

The Lean Mean Pharmacy Machine– “Producing Results with Little Waste”



Fishing for Success

Lean Six Sigma (LSS) Project
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Chief, Ancillary Services/Fishing Guide

Purpose:

- Improve efficiency in pharmacy, wait time and patient satisfaction report card
- Project Goal:
 - 90% improvement in wait time within 30 minutes
 - 90% patient satisfaction survey report card

<i>Project Y's</i>	<i>Baseline</i>	<i>GOAL</i>	<i>units</i>
Wait Time	25	90	%
Satisfaction Survey Report	36	90	%

Team Members

Champion: *Deputy Commander of Health Services*

Team:

Chief, Ancillary Services

Chief, Pharmacy Services

Pharmacist

Pharmacy Technicians (3)

Hospital Specialist, Clinical Support Division

Secretary, Ancillary Services

Consulting Members/Customers:

Chief, Quality Management

Patient Advocate Representative

Chief, Logistic

DMAIC Methodology

- Define
- Measure
- Analyze
- Improve
- Control

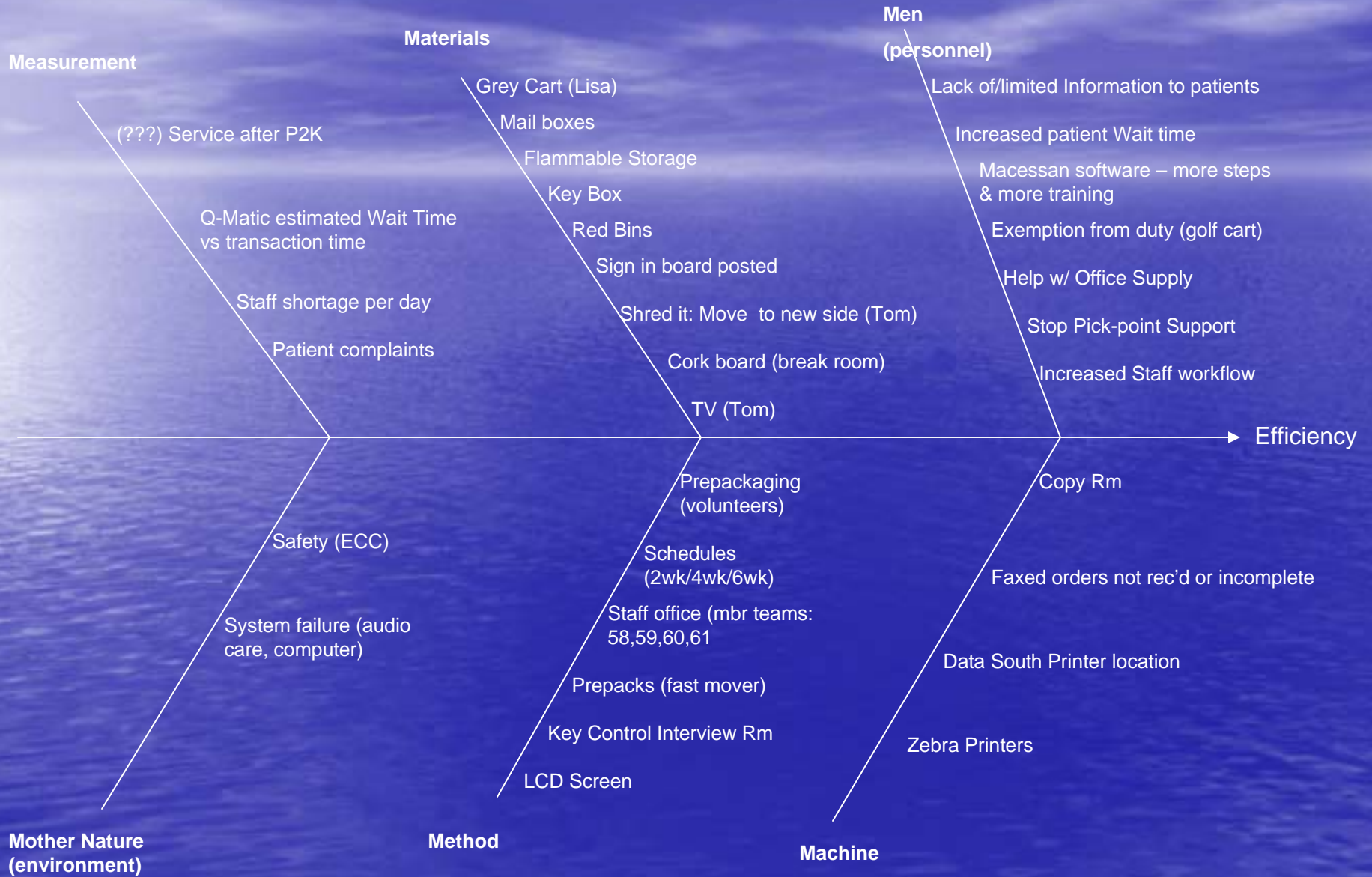
Define Phase: aka The Bait

Fishbone

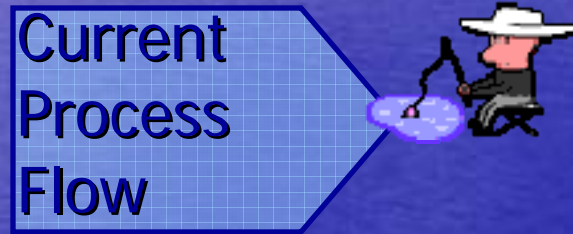


Improving Pharmacy Efficiency – “Producing Results with Little Waste”

[Define Phase: 5M's & 1P]



Lean Tool Box:



Process Observation:

TIME of DAY	PATIENT #	STEP	OBSERVATION/ACTION
10:22:00 AM	1	1	Pt presents at window
10:24:00 AM	1	2	Pharm. returns to window
	1	3	Pharm. places RX in bag
10:25:00 AM	1	4	Pharm. explains meds
10:26:00 AM	1	5	Pharm. provides info sheets
10:26:30 AM	1	6	Pt leaves window
10:27:00 AM	2	1	Pharm. Works on PC; pulls up next Pt
10:28:00 AM	2	2	Pt presents at window
	2	3	Pharm. Gets up to get RX
	2	4	Pharm. Get printout from printer
10:29:00 AM	2	5	Pharm. Throws out excess labels/printout
	2	6	Pharm. Assembles Rx (multiple)
	2	7	Pharm. Initials RX
	2	8	Pharm. Returns to window
	2	9	Pharm. Discusses with Pt.
	2	10	Pharm. Puts RX in bag; inserts info sheet
	2	11	Pharm. Chats with Pt.
10:31:00 AM	2	12	Pt leaves window; Pharm. Pulls up next Pt.
10:32:00 AM	3	1	Pt #3 presents at window
	3	2	Pharm. Pulls up data
	3	3	Pharm. Gets up from PC, and goes to printer
	3	4	Pharm. Works at Pharmacy 2000 scanner
	3	5	Pharm. Gets RX
10:34:00 AM	3	6	Pharm. Brings RX to window and sits down
	3	7	Pharm. Gets bag and puts RX inside
	3	8	Pharm. Discusses with Pt
10:34:30 AM	3	9	Pt leaves.
10:35:00 AM	4	1	Pharm. Closes out last Pt; brings up Pt #4
	4	2	Pt 4 presents at the window.

Process Flow chart:

Difference		Process Study No.: 1		Process Study No.: 0		Totals													
no.	Time	<input type="checkbox"/> Man	<input type="checkbox"/> Material	Chart Begins @:	A13	Chart Begins @:	A13	Time in sec.	Present	Proposed	Difference	Meter / Feet	no.	Time	no.	Time	no.	Time	
-3	-92							<input type="checkbox"/> Operations	3	92	0	0	-3	-92					
-16	-227			Chart Ends @:	A51	Chart Ends @:	A51	<input type="checkbox"/> Transport	16	227	0	0	-16	-227					
-1	-180			Created By:	CPT B	Created By:	CPT B	<input type="checkbox"/> Inspection	1	180	0	0	-1	-180					
0	0			Date:	6-Sep-06	Date:	6-Sep-06	<input type="checkbox"/> Delays	0	0	0	0	0	0					
0	0							<input type="checkbox"/> Storages	0	0	0	0	0	0					
-226								Travel Distance:	226	0	-226								

Action	Time	Meters Feet	Notes
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	30	0	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	60	0	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	30	22	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	10	12	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	10	12	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	15	10	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	10	10	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	10	10	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	20	22	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	15	22	

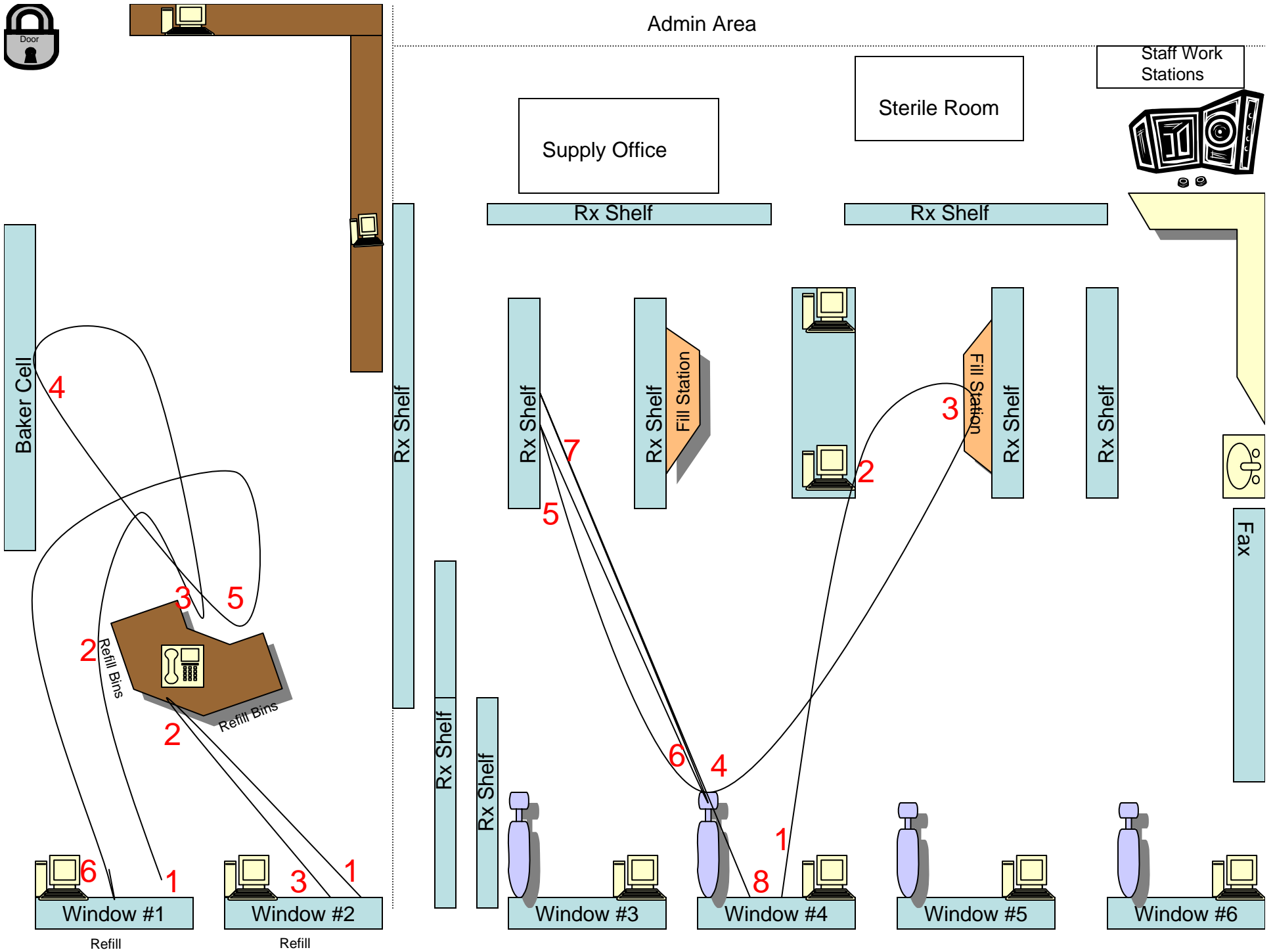
Process Flow (Present)

Category	Percentage
Transport	80%
Operations	15%
Inspection	5%
Delays	0%
Storages	0%

Process Flow (Proposed)



Admin Area



Baker Cell

Supply Office

Sterile Room

Staff Work Stations

Rx Shelf

Rx Shelf

Rx Shelf

Rx Shelf
Fill Station

Rx Shelf

Rx Shelf
Fill Station

Rx Shelf



Fax

Refill Bins

Window #1

Window #2

Window #3

Window #4

Window #5

Window #6

Refill

Refill

4

2

2

3

5

1

3

1

5

7

6

4

8

1

2

3

Fax

Define Phase continue

Process
Maps



High Level Process Map

INPUTS		BIG Project Y	
Think 6 M's	INPUTS		OUTPUTS
Man	Staff	Pharmacy Wait Time	Timeliness: ≤ 30 minutes
Machine	CHCS		Patient Satisfaction: 90%
Material	Pharmacy 2000		
Method	Provider-Level Survey Report		
Measure	Q-Matic Wait time report		
Mother Earth			

Clarify the Process

Process:		Pharmacy Wait Time	
Process Inputs (X)	Type	Process Step	Project Output (Y)
Pharmacist press button to select next patient		1. Call Button	Patient arrives @ window
Q-matic displays the next category & available window			
Patient views ticket number			
		↓	
Pharmacist check patient demographics with ID card		2. Screening	Elimate potential medication errors
Pharmacist reviews warnings for new Rx (AHLTA entered)			
Pharmacist enters new Rx (Hard Copy)			
Rx barcode labels are printed (Hard Copy)			
New Rx orders printed (AHLTA entered)			
Scan Rx (Hard Copy)			
		↓	

Six Sigma Low Level Process Map

Measure Phase

Cause &
Effects
Matrix



Dissecting the Process

Pharmacy Wait Time							Customer Rating 0-10
Cause and Effect Matrix							
Rating of Importance to Customer >>			8	10			
			Timeliness: < 15 minutes	Patient Satisfaction: 90%			
	Process Step	Process Inputs				Total	
1	Call Button	Pharmacist press button to select next patient	9	9		162	Ranking
2	Call Button	Q-matic displays the next category & available window	9	9		162	0
3	Call Button	Patient views ticket number	9	9		162	1
4	Screening	Pharmacist check patient demographics with ID card	9	9		162	3
5	Screening	Pharmacist reviews warnings for new Rx (AHLTA entered)	9	9		162	9
12	Filling Station	Staff fills Rx from Accumed or shelf	9	9		162	
13	Filling Station	Rx delivered to designated window	9	9		162	
14	Filling Station	Pharmacist checks Rx	9	9		162	
16	Dispense Rx	Patient receives Rx instructions	9	9		162	
6	Screening	Pharmacist enters new Rx (Hard Copy)	9	3		102	
10	Filling Station	Staff review p-2000 label	1	9		98	
8	Screening	New Rx orders printed (AHLTA entered)	3	3		54	
7	Screening	Rx barcode labels are printed (Hard Copy)	1	1		18	
9	Screening	Scan Rx (Hard Copy)	1	1		18	
11	Filling Station	Scan p-2000 label in filling screen	1	1		18	
15	Dispense Rx	Pharmacist visually checks & scan Rx in p-2000	1	1		18	
17						0	

Six Sigma C&E Matrix

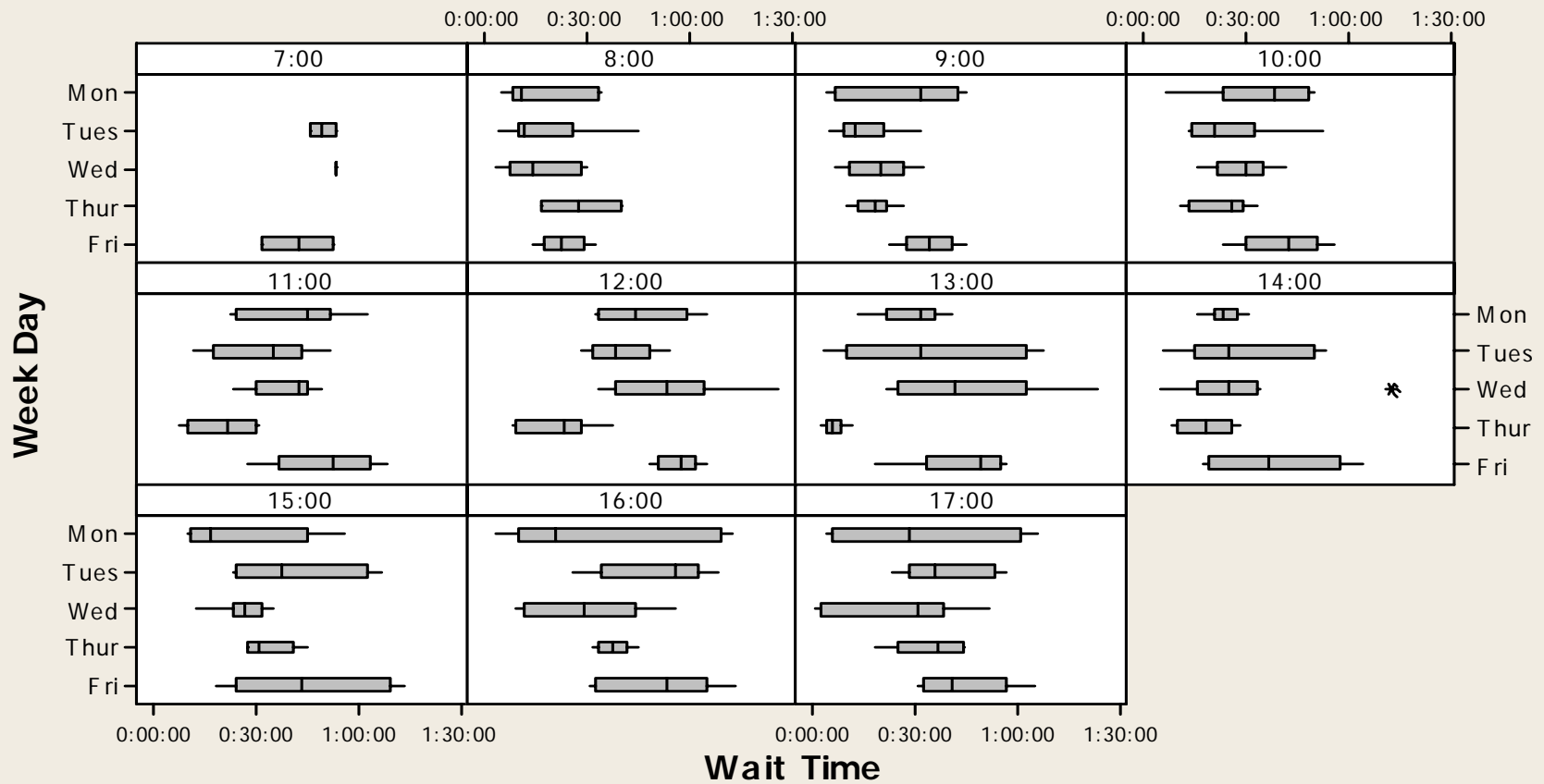
Analyze Phase: The Ultimate Fishing Hole

Box Plot
Chart &
FMEA



Analyze: Wait Time vs. Week Day

Sept 2006 Wait Time vs Week Day



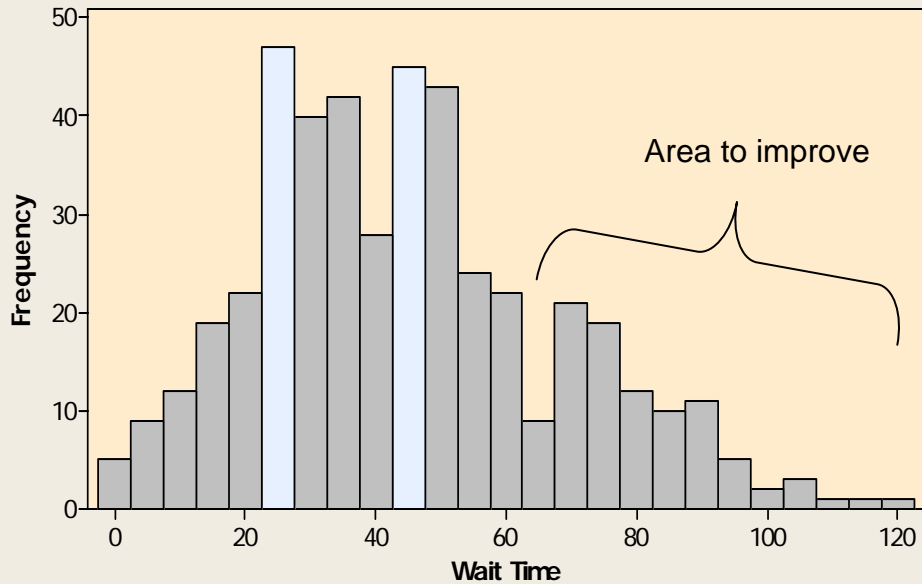
Panel variable: Hour

Failure Mode & Effects Analysis

Process Step	Key Process Input	Potential Failure Mode	Potential Failure Effects	S E V	Potential Causes	O C C	Current Controls	D E T	R P II	Actions Recommended	Resp.
What is the process step	What is the Key Process Input?	In what ways does the Key Input go wrong?	What is the impact on the Key Output Variables (Customer Requirements) or internal requirements?	How Severe is the effect to the customer?	What causes the Key Input to go wrong?	How often does cause or FM occur?	What are the existing controls and procedures (inspection and test) that prevent either the cause or the Failure Mode? Should include an SOP number.	How well can you detect cause or FM?		What are the actions for reducing the occurrence of the Cause, or improving detection? Should have actions only on high RPN's or easy fixes.	Who's Responsible for the recommended action?
Call Button	Pharmacist press button to select next patient	1. Delay in pressing the button	Patients continue to wait	10	distractions or interruptions	8	Spv/Staff visual checks workflow	5	400	Staff reminders/ reinforcement	Staff
				10	Inattention to Q-matic priority setting/ configuration (not using view all)	6	Staff checks wait time on ticket	4	240	Staff reminders/ reinforcement	Staff
		2. Q-matic inoperable	Increased wait time due to pending work order	10	Equipment/power failure	1	Troubleshoot using operator's manual; online tech support	1	10	Perform the required maintenance (i.e. power down/ internal daily reset)	Pharm AISSO (Dennis)/ Assitant AISSO (Phil); IMD
		3. Priorities on PC are wrong	Patients continue to wait	10	PC is not set up to select appropriate and/or desired	6	Staff checks wait time on ticket	4	240	Staff reminders/ reinforcement	Staff

Pharmacy Wait Time

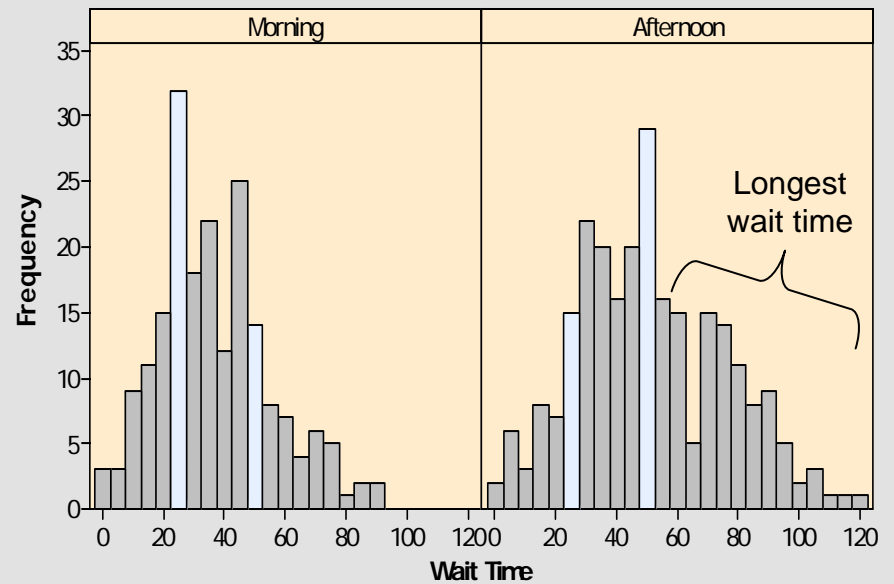
August 2006



Q-Matic Daily Category

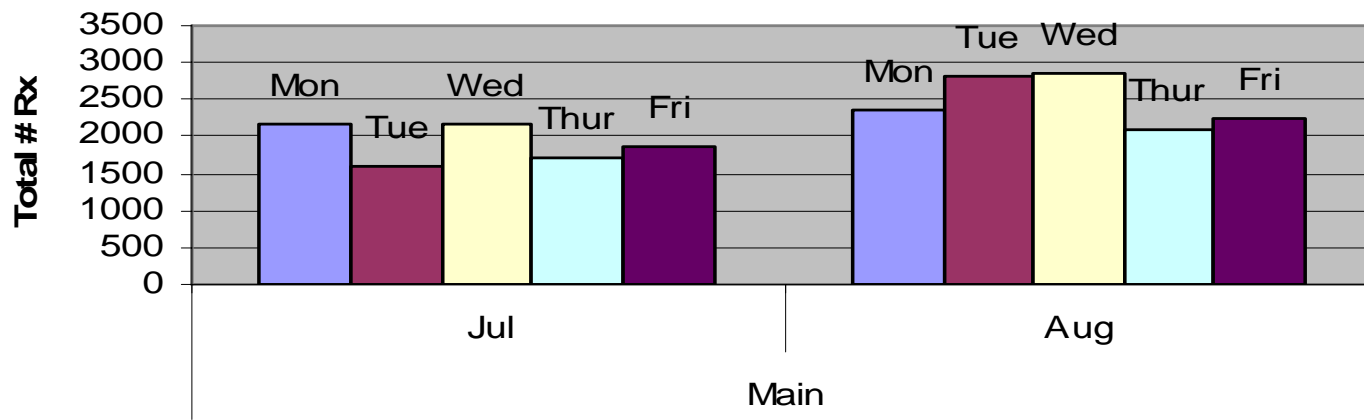
Pharmacy Wait Time by Time of Day

August 2006



Q-Matic Daily Category

CHCS-Volume Summary Report



Improve Phase: Perfecting the Cast

Key Points



Processes Under Improvement:

- Communication
- Organization
- Staff involvement/awareness
- Overall wait times

Control Phase: Waiting for the Bite

Key Points



Control Process:

- Allow the changes to set in(the hook!)
- The patient fisherman is rewarded.....
- Switch fishin' holes/styles/bait

Summary:

- Fishing can be for everyone, even vegetarians!
- The proper fishing guide is crucial
- Too many fisherman rocking the boat?
Fish from shore or wade in!

Cast away and see how many improvements
you can catch!