

CCHCS LEAN SIX SIGMA GREEN BELT TRAINING

MEDICATION CONTINUITY FOR ALTERNATIVE HOUSING PATIENTS



March 8th, 2017

Project Team

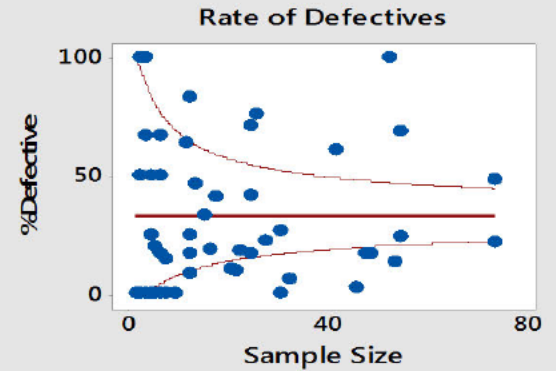
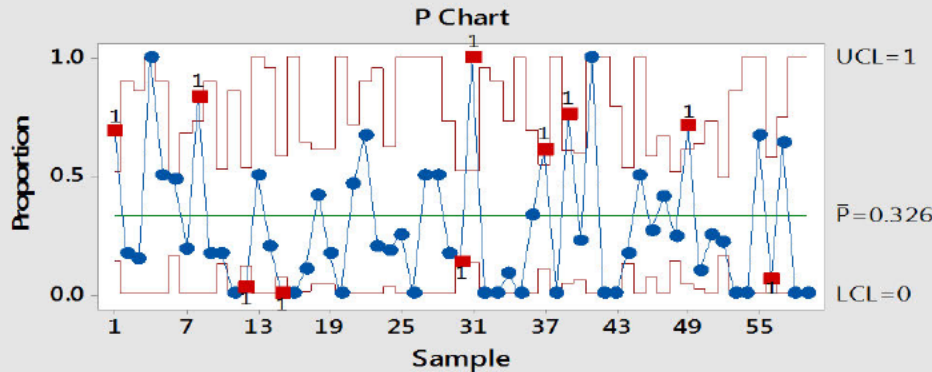
- **Champion:** [REDACTED]
- **Executive Sponsor:** [REDACTED]
- **Team Members:**
 - [REDACTED] SRN II
 - [REDACTED] SRN II
 - [REDACTED] Captain of Health Care Services
 - [REDACTED] SRN III
 - [REDACTED] Health Program Specialist
 - [REDACTED] Unit Supervisor

Project Charter

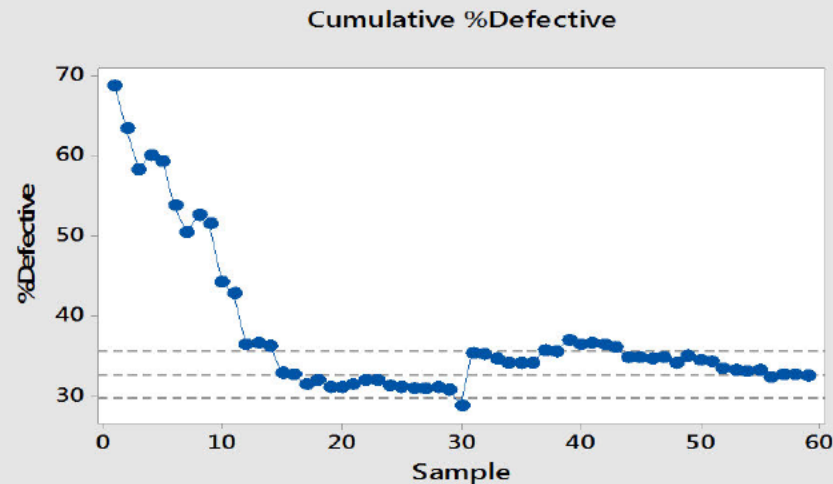
- **Problem Statement:** Currently there is no consistent process that crosswalk for custody, mental health, nursing, pharmacy services, and medicine to ensure medication continuity for patients in alternative housing. In the year of 2016 patients received their medications only 71 percent of the time. This lead to an increased length of stay and jeopardized patient safety.
- **Objective:** to ensure patients in alternative housing receive all medications 92 percent of the time.
- **Primary Metric:** Medication continuity for all medication types. All administrations, all provider types, and all prescriptions.

Baseline Capability

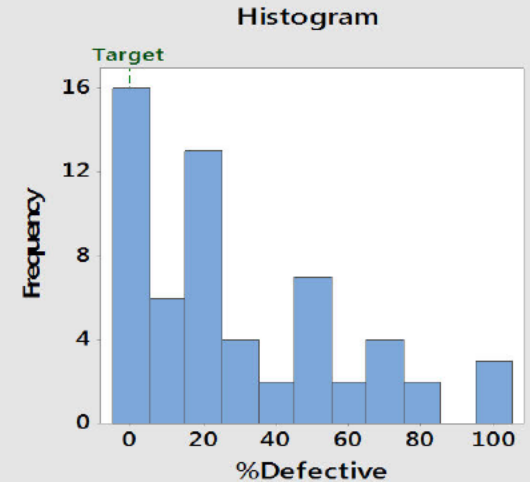
Binomial Process Capability Report for NOT GIVEN



Tests are performed with unequal sample sizes.

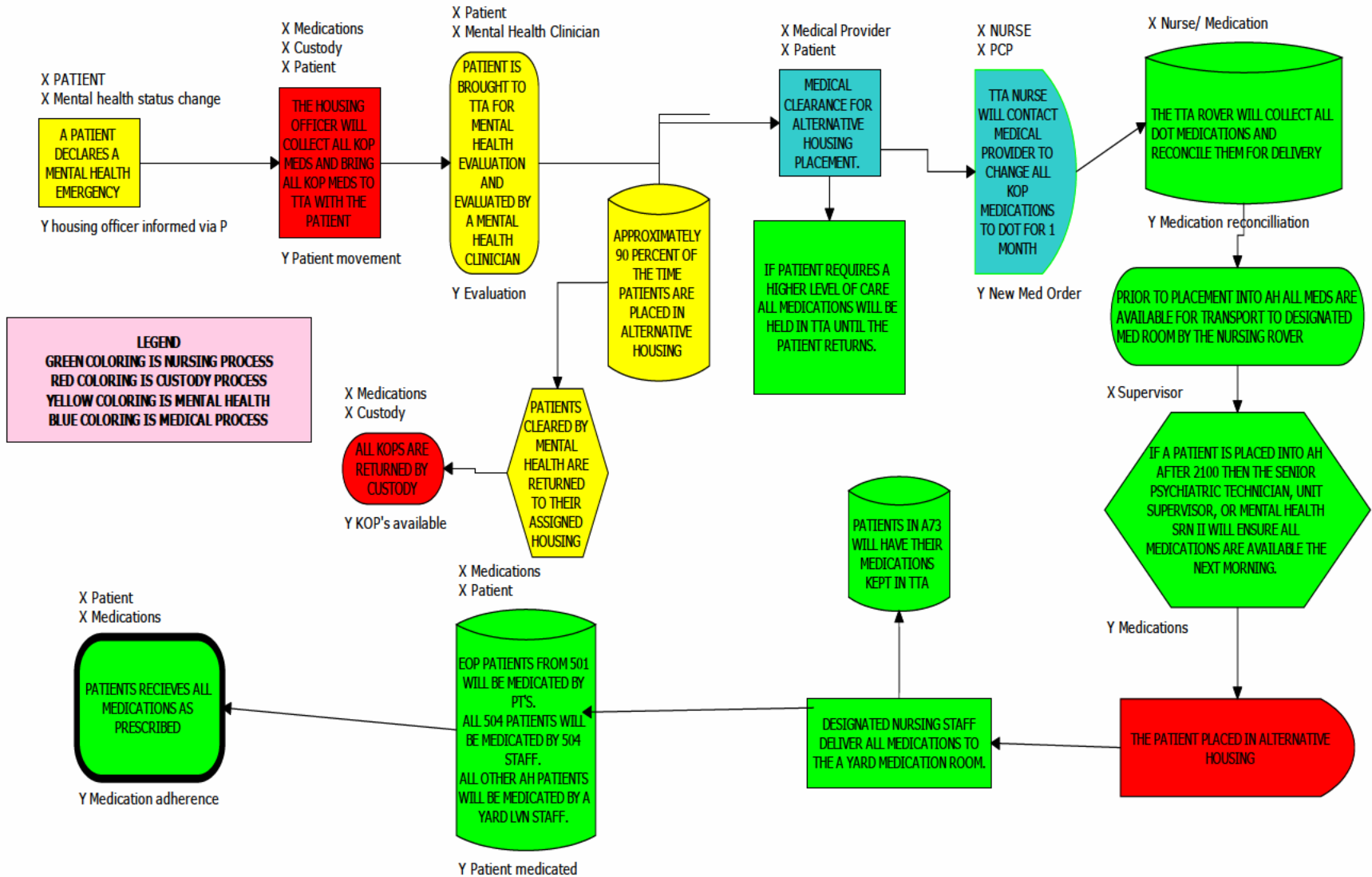


Summary Stats (95.0% confidence)	
%Defective:	32.58
Lower CI:	29.76
Upper CI:	35.49
Target:	0.00
PPM Def:	325779
Lower CI:	297597
Upper CI:	354933
Process Z:	0.4516
Lower CI:	0.3720
Upper CI:	0.5313



Only 67 percent of Alternative Housing medications were being administered.

Initial Process Map



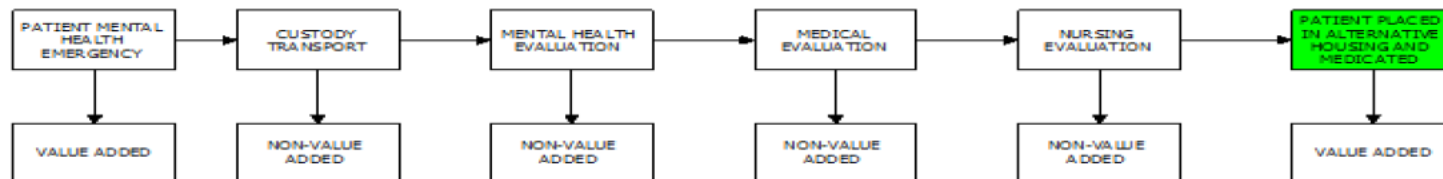
Spaghetti diagram

LEAN SIX SIGMA TOOLS USED

VALUE STREAM



VALUE ADDED AND NON VALUE ADDED



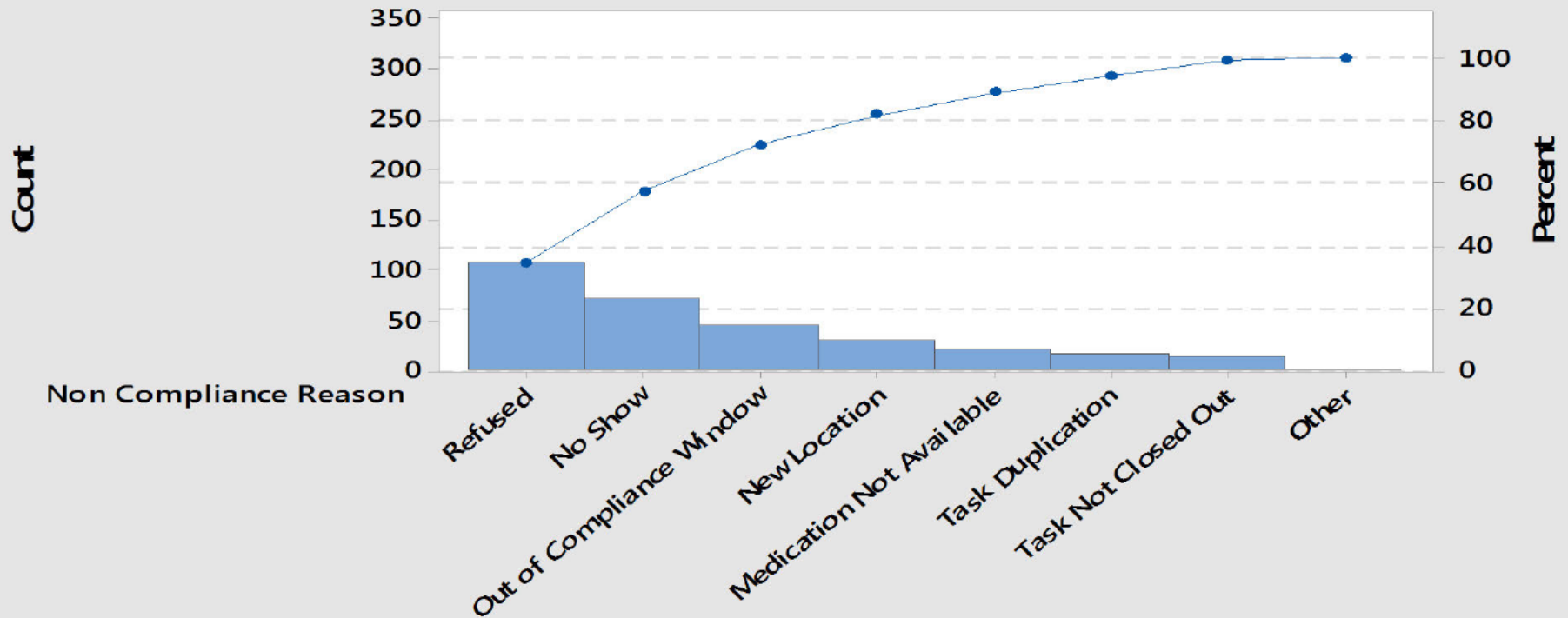
SIMPLIFIED VALUE STREAM



Key takeaway is judicious usage of TTA staff for immediate medication administration and usage of the Omnicell.

Key Findings #1

Pareto Chart of Non Compliance Reason

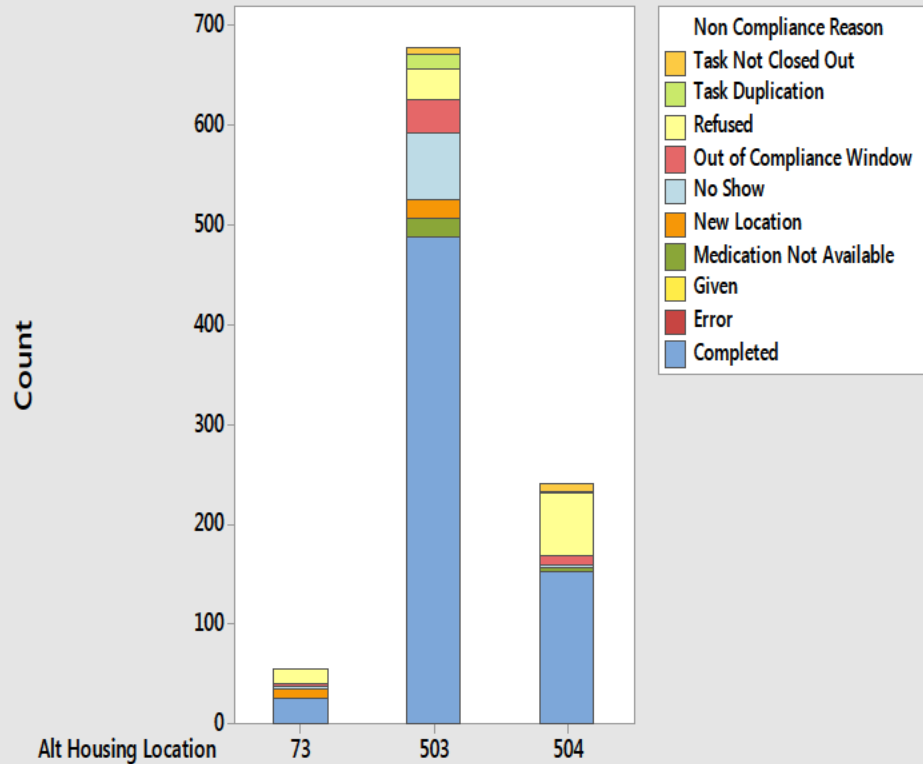


Count	107	71	46	30	22	17	15	2
Percent	34.5	22.9	14.8	9.7	7.1	5.5	4.8	0.6
Cum %	34.5	57.4	72.3	81.9	89.0	94.5	99.4	100.0

Refusals and no-shows were the biggest drivers of medication non adherence.

KEY FINDINGS

Chart of Alt Housing Location, Non Compliance Reason



Chi-Square Test for Association: Alt Housing Location, Non Compliance Reason

Rows: Alt Housing Location Columns: Non Compliance Reason

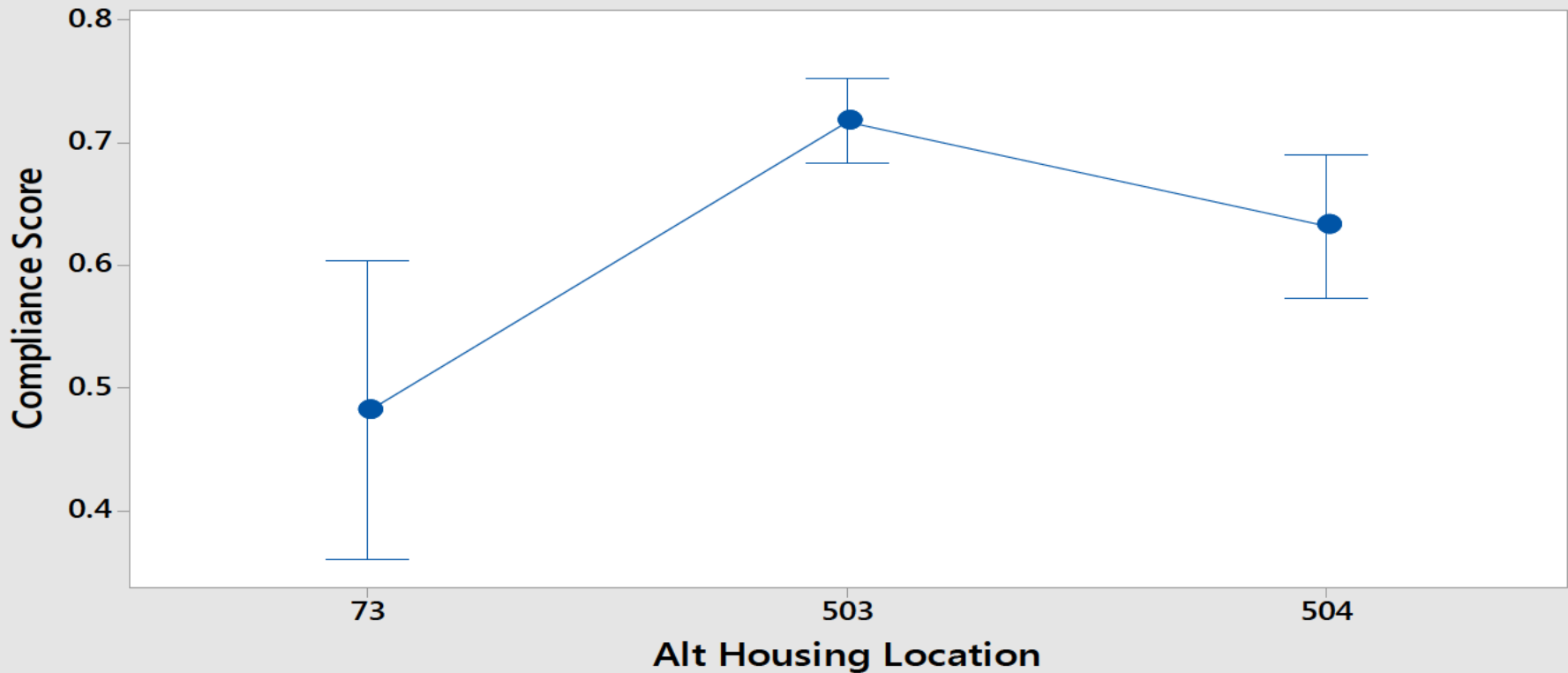
	Medication			Out of Compliance			Task	
	Error	Given	Not Available	New Location	No Show	Window	Refused	Duplication
73	1	0	0	9	3	2	14	0
	0.094	0.094	2.058	2.806	6.642	4.303	10.010	1.590
503	0	1	18	19	67	35	30	15
	0.619	0.619	13.626	18.581	43.974	28.490	66.271	10.529
504	0	0	4	2	1	9	63	2
	0.287	0.287	6.316	8.613	20.384	13.206	30.719	4.881

Truncated view of a larger data pool. No shows were the predominate contributor to medication non adherence.

No show documentation was accounting for 10 percent of all medication non adherence.

Key Findings #2

Interval Plot of Compliance Score vs Alt Housing Location
95% CI for the Mean

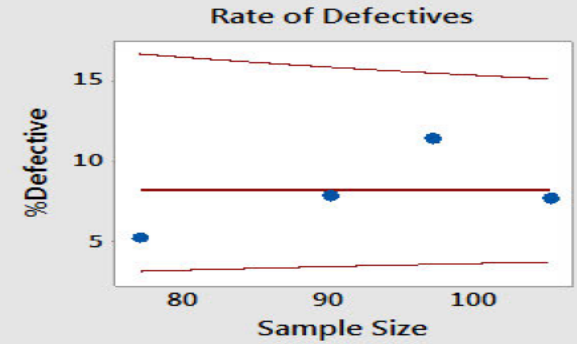
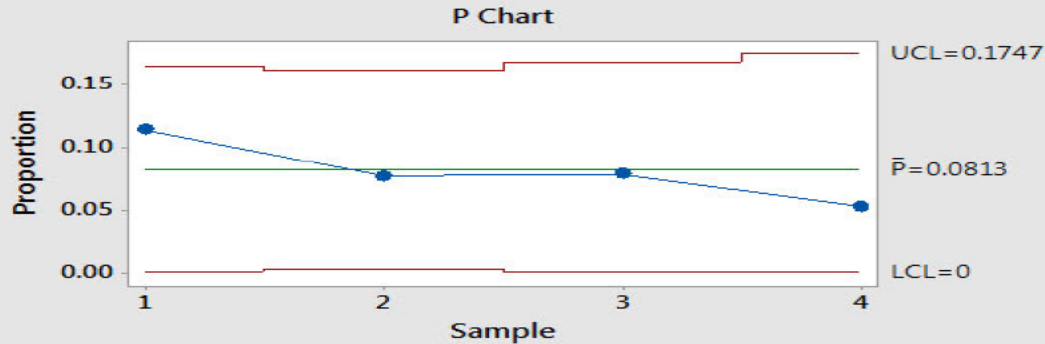


The pooled standard deviation is used to calculate the intervals.

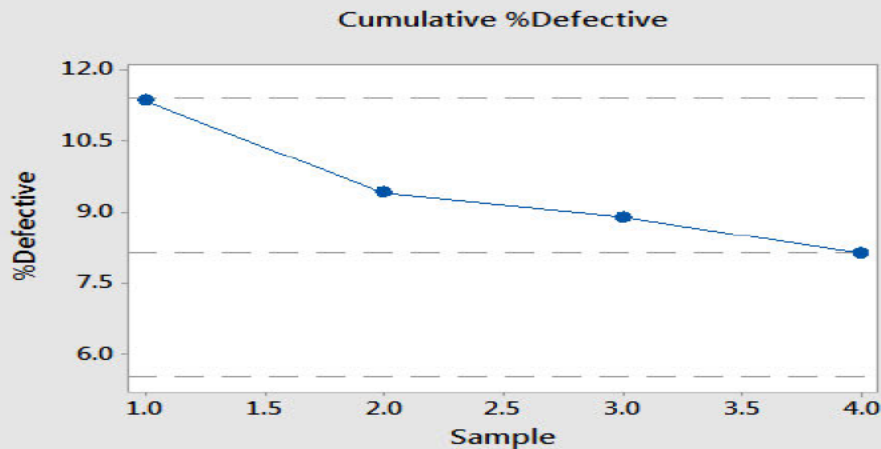
There was a large variance in medication administration based on housing location. This identified the need for intensive supervisory oversight and focused staff training.

Final Results

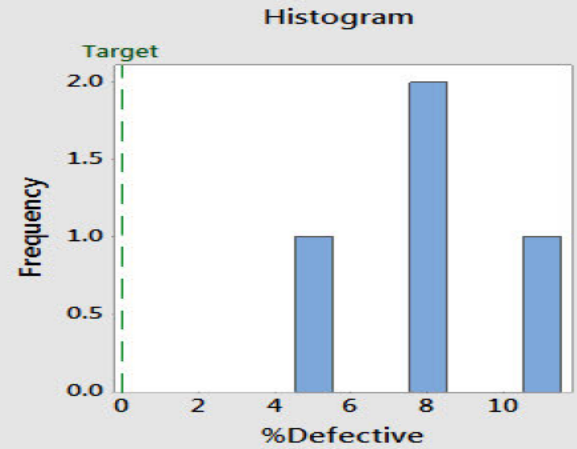
Binomial Process Capability Report for Non-Compliance



Tests are performed with unequal sample sizes.



Summary Stats (95.0% confidence)	
%Defective:	8.13
Lower CI:	5.55
Upper CI:	11.40
Target:	0.00
PPM Def:	81301
Lower CI:	55524
Upper CI:	114028
Process Z:	1.3964
Lower CI:	1.2054
Upper CI:	1.5935



Increased performance from 67% to 92%.

Critical X's

- Nursing and Medicine completing a medication order in EHRS to fire a task.
- Medication availability in the medication room.
- Defining causality for no show documentation (e.g. tasks firing in multiple areas, miscoding the task list, or lack of training for the line staff to discern and choose the right task close out option.
- Lack of communication amongst stakeholders ensuring medication availability, transfer, continuity, and administration.

Improvement Techniques

Creation of a new medication administration area to facilitate the deliverable to the point of service.

Email thread promulgating a comprehensive accounting of all patients placed into alternative housing therein ensuring individual stakeholder accountability and transparency.

Visually posted the process map in all care areas. Then, trained all stakeholders.

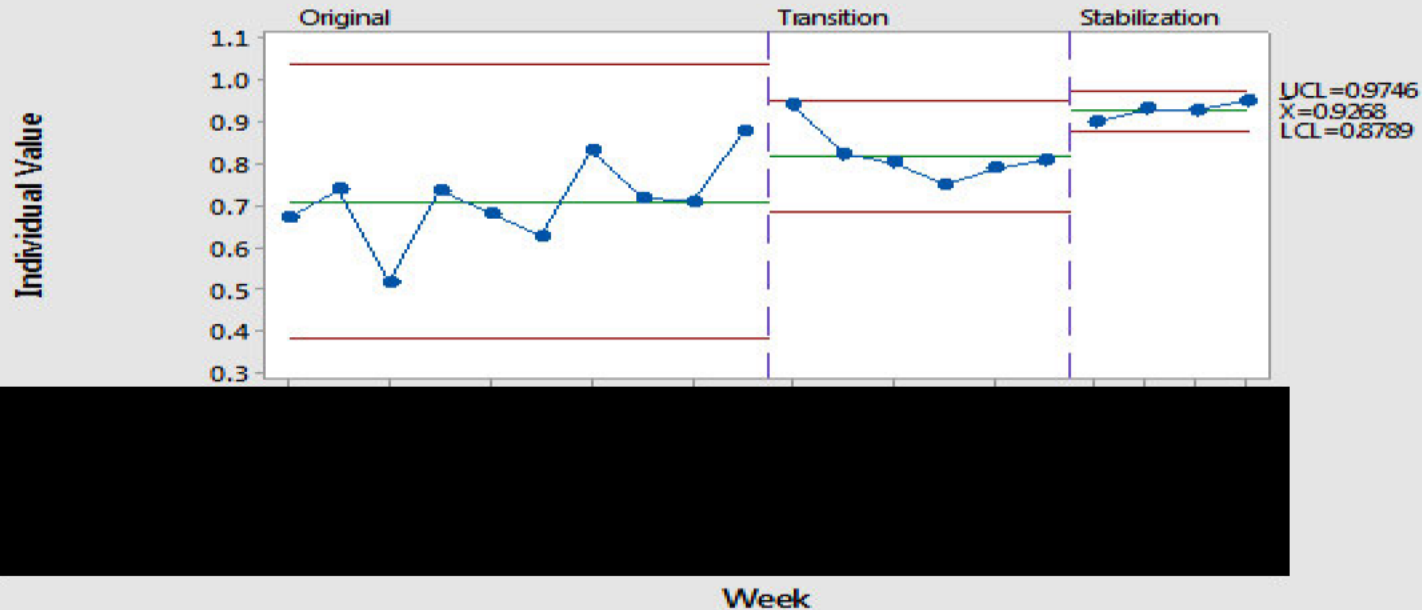
Daily supervisory oversight as an initial action item in the morning ensuring medication availability.

Daily retrospective review of EHRS ensuring medication administration and task resolution for the past 24 hours.

TTA Rover ensuring medication transfer after hours between care area's (yards).

Before and After

I Chart of Compliant Proportion by Time Frame



Time Frame 3 Original, Stabilization, Transition

Analysis of Variance

- In the projects beginning there was immense variability in the process as evidenced by the ranges above and below the mean of 71 percent. The one way Anova test on the right objectifies the statistical significance

Source	DF	Adj SS	Adj MS	F-Value	P-Value
Time Frame	2	0.1433	0.071648	10.85	0.001
Error	17	0.1123	0.006606		
Total	19	0.2556			

Control Plan

- RETROSPECTIVE AUDIT OF EHRS MONDAY THROUGH FRIDAY WILL ENSURE MEDICATION ORDER IS PLACED 100 PERCENT OF THE TIME.
- QMSU TO TRACK AND AUDIT MONDAY THROUGH FRIDAY THAT ALL OLD TASKS HAVE BEEN RESOLVED.
- EVERY MORNING THE UNIT SUPERVISOR, SRN II, AND LVN WILL INSPECT THE MEDICATION ROOMS ENSURING ALL MEDICATIONS ARE AVAILABLE FOR ADMINISTRATION.
- EXECUTIVE LEADERSHIP WILL ENSURE ANNUAL POLICY REVISION FOR MEDICATION ADMINISTRATION.
- QMSU TO ENSURE CONTINUITY OF EMAIL THREAD PROMULGATING ALTERNATIVE HOUSING PATIENTS ARE IDENTIFIED FOR ALL STAKEHOLDERS.

Additional Benefits

- Medication continuity resulted in shorter alternative housing stays as evidenced by quicker discharge times.
- Medication continuity increased overall wellness.
- The DMAIC process effectuated optimality within the overall CCWF milieu as it objectified data driven methodologies work and facilitate processes that promote system efficiencies.
- This project implemented a Quality Assurance & Continuous Improvement Program.
- This project redesigned care processes based on best practices.
- This project developed effective teams.
- This project coordinated care across patient conditions, services and settings over time.
- This project incorporated performance and outcome measurements for improvement and accountability.

Contact Information

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