Clinical Safety & Effectiveness Cohort 15 Team 15

MARC Primary Care Clinic Workflow Improvement

CENTER FOR PATIENT SAFETY & HEALTH POLICY

UT HEALTH SCIENCE CENTER™

SAN ANTONIO

Educating for Quality Improvement & Patient Safety

Meet The Team

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Sponsor Department: Dr. Sara Pastoor, Director Primary Care Center UTHSCSA

AIM STATEMENT

To reduce patient cycle time (Patient arrival to discharge by MD) at the MARC Primary Care clinic by 50% by December 2014.
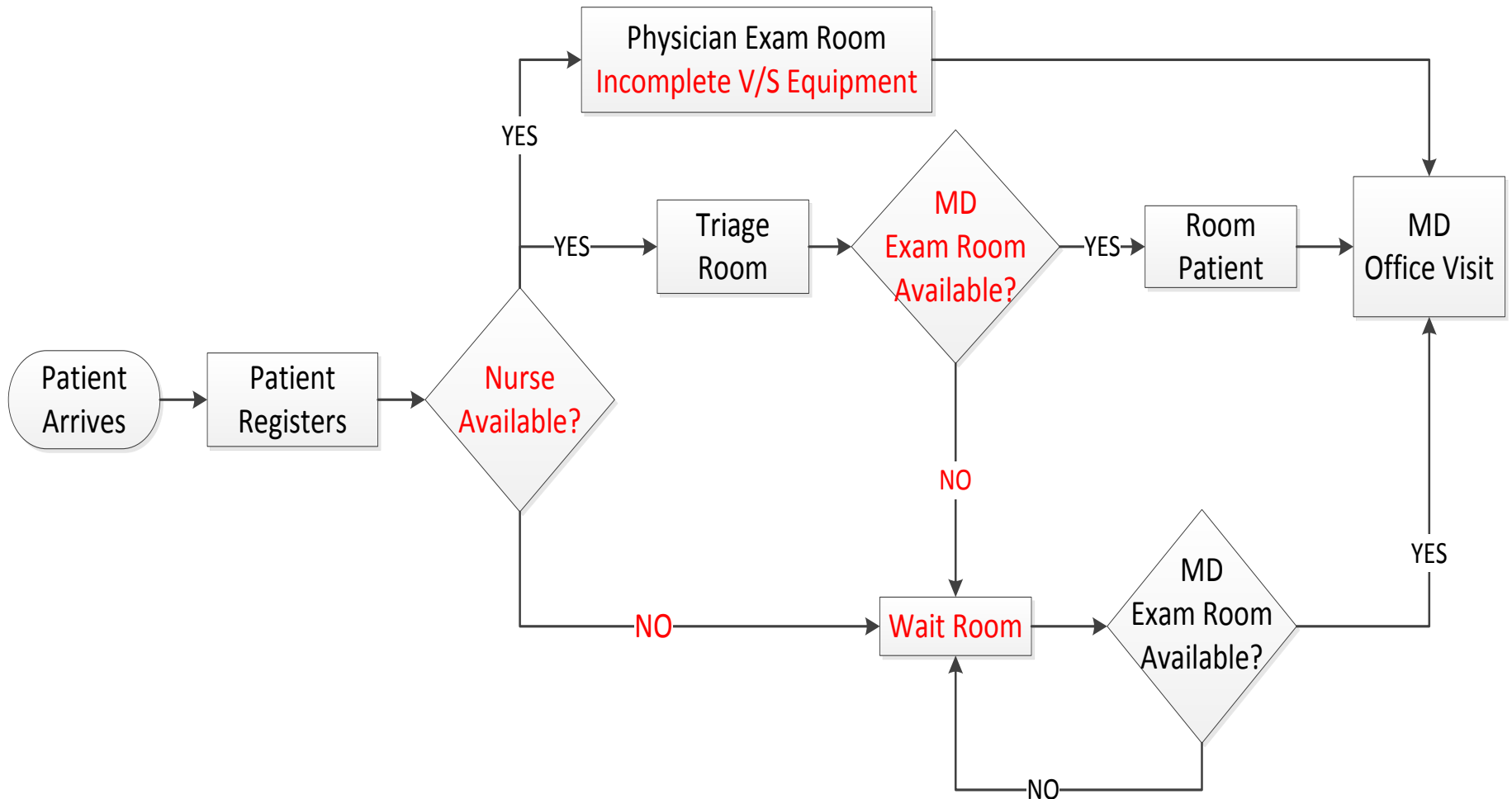
Background

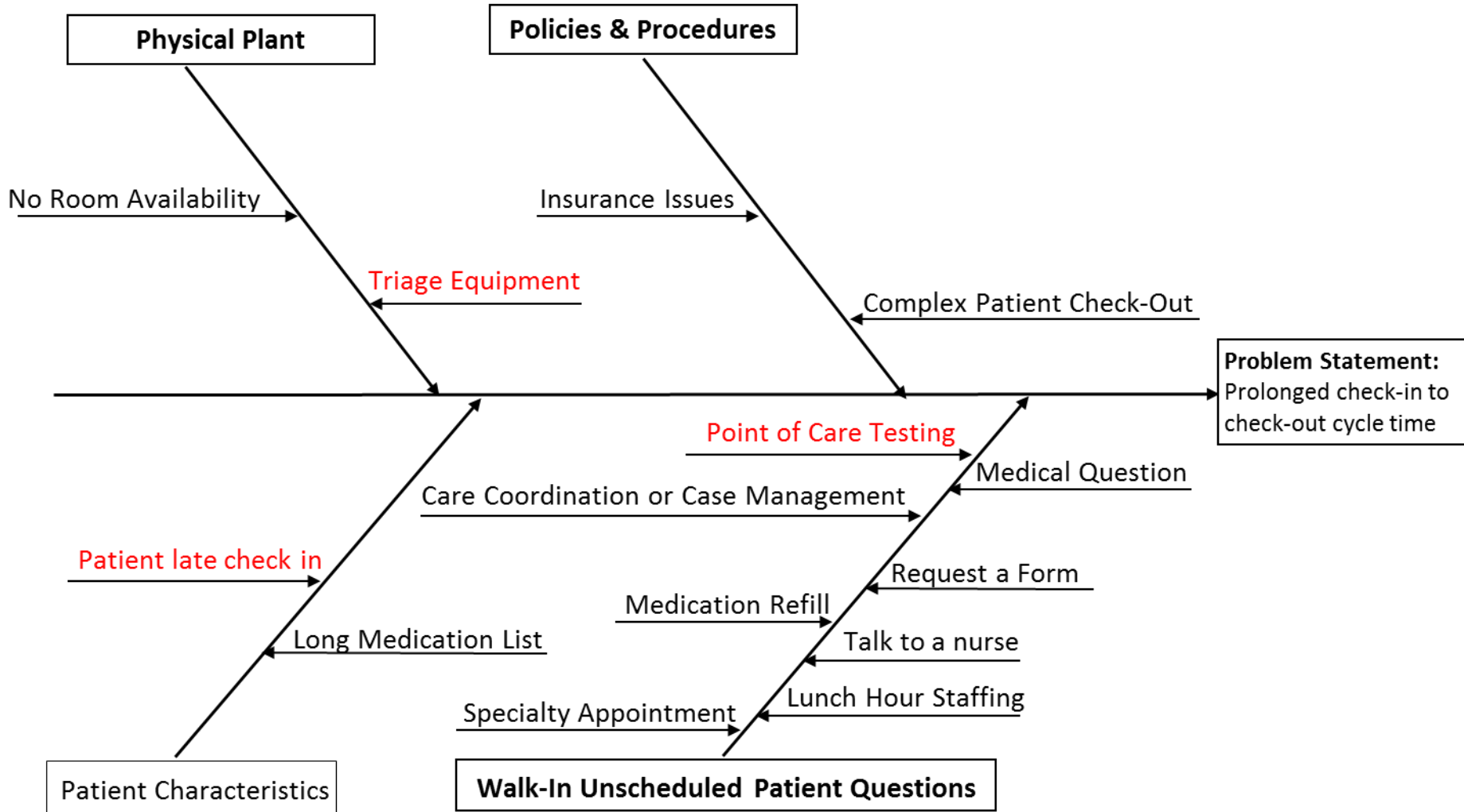Problem - Patient cycle time/turn around time is typically 90-120 minutes industry-wide

Several studies have documented that long wait times are associated with decreased patient satisfaction.

As MARC Primary Care center evolves towards the Patient Centered Medical Home model, keeping the patient as the center of care delivery and improving patient experience and satisfaction is critical. Reducing patient cycle time by 50% will help us improve patient satisfaction.
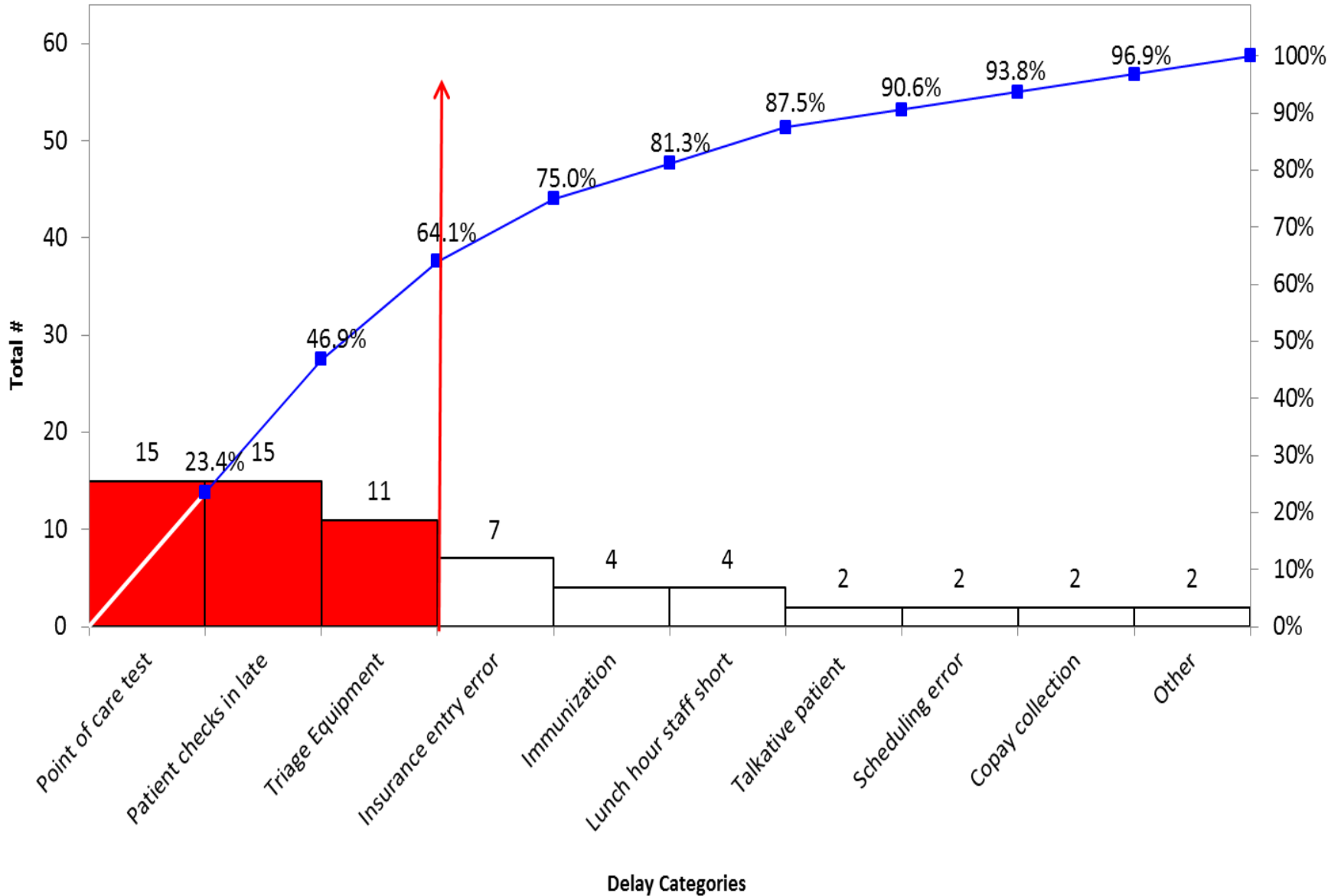
Primary Care MARC Clinic Flow

Primary Care MARC Clinic
Cause & Effect Diagram

Physical Plant

Policies & Procedures

No Room Availability

Insurance Issues

Triage Equipment

Complex Patient Check-Out

Problem Statement:
Prolonged check-in to check-out cycle time

Point of Care Testing

Medical Question

Care Coordination or Case Management

Patient late check in

Request a Form

Medication Refill

Long Medication List

Talk to a nurse

Lunch Hour Staffing

Specialty Appointment

Patient Characteristics

Walk-In Unscheduled Patient Questions

Pareto Chart - Delay Categories

Intervention

Implemented starting 8/15/14

1) Clinic staff was divided into 2 groups Intake team helping with face to face visits and LVN assigned to assist with back office work - Messaging and refills

2) Intake team assigned 1 :1 to MD with clear instructions to buddy up and help each other when necessary

3) Intake team was trained to use Intake Checklist

4) Pre-visit Preparation time allotted to Intake staff in order to Scrub schedules- make notes of overdue health maintenance items, proactively administer immunizations or point of care tests such asA1c, and complete Medicare Wellness Questionnaire before MD evaluation.

5) Physicians schedules were rearranged so that on a given session no more than 11 providers were in clinic as we have only 22 exam rooms thus 2 exam rooms /provider.
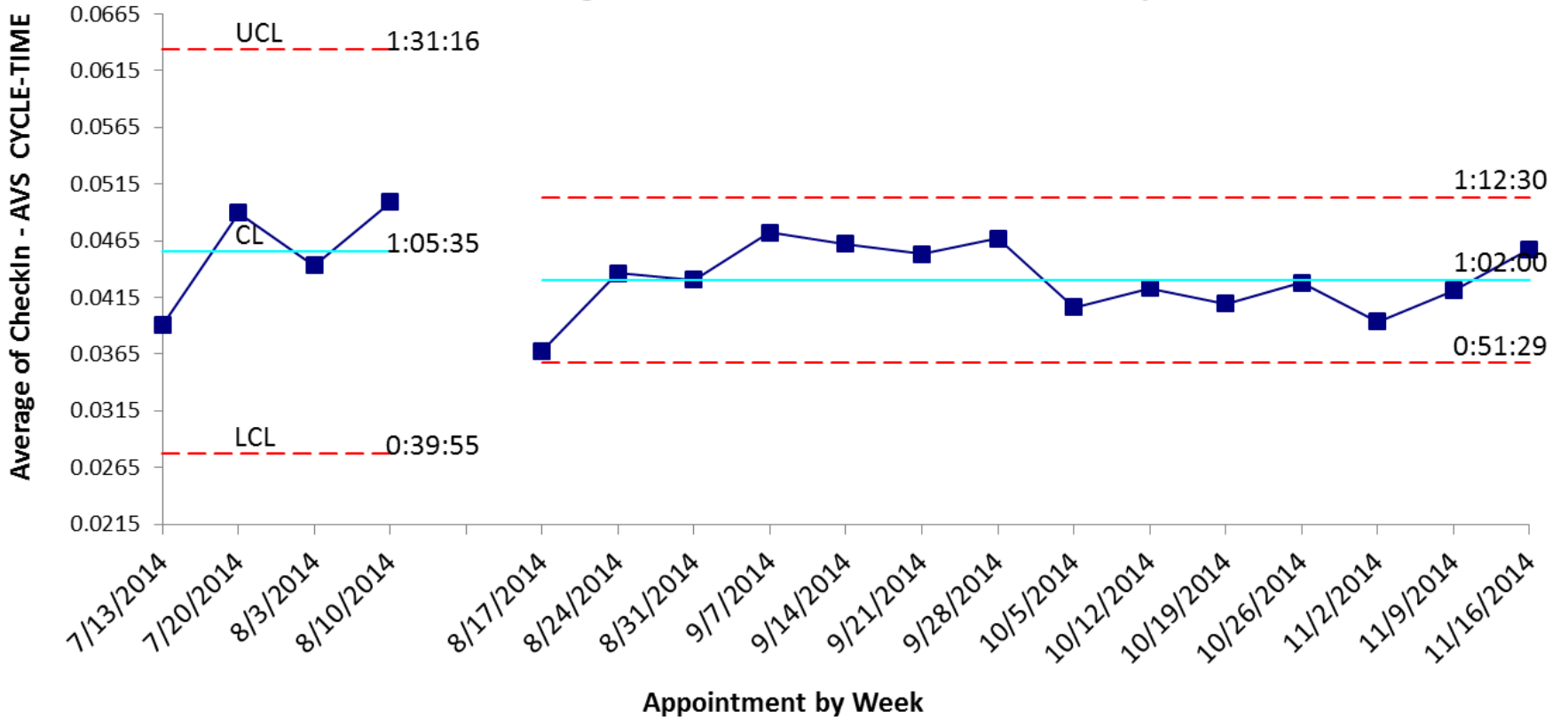
Data source /Collection Method

- Data will be obtained from EPIC – chart review for below time stamps:
  - Pre-intervention data from 7/15/14-8/14/14
  - Post-intervention data from 8/15/14 -11/15/14

- **Proxy time points were used**

  - Appointment time to check in/arrival time

  - Time nurse logs in to EPIC to start intake process – Intake start time

  - Time M.D. logs into EPIC – MD start time

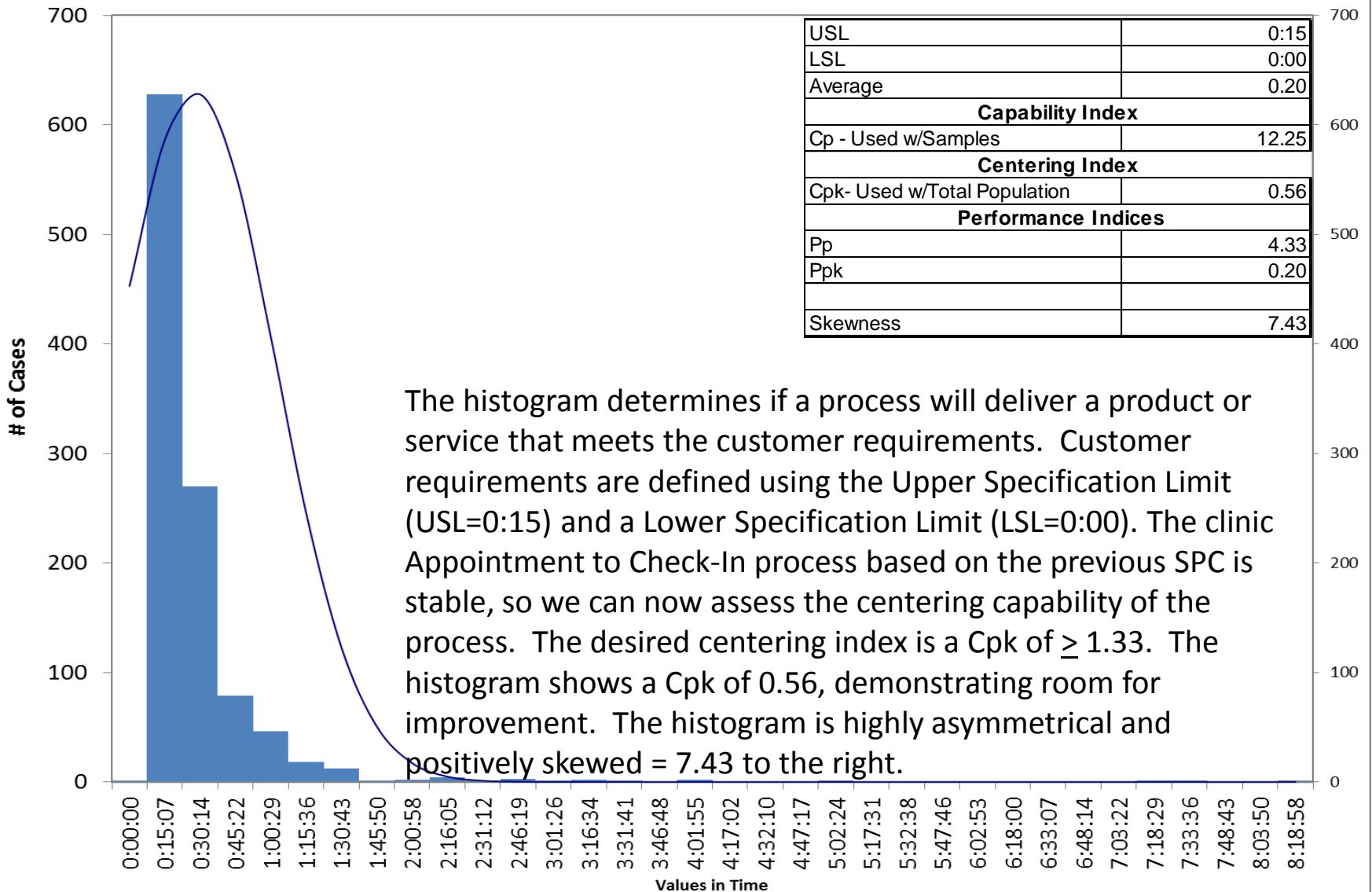 - Visit Completion - After visit summary printed by MD

Patient cycle time: Appointment check in to AVS print time

MARC Primary Care Clinic
Workflow Improvement
**Xbar R Chart Average of CheckIn - AVS CYCLE-TIME by Week**

Histogram of Appointment to Check-In Cycle Time

USL	0:15
LSL	0:00
Average	0.20
Capability Index	
Cp - Used w/Samples	12.25
Centering Index	
Cpk- Used w/Total Population	0.56
Performance Indices	
Pp	4.33
Ppk	0.20
Skewness	7.43

The histogram determines if a process will deliver a product or service that meets the customer requirements. Customer requirements are defined using the Upper Specification Limit (USL=0:15) and a Lower Specification Limit (LSL=0:00). The clinic Appointment to Check-In process based on the previous SPC is stable, so we can now assess the centering capability of the process. The desired centering index is a Cpk of $\geq$ 1.33. The histogram shows a Cpk of 0.56, demonstrating room for improvement. The histogram is highly asymmetrical and positively skewed = 7.43 to the right.

# of Cases

Values in Time

MARC Primary Care Clinic
Workflow Improvement
Box & Whiskers Plot of median Check-In - AVS CYCLE-TIME by Week

Box-and-Whisker Plots Appt Cycle Times - by Week (29Sep2013-07Dec2014)
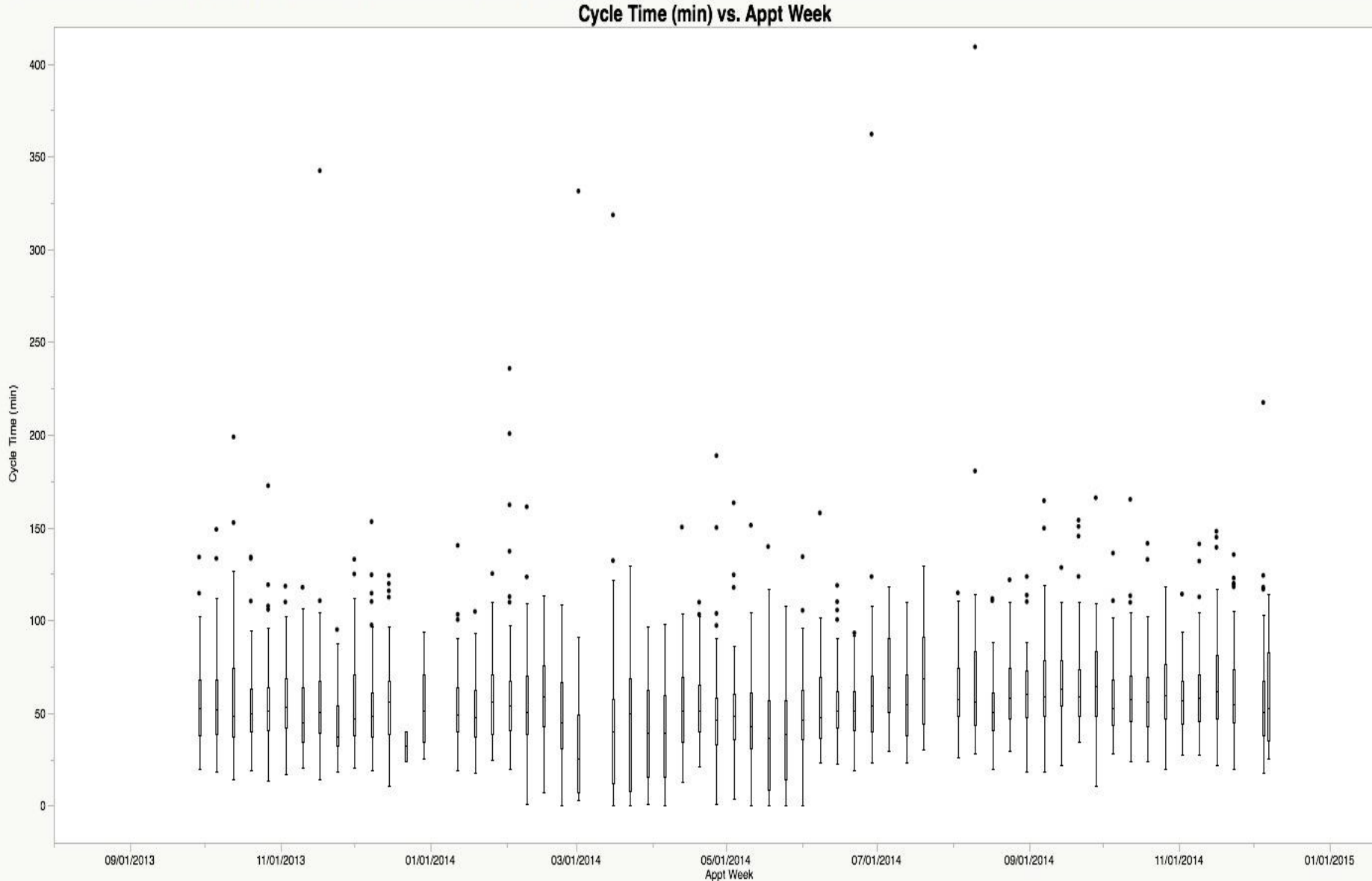
Analysis of Appointment to Check-In Time

| Time Analysis by Categories	Distribution by Time Categories	% by Time Categories	Sum of: Appt Time to Checkin	Average of: Appt Time to Checkin
W/I 15 Min Pre/Appt Time	449	41.2% Early Arrivals	59:51:37	0:08:00
>15 Min Pre/Appt Time	402	36.9% Early Arrivals	259:45:15	0:38:46
W/I 15 Min Post/Appt Time	230 Opportunity	21.1% Late Arrivals	47:59:18	0:12:31
>15 Min Post/Appt Time	8 to improve	00.7% Late Arrivals	3:00:37	0:22:35
Grand Total	**1089**	**100%**	**370:36:47**	**0:20:25**

Analysis of Patient Check-In to Triage Time

Time Analysis by Categories	Distribution by Time Categories	Average of CheckIn to Triage Cycle Time
W/I 15 Min Pre/Appt Time	445	0:27:09
>15 Min Pre/Appt Time	399	0:32:41
W/I 15 Min Post/Appt Time	223	0:22:27
>15 Min Post/Appt Time	8	0:24:48
Grand Total	**1075**	**0:28:13**

* **Totals in the distribution columns are different, as the triage time was in some cases recorded prior to the patient check-in.**

Distribution by Time Categories
Average Check-In to Triage Cycle Time

Legend: Distribution by Time Categories

| Category	Value
W/I 15 Min Pre/Appt Time	445
>15 Min Pre/Appt Time	399
W/I 15 Min Post/Appt Time	223
>15 Min Post/Appt Time	8
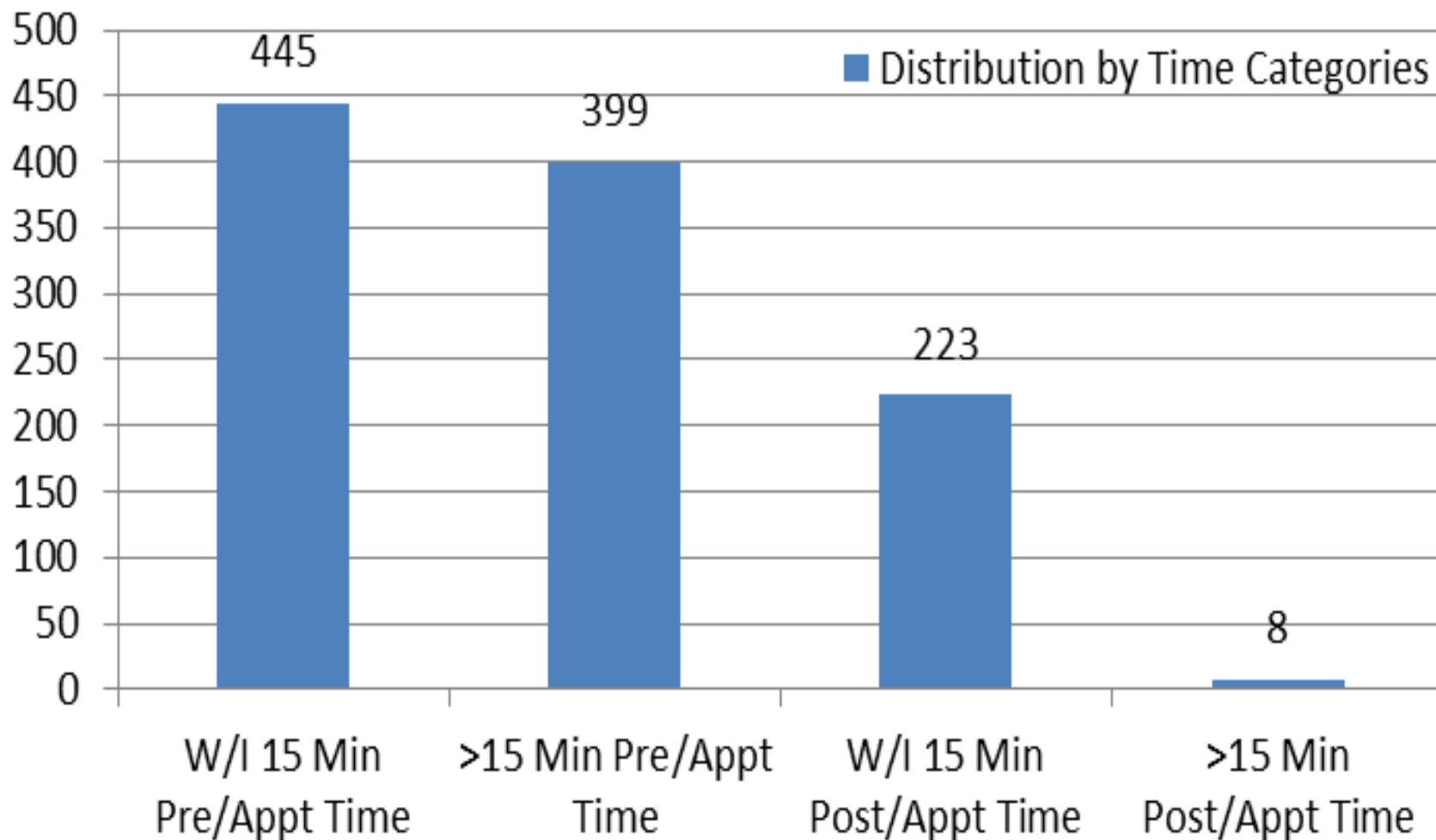
Intervention - continued

<u>Additional interventions proposed 11/12/14 to be implemented</u>

Screen shots of incorrect Medication Reconciliation before and after MD review and correction with immediate feedback to staff.

<u>Goal</u> - Improve the accuracy of medication reconciliation by intake team thus allowing MD to focus more on disease management, counselling and care coordination.
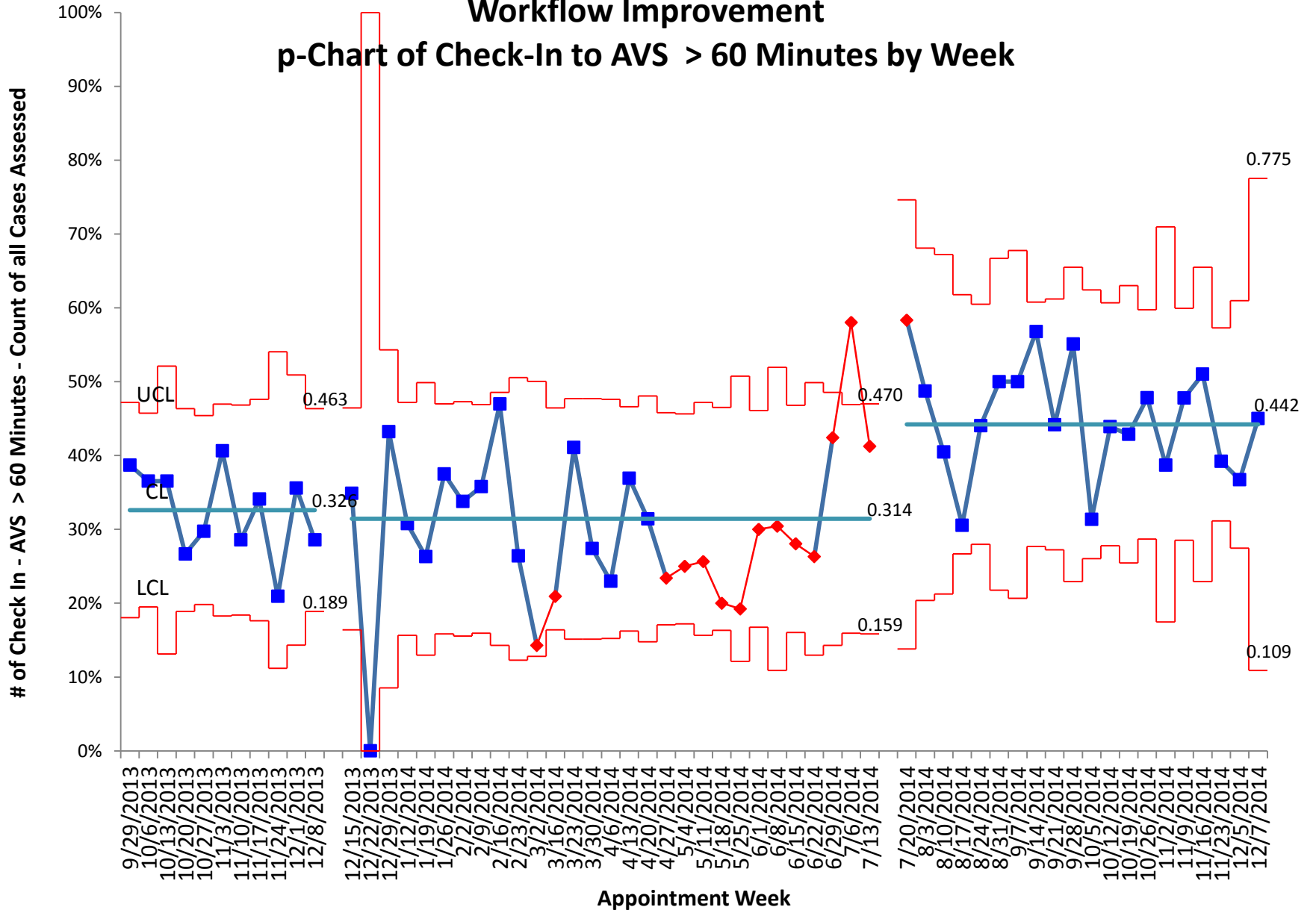
MARC Primary Check In Clinic
Workflow Improvement
Xbar R Chart Average of Check-In - AVS CYCLE-TIME by Week
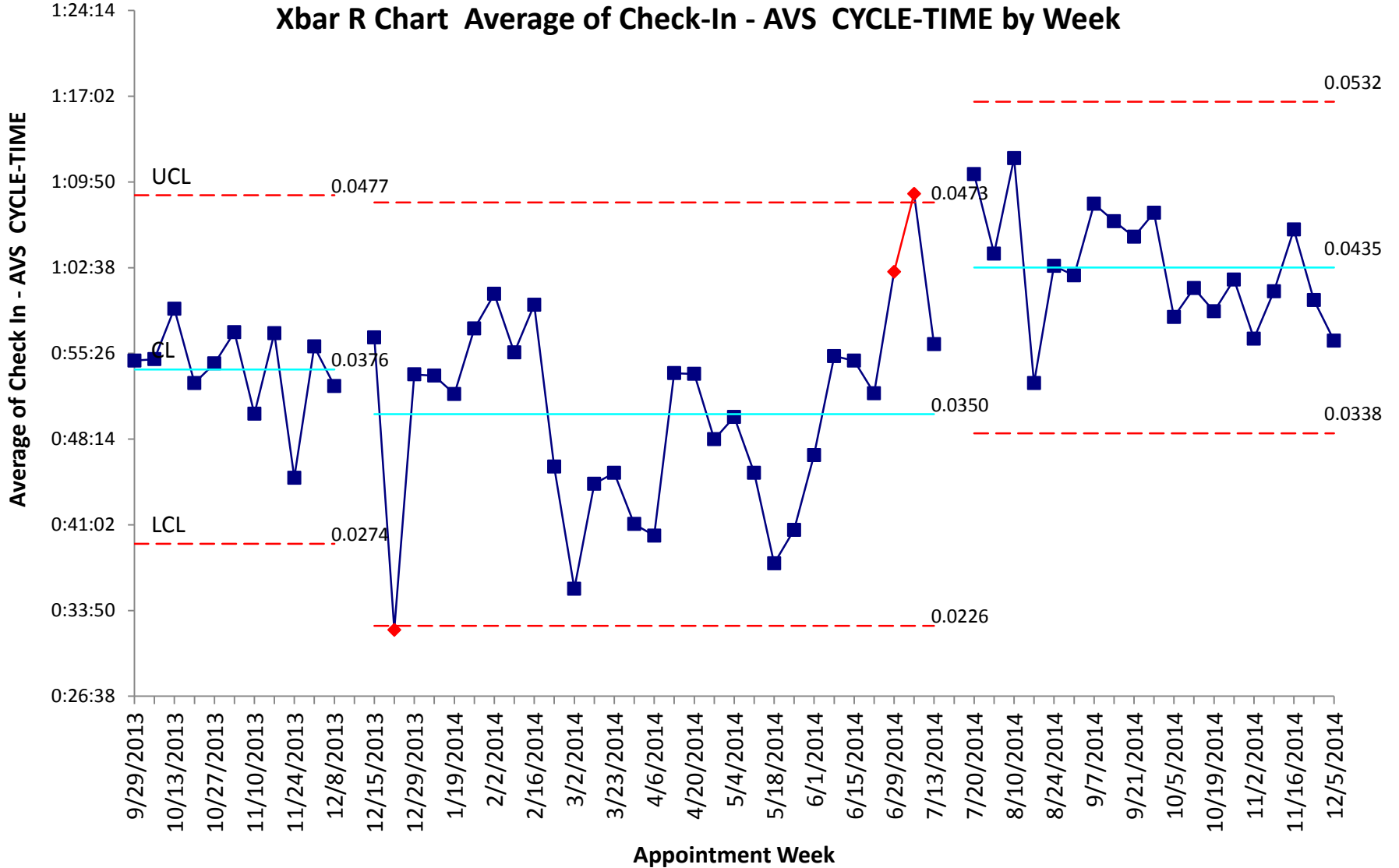
MARC Check In Care Clinic
Workflow Improvement
p-Chart of Check-In to AVS > 60 Minutes by Week

Intervention – continued

Future Intervention

1) Patient Late for appointment was noted as frequent cause for delay and longer cycle time. In near future we plan to edit Televox reminder notifications and appointment slips to say patient must arrive 15 minutes before MD appointment time to complete a nurse visit that involves Updating health history, medications, Immunization records and other Health maintenance items. For example script will say "Please arrive for Nurse visit at 8:45 am in preparation for your MD appointment at 9 am."

2) Increase triage spots and purchase additional triage equipment.

Return on Investment

Soft Gains or Returns (Benefits derived or potential costs avoided)
- Increased patient throughput
- Timely in-basket management
- Increased delivery of non face-to-face patient care
- Reduced physician burn out
- Improved patient experience
- Reduced overtime pay
- Reduced vacancies and turnover rates

Investment Costs
- Scale
- Vital sign machine
- Vital sign stand
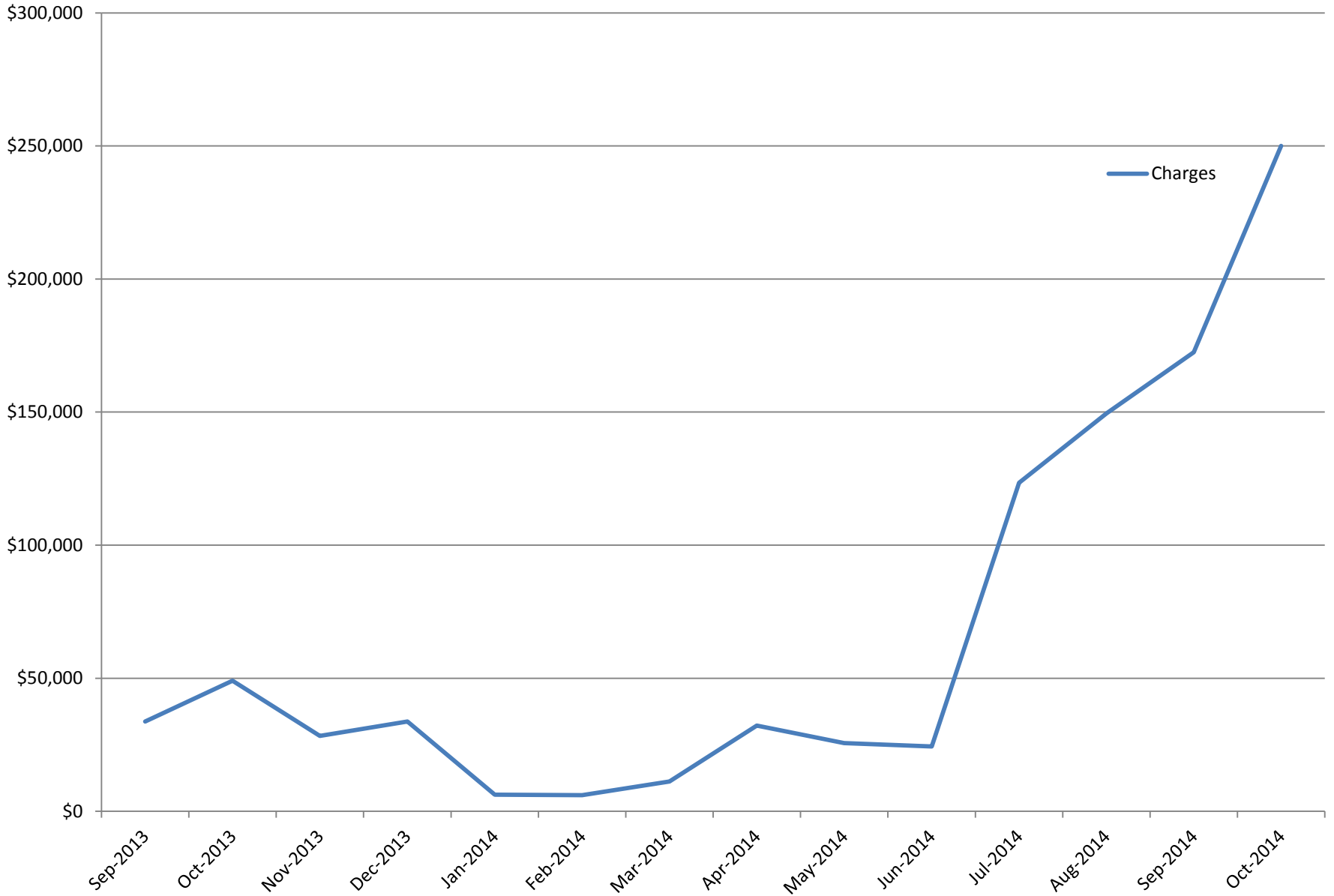- Staff time for data monitoring

Return on Investment

Numerator or Net Gains		
		Annual Gain
Increased Capacity (*1 additional patients/day @ $105)		$25,200
*Conservative estimate of increased productivity		
Denominator or Investment Costs		
Cost Ranges	**Lowest Costs**	**Highest Costs**
Vital Sign Machines	$ 500.00	$ 2,850.00
Vital Sign Stand	$ 150.00	$ 800.00
Scale	$ 500.00	$ 500.00
Data Analyst Annual salary ($55k)		
Data Analyst Benefits (28% of annual salary or $15,400)		
Data Analyst time (4 Hrs @ 33.84 or $135/month x12)	$ 1,620.00	$ 1,620.00
TOTAL COSTS	$ **2,770.00**	$ **5,770.00**
** ROI: Numerator divided by Denominator	9.1	4.4
** for every one dollar spent there is a maximum return of $9.10 or a minimum return of $4.40.		

Health maintenance items addressed %

Date	Value
7/1/2014	47%
8/1/2014	56%
9/1/2014	47%
10/1/2014	35%
11/1/2014	69%
12/1/2014	64%

◇ Clinic Average   ■ (Multiple Items)

Medicare Wellness Charges

Summary
Lessons learnt from this Project

- **MARC Primary Care Clinic has a reasonable cycle time (Patient check in to MD discharge time) approximate 60 minutes +/- few seconds**

- There are areas of inefficiency/wasted time counted to this cycle time **"time spent waiting for nurse to triage".** We plan to target future interventions as outlined in previous slides to reduce wasted time

- Marginal increased Intake time after 8/15/14 can be attributed to comprehensive Intake questionnaire and as a **result a 20% increase in completion of overdue health Maintenance item was noted clinic wide.**

- **As a result patient can spend <u>unrushed quality time with the physician</u> focusing more on disease management, counselling and care coordination ultimately improving health outcomes and patient satisfaction**.

Thank You !