Lean in Action: Using Lean Principles to Solve “Impossible Problems”
The Impossible Problem
Disclaimer

• "The views and opinions expressed today are those of the presenters and do not reflect the official policy or position of the Department of the Air Force, Department of Defense, or the U.S. Government."
The Impossible Problem

• MacDill’s Pharmacy Flight
  – AF's busiest Clinic Pharmacy
  – Dispenses 1 of every 26 Rx's that is dispensed by AF pharmacies
  – Fills more civilian prescriptions than any other AF pharmacy
The Impossible Problem

- Summer 2009 – Pharmacy Operations
  - Refill operations switched from Base Exchange to new drive operation
  - Significant changes for both staff and customers
  - The customer base was not happy
    - 6 window indoor service center replaced with 3 lane drive thru
    - Social aspect of getting refill eliminated
    - Long waits were possible in the summer heat
    - Customer base doubles in Winter
The Impossible Problem
The Impossible Problem

• After 2 weeks on the job, the problem reached an apex
• We looked at immediate solutions to fix this issue
• Multi-variable, complex issues
The Impossible Problem
The Improvement Journey

Summer 2009

• Problem Statement
  1. New Pharmacy drive-thru time is unacceptable. Some wait times are up to 45 minutes. These wait times are based on current volumes of 1300 cars per week. Winter volumes (retiree migration) will make this much worse (up to 2000 per week).

• Goal - Reduce customer wait time (10 minute max)

• Scope of Work - Area of study is limited to the drive-thru, window dispensing, and drug storage areas.
The Improvement Journey

Summer 2009 – Project Challenges

• This type of project presents many challenges.
  
1. Customer demand is not evenly spread. Customers can arrive on any day (mon thru fri) and at any time (0830 hrs thru 1700 hrs).

2. Customers can have many types of orders (qty, controlled/non-controlled, refrigerated). Each of these types require a different process and varied cycle times.
The Improvement Journey

Summer 2009 – Project Kick-Off

• Mainstream conducts lean training with pharmacy personnel.
• Small pharmacy improvement team formed.
• Initial data study
  1. Window cycle times
  2. Drug Storage
  3. Customer Arrival (Day/Time)
  4. Interferences
The Improvement Journey

Summer 2009 – Data Results/Observations

• Data showed a large cycle time variation.
• Data showed a high variation of customer arrivals (day/time).
• High degree of “non-value” added work.
• Lack of standard work.
• Customer confusion.
The Improvement Journey

Summer 2009 – Lean Tools

• Simulation model created and used to:
  1. Predict the effects of increased winter volume using the current process.
  2. Perform volume sensitivity analysis.
  3. Better understand the effects of random customer arrivals.
  4. Better understand the effects of variation (cycle time, interferences, etc).
  5. Identify process constraints.
The Improvement Journey

Summer 2009 - Lean Tools

• Mainstream introduces specific “lean tools” to pharmacy team.
  1. Simulation
  2. Value/Non Value added work
  3. Error Proofing
  4. 6S
  5. Visuals
  6. Standard Work
The Improvement Journey

Summer 2009 – Applying Lean Tools

- Team utilizes lean tools to brainstorm improvements.
- Improvements are tested through various model scenarios to verify results and prioritize actions.
- Model results used to evaluate justification of capital investments (before the money is spent).
The Improvement Journey

Summer 2009 – The Remedy

Key Actions Implemented

1. Improved customer ID process (eliminated the transfer of ID badge thru the tube canister system.)
2. Team initiated standard work procedures for window attendants. This reduced the high variation (cycle).
3. New drug storage system implemented which improved attendant time and reduced errors.
4. Improved workplace layout (quicker retrievals).
The Improvement Journey

Key Lean Actions Implemented

5. Team implemented a number of customers visuals (signage) which relayed vital information prior to drive-thru window arrival.

6. Team implements a “park zone” for customers with issues that could not be remedied within a few minutes. This prevented long back-ups.

7. Team changed packaging to a clear bag which reduced the customer verification cycle time.
The Improvement Journey

Improvement Metrics

• Metrics Achieved

1. Average customer wait time reduced from 9 minutes to 5.9 minutes (35%).
2. Average window cycle time reduced by 40%.
3. Maximum # of cars in line (worst case) reduced from 25 to 14 cars (44%).
4. Maximum time spent waiting reduced from 40 minutes to 13 minutes (68%).
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The Improvement Journey

6 AMW Team of the Year Award

Pharmacy Improvement Team Wins Award
The Improvement Journey

Questions?
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