

ASCO Quality Training Program

Reducing Time to High Dose Methotrexate
Administration on an Inpatient Oncology Ward.

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Institutional Overview

- 612-bed tertiary academic medical center in Charlottesville, VA
 - Inpatient hematology/oncology unit: 35 beds
- UVA Cancer Center
 - NCI-designated cancer center





Team Members

Daniel Reed, MD

Hannah Samley, RN

Eric Pierce, MD

Jeremy Sen, PharmD

Holly Mellot, RN

Camilo Fadul, MD

Michael Keng, MD

Team Leader

Core Team Member

Core Team Member

Other Team Member

Other Team Member

Other Team Member

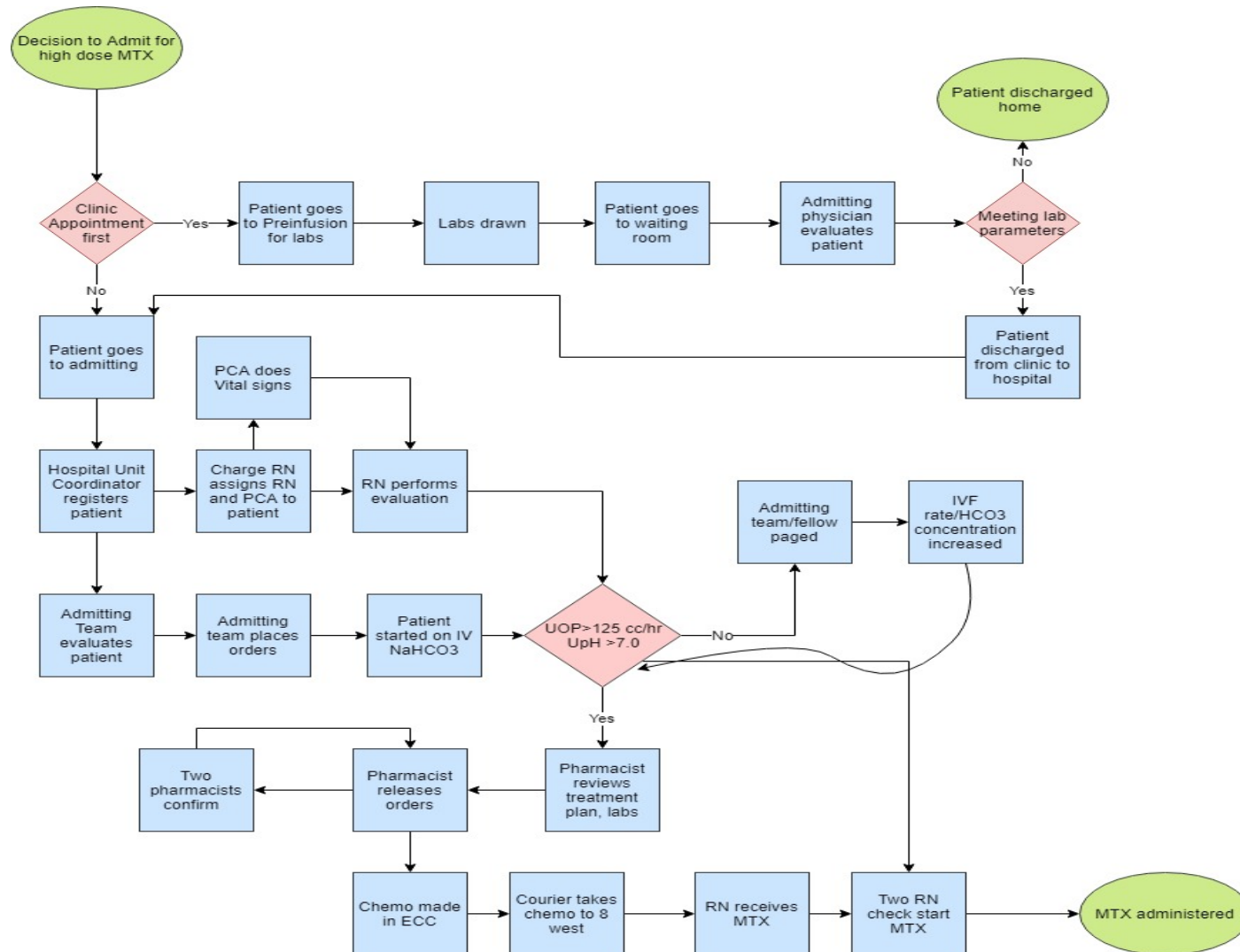
QTP Coach



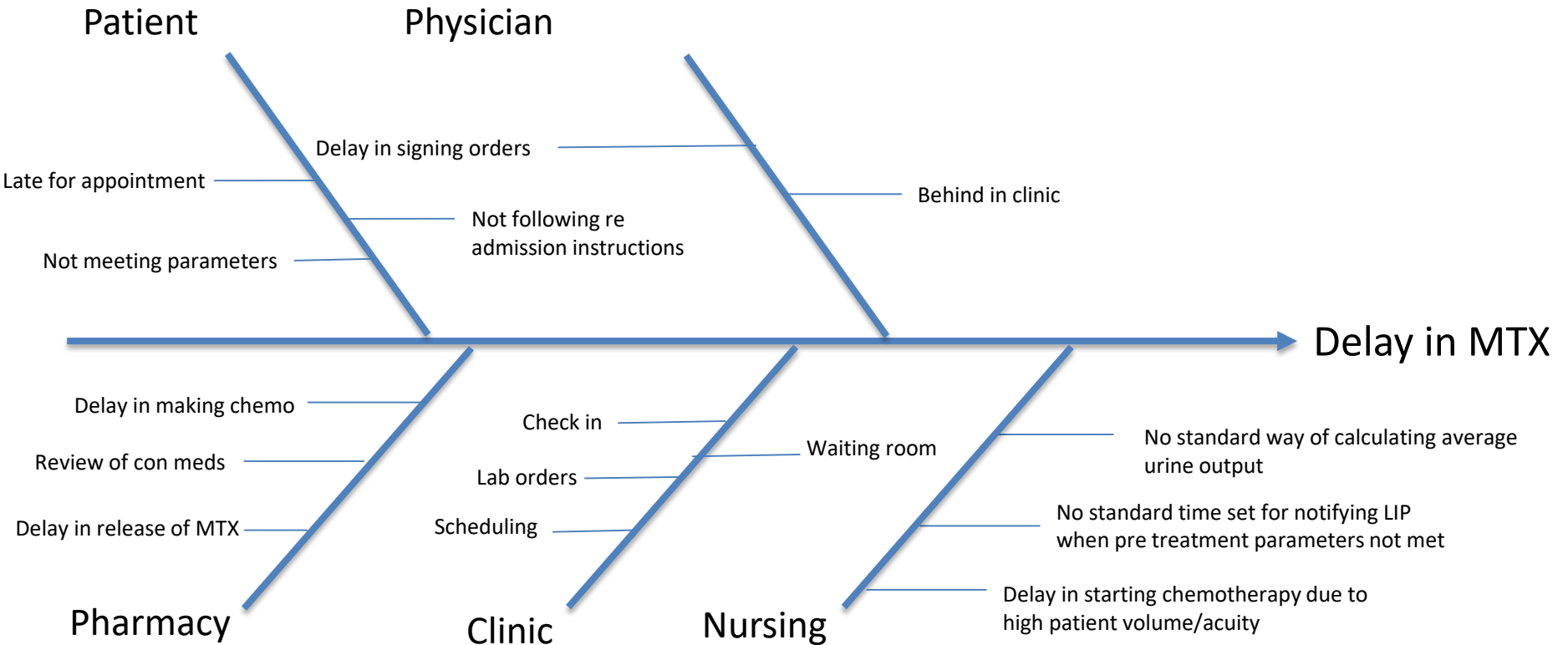
Problem Statement

All patients who receive high dose methotrexate at the University of Virginia from 5/2017-5/2018 experienced a median 8 hour delay resulting in increased length of stay, increased cost of care, and decreased patient satisfaction.

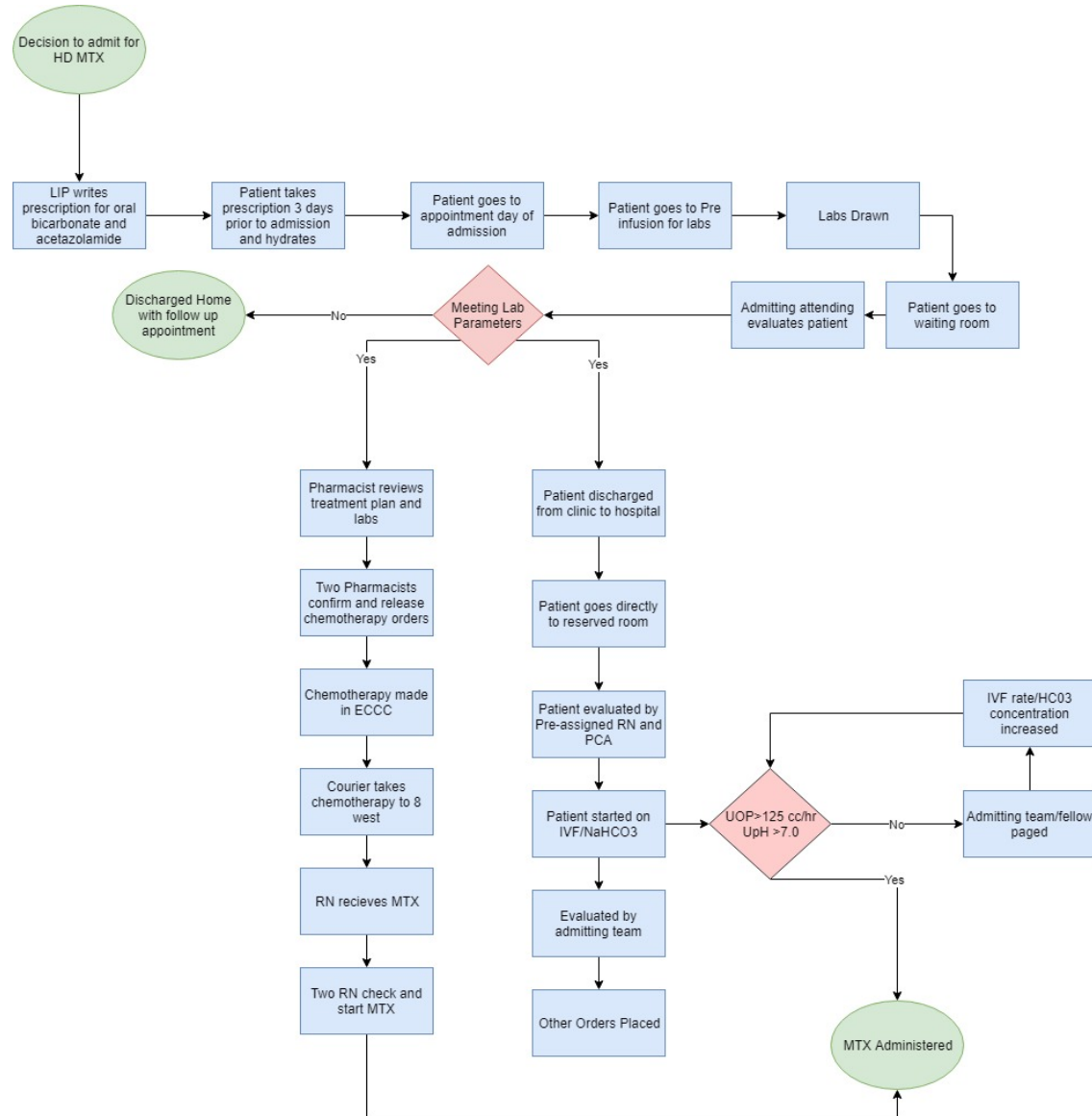
Current State Process Map



Cause & Effect Diagram



Ideal State Process Map





Measures

- Measures:
 - Process measure: Time to HD MTX administration, time to urine output, time to urine pH >7.0
 - Outcome Measure: Length of Stay (lagging indicator)
- Patient population: Patients receiving systemic high dose methotrexate
 - Excluded: Neuro oncology patients
- Calculation methodology
 - Numerator: number of times a delay occurred
 - Denominator: total number of delays
- Data source: EPIC chart review
- Data collection frequency: One Year
- Data quality(any limitations): Retrospective collection of data, sample bias



Baseline Data

- 157 total charts reviewed from 5/2017-5/2018
 - 61 neuro oncology patients excluded
 - 86 hematology/oncology patients examined
- Median time to high dose methotrexate: 8 h
- Median time to urine output >125 cc/hr: 9.13
- Median time to pH >7.0 : 6.94

Baseline Data

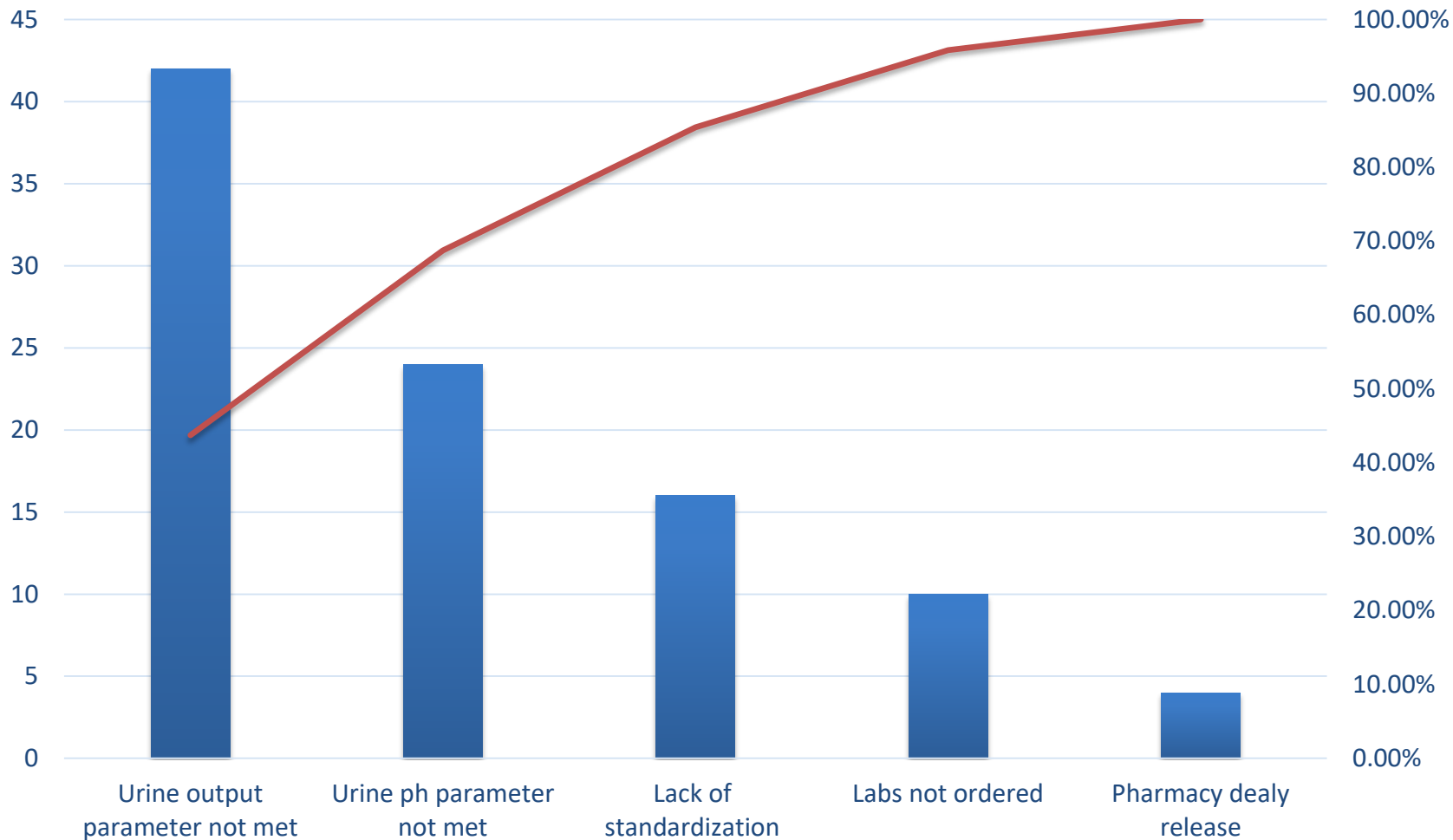
Chemotherapy Regimen	# of Patients	Median Time to Methotrexate	Median Time to pH 7	Median time to UOP >125 cc/hr	Median Length of Stay
12 g/m ²	12	8.25	19.42	20.3	4.03
3.5 g/m ²	50	9.73	6.87	11.02	4.04
6 g/m ²	1	14.90	4.72	14.9	4.22
8 g/m ²	1	7.53	4.28	8.85	3.07
COG AALL0034	14	8.80	6.03	7.84	4.03
HyperCVAD	17	8.87	9.30	6.12	4.06
SMILE	1	20.9	211.8	14.7	15



Diagnostic Data: Tally Chart

Reason For Delay	Frequency
Urine output parameter not met	42
Urine pH parameter not met	24
Lack of standard process	16
Labs not ordered	10
Delay in release of MTX	4
Total	96

Diagnostic Data: Pareto Chart





Aim Statement

By January 2019, leukemia and lymphoma patients receiving high dose methotrexate inpatient will have a 25% reduction in treatment start time from baseline

Prioritized List of Changes (Priority/Pay –Off Matrix)

High Impact	<p>Prescribing oral alkalization prior to admission</p> <p>Encourage oral hydration prior to admission</p>	Give Methotrexate Outpatient
	<p>UA in outpatient clinic before patient is admitted</p>	
Low Impact		
	Easy	Difficult

PDSA Plan (Test of Change)

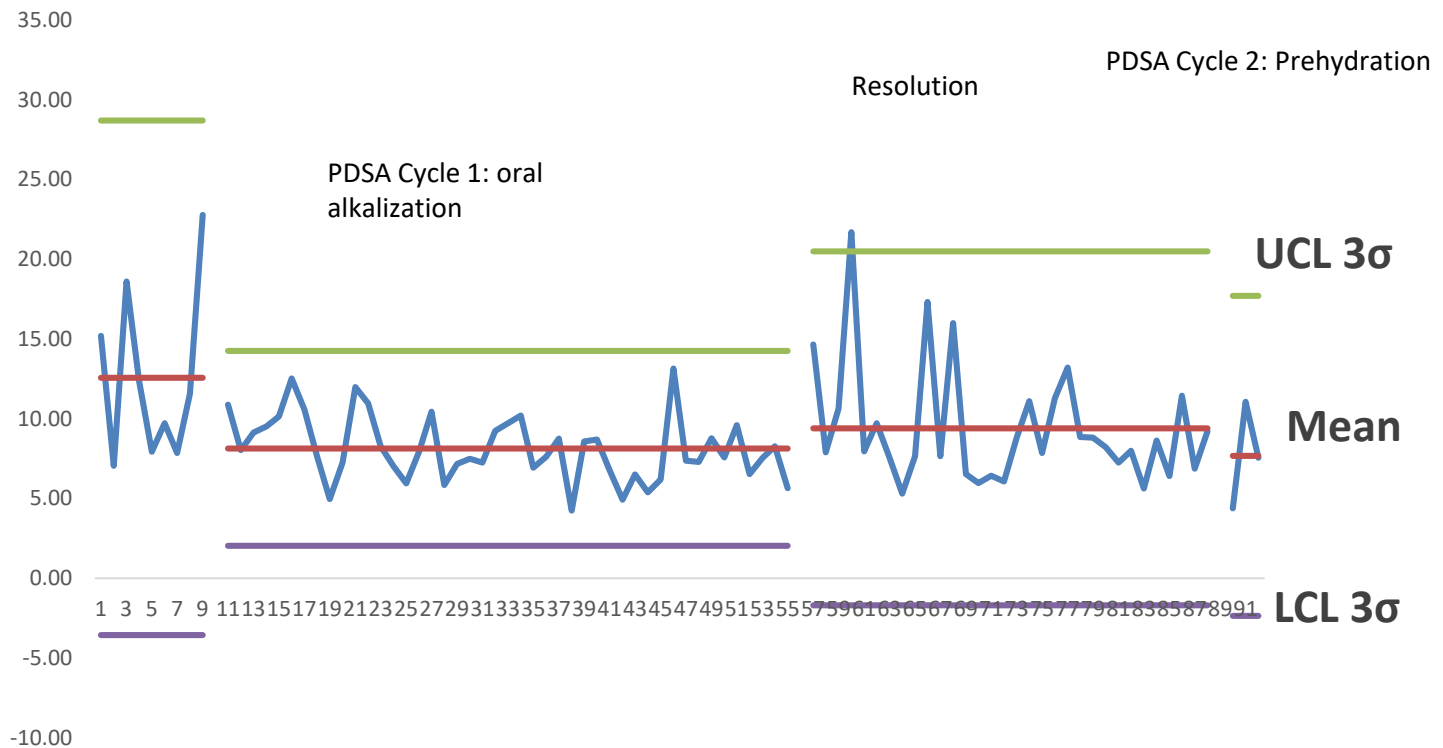
Date of PDSA Cycle	Description of Intervention	Results	Action Steps
11/1/2018	Oral and IV prehydration	Ongoing	

PDSA Cycle

- All patients provided education regarding prehydration with 64 fluid ounces of fluid day prior to admission
- Patients seen in clinic on day of admission and sent to infusion for 1 liter bolus for prehydration
- Select patients provided prescriptions for oral bicarbonate and acetazolamide

Change Data

3 Process Control Chart Time to Methotexate



Problems Encountered

- Patient factors: compliance; education from nursing staff
- Unit acuity/time
- Lack of standardization among nursing staff

Conclusions

- Too early to examine PDSA Cycle
- Education opportunity for nursing and clinical staff
- Goal is to decrease time to methotrexate to hopefully decrease length of stay and improve patient experience

Next Steps/Plan for Sustainability

- Monthly meetings with Nurse coordinators to ensure compliance with pre hydration protocol
- Weekly collection of data for MTX patients admitted