room” empty, our stress levels are less (**visual management**)

• Be open to change

• Enthusiasm is contagious

• Communication between the team is critical

• Attitude is everything
Outpatient Registration
Outpatient Registration
AnMed Health
Patient Arrival Time and Avg. Wait Time
Women's Diagnostic's
(Jan - May 2011)
n = 5,265

Outpatient Registration
We’re in this together.
AnMed Health
Patient Arrival Time and Avg. Wait Time
Women's Diagnostic's
(Aug - Sept 2012)
n = 1,810

<table>
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<tr>
<th>Hour of Day</th>
<th>Avg. Number of Arrivals by Hour</th>
<th>Avg. Mins Prior to Registration</th>
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<tr>
<td>7</td>
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<tr>
<td>10</td>
<td>6.1</td>
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<tr>
<td>11</td>
<td>6.3</td>
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<td>6.1</td>
<td>12</td>
</tr>
<tr>
<td>14</td>
<td>1.7</td>
<td>14</td>
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Avg. Wait Time:

- Hour of Day 7: 2.0
- Hour of Day 8: 2.2
- Hour of Day 9: 2.7
- Hour of Day 10: 3.1
- Hour of Day 11: 3.3
- Hour of Day 12: 3.3
- Hour of Day 13: 3.6
- Hour of Day 14: 4.5
- Hour of Day 15: 4.2
- Hour of Day 16: 1.7

Outpatient Registration

AnMed Health
We’re in this together.
Women’s Diagnostics
Waste Room ..........No More

Outpatient Registration
Kaizen Event Timeline

- Women’s Diagnostic’s – Aug/Sept 2011
- Service Area 1 (Lab) – Oct 2011
- Service Area 4 (Radiology) – Dec 2011
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- Service Area 3 (Radiology, Cardiology) – Mar 2012
AnMed Health
Patient Arrival Time and Avg. Wait Time
SA1
(Jan - May 2011)
n = 12,621

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<td>16</td>
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<tr>
<td>17</td>
<td>3.7</td>
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Average minutes prior to Registration

- Arrivals by Hour of Day
- "Avg wait time"
AnMed Health

Patient Arrival Time and Avg. Wait Time

SA1

(Aug - Sept 2012)

n = 2,732

<table>
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<tr>
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Outpatient Registration
AnMed Health
Service Area 1 - Laboratory

Registration Process**

Pre-Kaizen

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<th>Jul 10</th>
<th>Aug 10</th>
<th>Sep 10</th>
<th>Oct 10</th>
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<tbody>
<tr>
<td>Mean Score</td>
<td>89.4</td>
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<td>82.9</td>
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<tr>
<td>% Excellent Trend Line</td>
<td>51.9</td>
<td>50.0</td>
<td>48.2</td>
<td>46.3</td>
<td>44.4</td>
<td>42.6</td>
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<td>37.0</td>
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<td>11.8</td>
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<tr>
<td>Out Lab 80th Percentile</td>
<td>52.1</td>
<td>52.1</td>
<td>52.1</td>
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<td>52.1</td>
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<td>14</td>
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</table>

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**The data in this chart has been filtered.
Service Area 1 – Laboratory

Registration Process

- Mean Score
- % Excellent Trend Line
- % Excellent
- Out Lab 80th Percentile

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<tr>
<th></th>
<th>Oct-Dec 09</th>
<th>Apr-Jun 10</th>
<th>Jul-Sep 10</th>
<th>Oct-Dec 10</th>
<th>Jan-Mar 11</th>
<th>Apr-Jun 11+</th>
<th>Jul-Sep 11</th>
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<tbody>
<tr>
<td>Mean Score</td>
<td>79.2</td>
<td>82.0</td>
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<tr>
<td>% Excellent</td>
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</table>

*Rankings are based on PRC Norm data.
**The data in this chart has been filtered.
+ Marked bars are Statistically Significant

Process change
AnMed Health
Service Area 1 – Laboratory

Overall Quality of Care**

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<tbody>
<tr>
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<td>56.6</td>
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<td>58.9</td>
<td>59.7</td>
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</tbody>
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*Rankings are based on PRC Norm data.
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+ Marked bars are Statistically Significant
AnMed Health
Service Area 1 – Laboratory

Staff's Respect for Patient's Privacy

Process change

Mean Score
88.8 88.0 94.8 91.6 91.2 88.0 86.0 84.1 90.4 90.8 91.8 92.0
% Excellent Trend Line
61.0 61.3 61.5 61.8 62.1 62.4 62.7 62.9 63.2 63.5 63.8 64.0
% Excellent
60.0 54.0 78.0 70.0 62.0 60.0 54.0 40.8 66.0 64.0 71.4 70.0
Out Lab 80th Percentile
66.0 65.0 65.0 65.0 65.0 67.0 67.0 67.0 67.0 66.6 66.6 66.6
N of Cases
50 50 50 50 50 50 50 49 50 50 49 50
Norm Year

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+ Marked bars are Statistically Significant
Sustaining the gains....
AnMed Health
Service Area 1
Outpatient Registration Wait Time Performance

Date

Avg Wait Time Prior to Reg (minutes)

Target

Daily performance
AnMed Health
Outpatient Registration
Average Patient Wait Time Prior to Registration

Target = 3.5 minutes
Key Learning's to Date

- LEAN is not a magic bullet
- Lean can be applied to all areas of an organization
- Allocate enough time to develop a sound plan
- Communication is critical –
  - You can not communicate enough
  - Utilize various methods of communication (staff meetings, one-on-one, newsletters, huddles etc)
- Establish priorities – build early success
- Involve staff (*planning and execution phases*)
- Identify champions within the department / organization
- Sustaining improvements is more challenging than you think
Improve patient wait time by 50% -- Achieved

Patient Satisfaction to the 80\textsuperscript{th} Percentile -- Achieved

The Journey Continues.....