

# *ASCO's Quality Training Program*

Project Title: Decreasing Initiation of Chemotherapy Time in Elective Patients admitted to an Inpatient Hematology Malignancy Unit

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Montefiore Medical Center  
Bronx, NY

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# Institutional Overview

- Montefiore Medical Center consists of eleven hospitals; a primary and specialty care network of more than 180 locations across the Bronx, Westchester County, and the lower Hudson Valley; Albert Einstein College of Medicine; an extended care facility; the Montefiore School of Nursing.
- NCI-designated Cancer Center
- In our institution, 19-20 patients are admitted per month for elective chemotherapy (non-transplant) admissions.

# Problem Statement

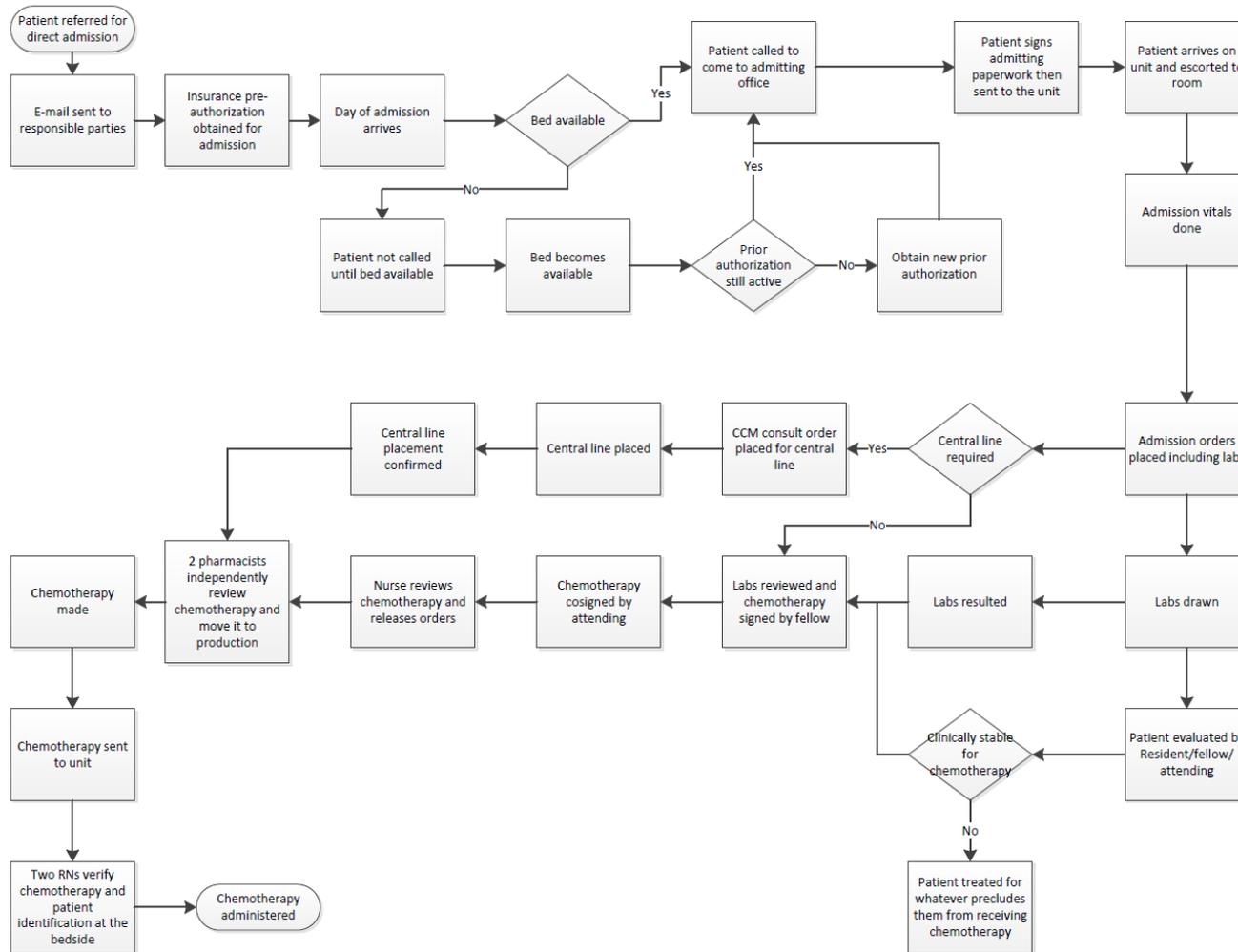
- 86% (n=25) of patients with hematologic malignancies admitted for elective chemotherapy in the oncology unit experienced a delay (greater than 6 hours) in initiating their treatment in the period of February to March 2017.
- This delay results in:
  - an increased length of stay.
  - decreased patient satisfaction.
  - increase of resource utilization.

# Team Members

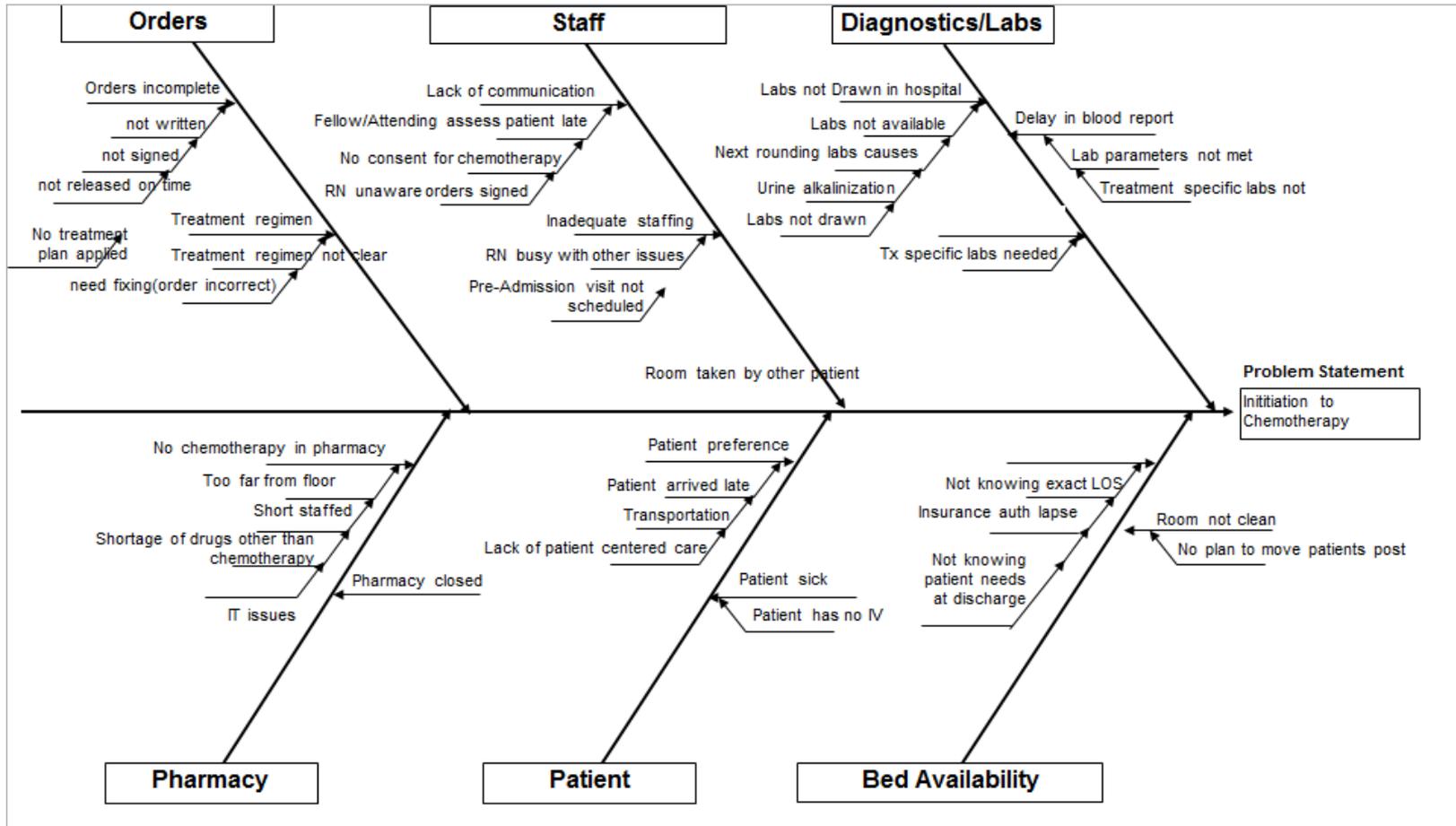
TEAM MEMBER	ROLE
Stu Packer	Medical Director
Jalpa Sojitra	Oncology Pharmacist
Cheron Jacobs	Physician Assistant
Jennat Mustafa	Physician Assistant
Dana Amorese	Physician Assistant
Chiniqua Lee	Administrative Assistant (manages the elective admission list)
Sandra Palmer	Personal Care Attendant
Ioannis Mantzaris	Heme malignancy attending
Jennifer Rodriguez	Outpatient phlebotomist

TEAM MEMBER	ROLE
Patrina Guy	Outpatient phlebotomist
Brian Wagner	Outpatient clinic nurse
Lisa Henderson	Admitting/Insurance Approval
Albert Weiner	Patient Logistics
Jose Galeas	Clinical Oncology Fellow
Solitaire Coutrayer	Social Worker
Roy Browne	Director of Oncology Pharmacy
Karen Wright	Clinical Nurse
Susan Sakalian	Clinical nurse educator
Adam Binder	Heme Malignancy Attending

# Elective Chemotherapy Admission Process Map

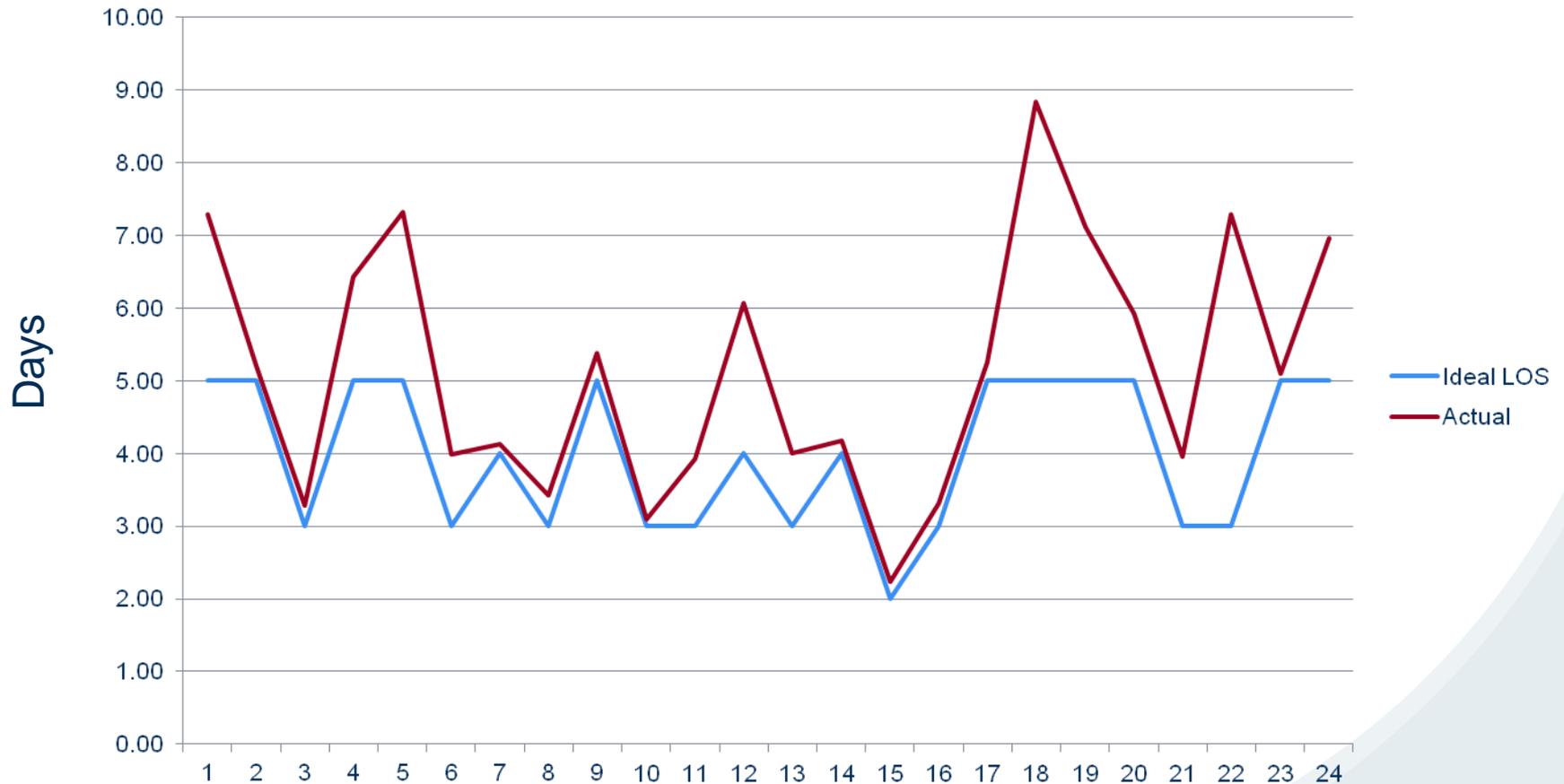


# Cause and Effect Diagram



# Diagnostic Data

Ideal - average length of stay according to chemotherapy regimen duration vs. Actual Length of stay – time from admission to discharge

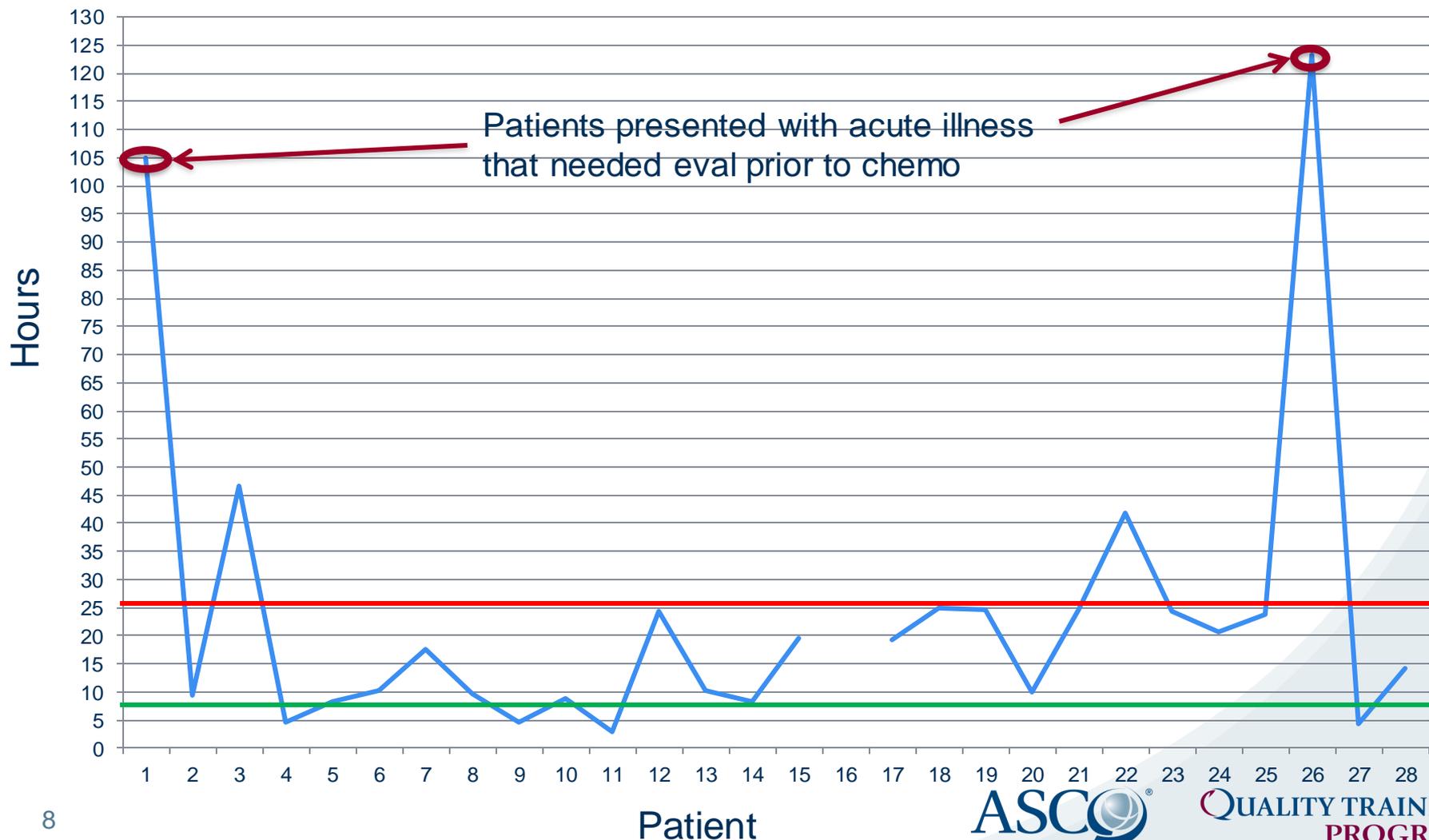


Patient

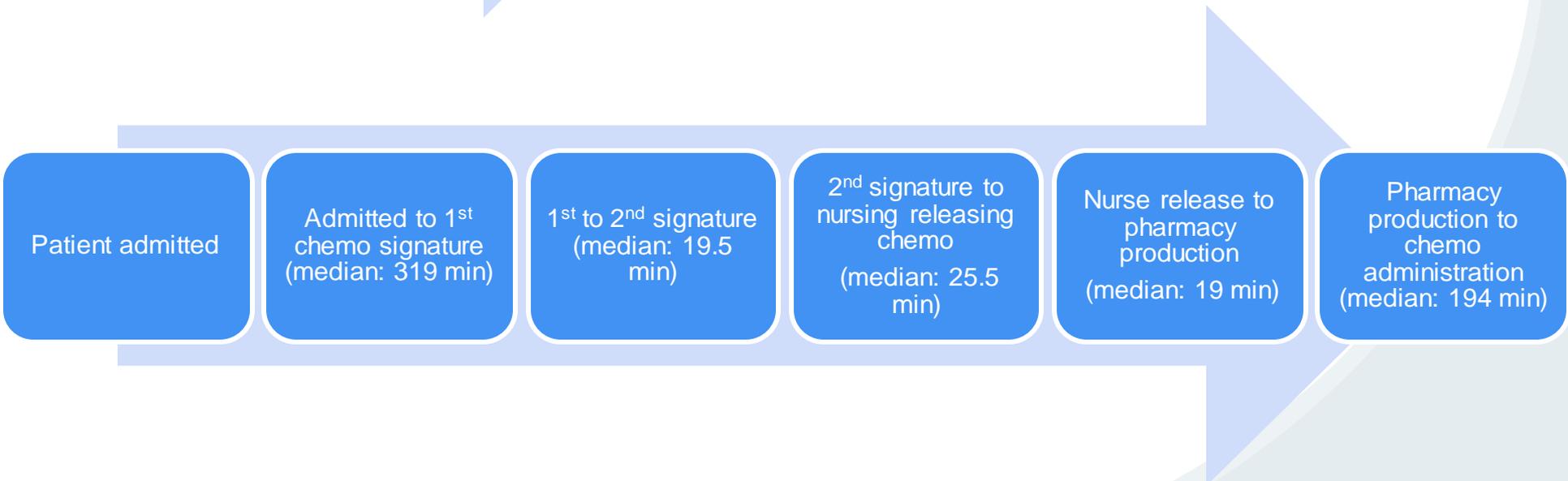
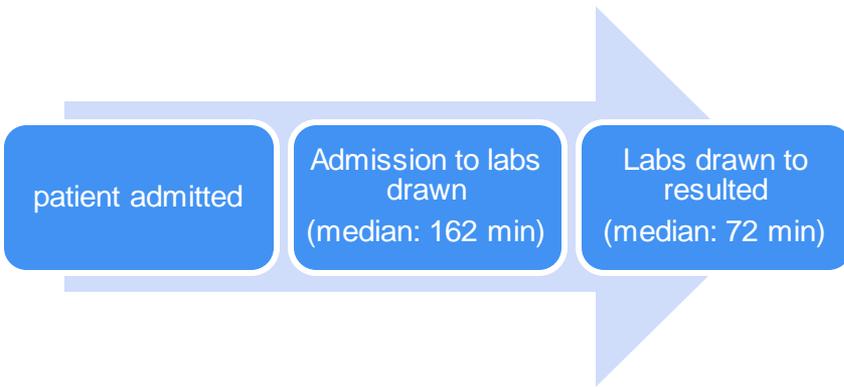


# Time from admission to chemotherapy

Defined from time of vital signs taken at admission until time of discharge order in EMR.



# Median Times to Steps in Process



# Aim Statement

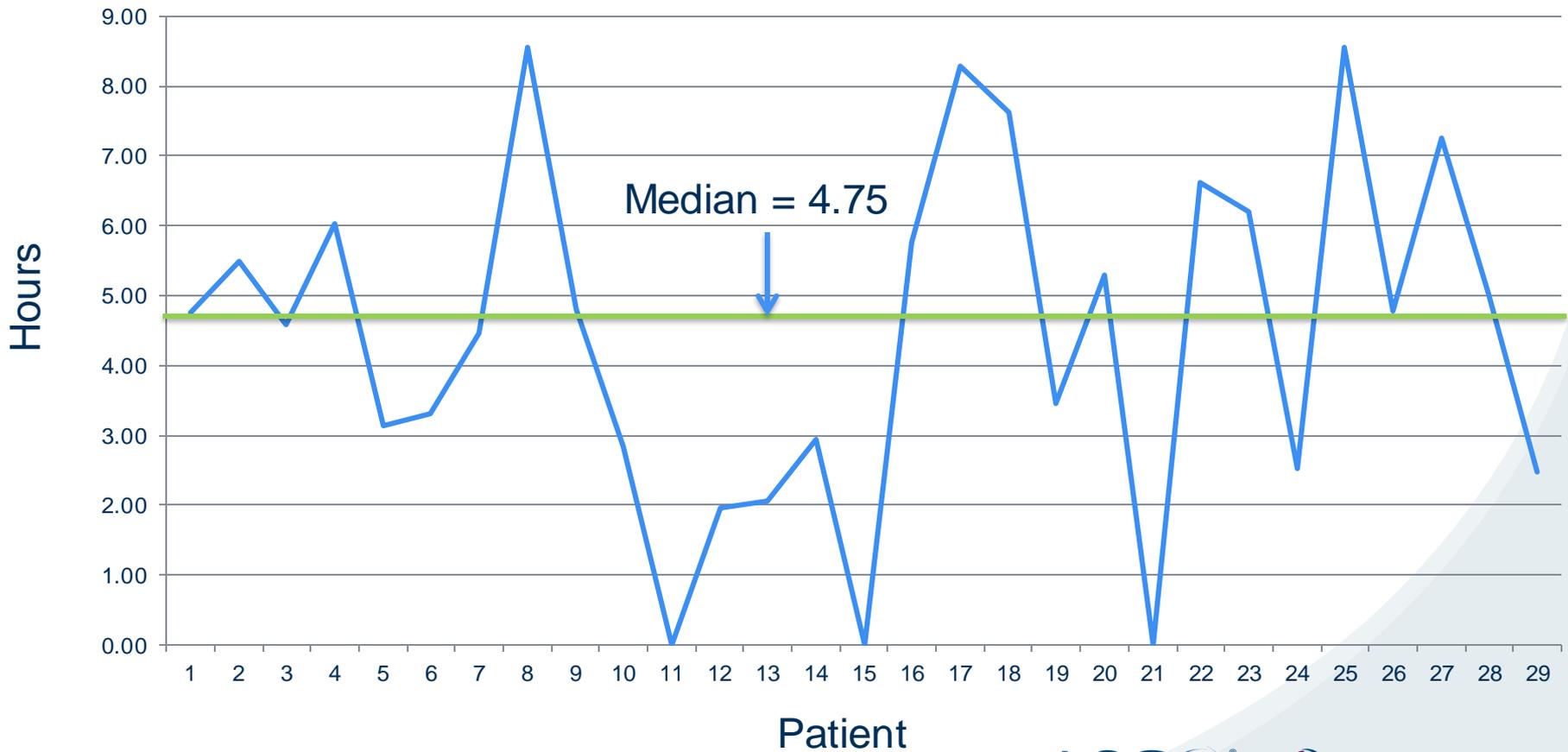
- Our AIM is to reduce the time from admission to initiation of chemotherapy by 76% from a median of 25 hours to a median of 6 hours by December 2017.

# Measures

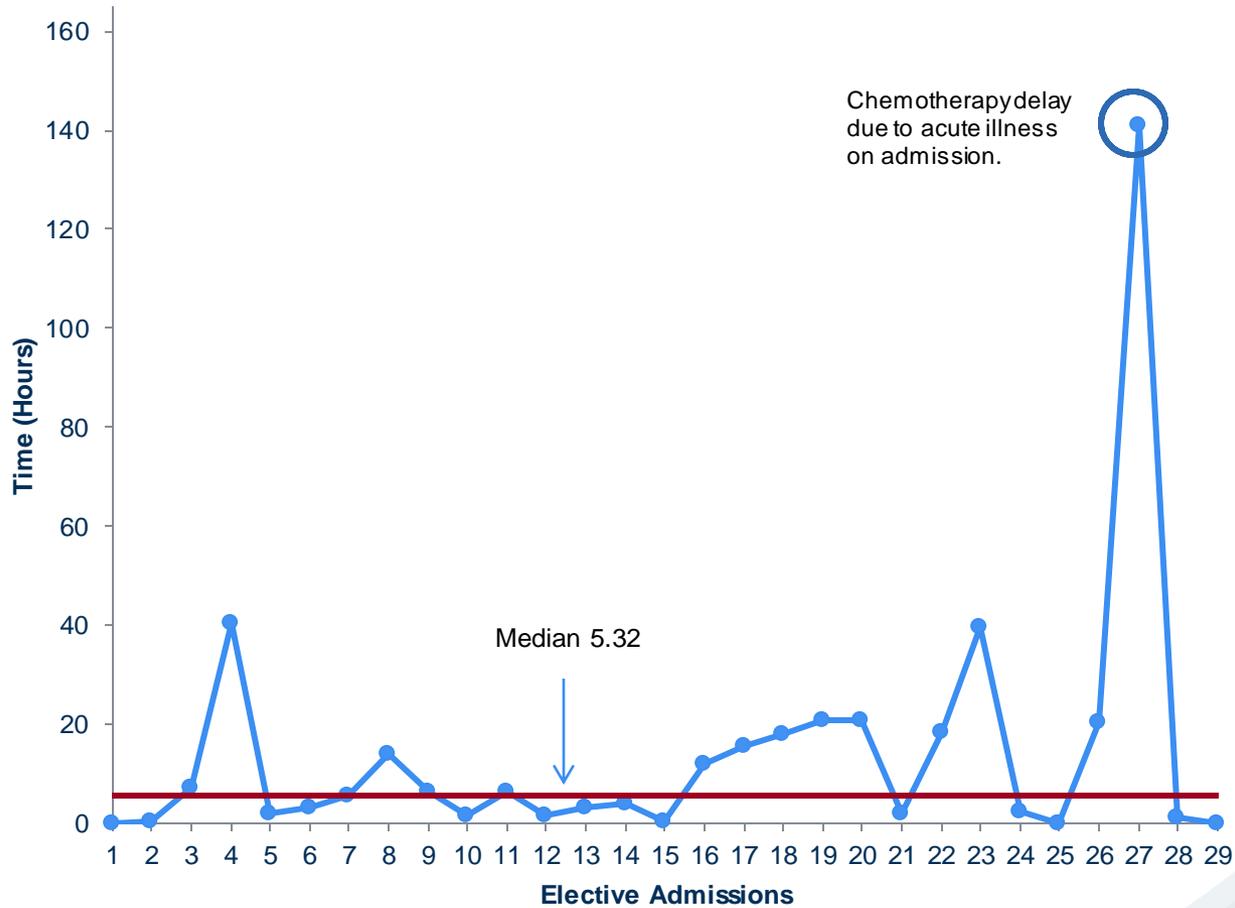
- Measure: Time from admission to chemotherapy (Defined from time of vital signs taken at admission until time of chemotherapy administration)
- Patient population: Patients admitted for elective chemotherapy
  - Exclusions (if any): Patients who are acutely ill on arrival for elective admission.
- Calculation methodology: We are measuring difference in time between admission and key process measures. i.e.
  - Time from admission to laboratory exam results
  - Time from admission to chemotherapy signed
  - Time from chemotherapy signed to chemotherapy released by nurse
- Data source: EMR
- Data collection frequency: Every two weeks
- Data quality (any limitations): Admission time/date is based on initial vital sign, which may not be reflective of time patient arrives to the floor.

# Diagnostic Data

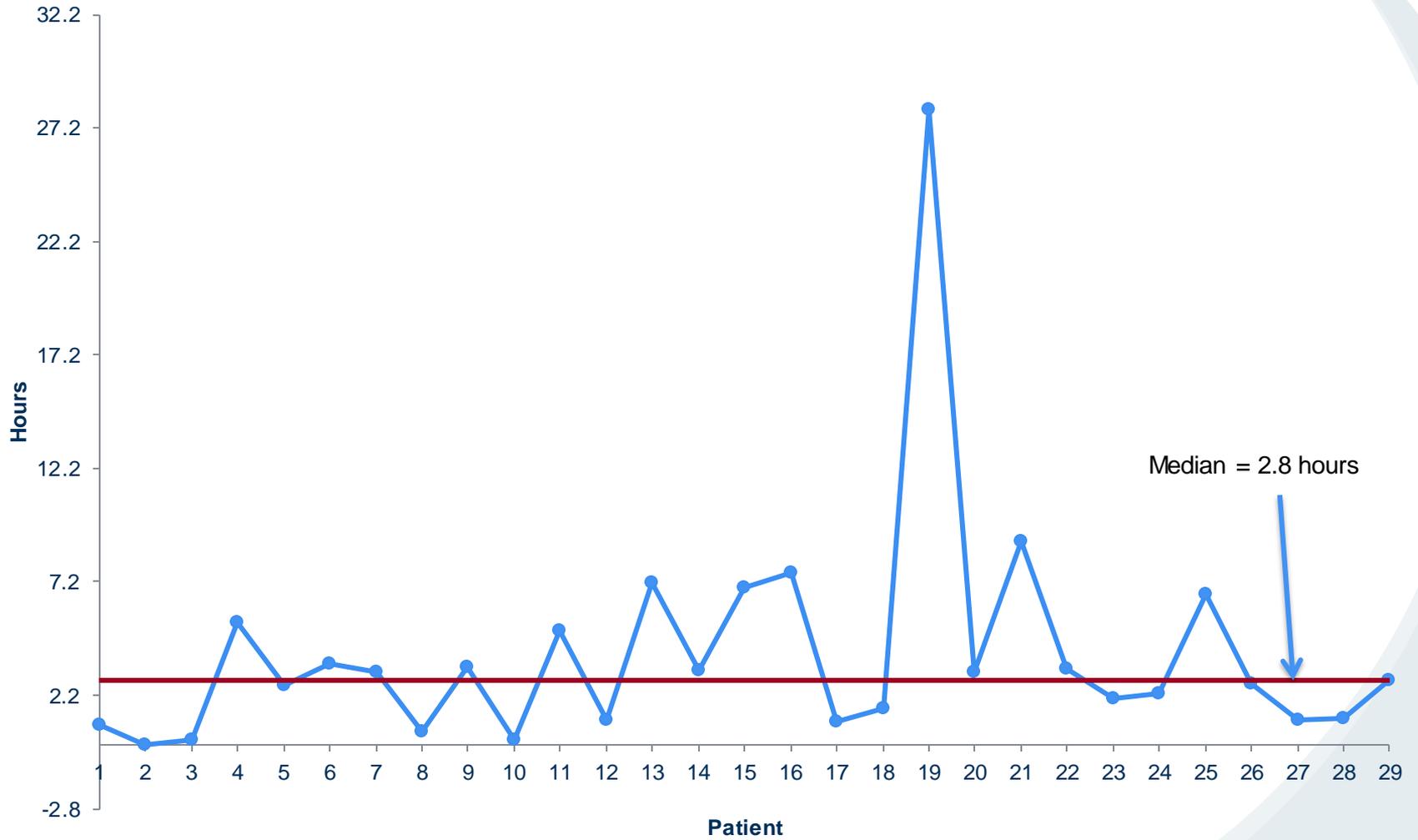
# Time From Admission to Labs Resulted



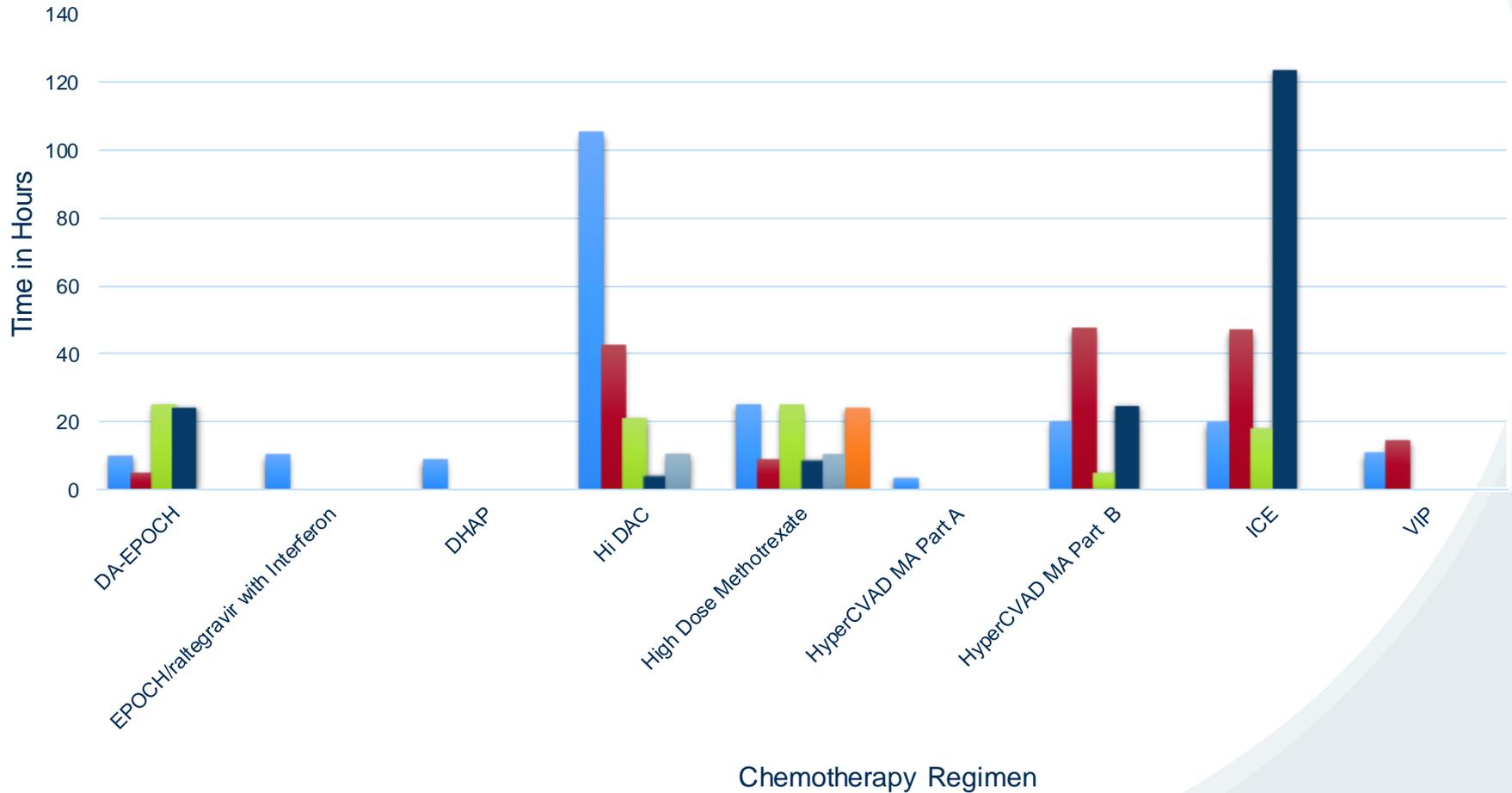
## Time from Admission to 1st chemotherapy signature



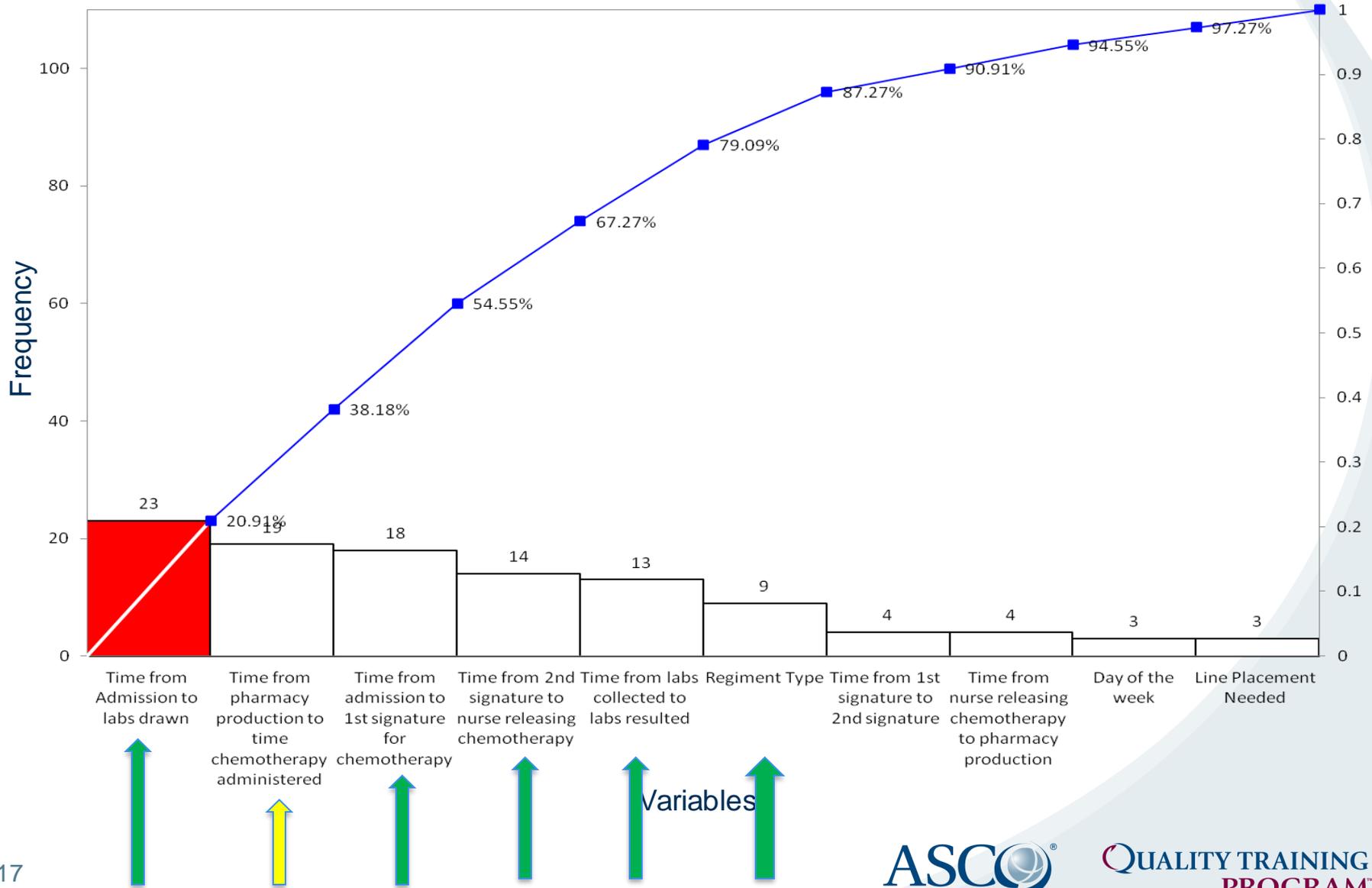
# Time from Production to chemotherapy administered



# Time from Admission To Chemotherapy by Regimen



# Admission to Chemotherapy Process



# Prioritized List of Changes (Priority/Pay-Off Matrix)

Impact	High	<ul style="list-style-type: none"><li>- Labs drawn on day of admission prior to coming to floor</li><li>- Obtain consent for chemotherapy prior to admission</li><li>- Alkalinize urine prior to admission (PO tablets) / (IVF as outpatient transition to inpatient)</li></ul>	<ul style="list-style-type: none"><li>- Implementation of new IDT rounds workflow to improve discharge planning</li><li>- Pharmacy reviews plan morning of admission</li><li>- Improve communication between nursing and physician through modifications in EMR</li><li>- Fellow / Attending to see patient within hour of patient arriving to floor</li></ul>
	Low	<ul style="list-style-type: none"><li>- Outpatient central line placement</li></ul>	<ul style="list-style-type: none"><li>- “Relocate” patient when chemotherapy is done, while awaiting discharge</li><li>- Pre admission visit to streamline process</li><li>- Complete orders before admission</li></ul>
		Easy	Difficult

Ease of Implementation

# PDSA Plan (Tests of Change)

Date of PDSA cycle	Description of intervention	Results	Action steps
6/22/17	Improve communication between nursing and physician through modifications in EMR	Neutral – No change in time from signature to nurse releasing the chemotherapy.	Change – In addition to EMR modifications, ensure that we discuss new chemotherapy plans and direct admissions during interdisciplinary rounds.
7/19/17	Change work flow so labs drawn in clinic before admission if patient arrived before 4pm	Positive – Significant decrease in time from admission to labs resulted as labs processing while patient being registered for admission.	Adopt - Initially had an administrator working with admissions to coordinate process, but as it has become part of the workflow, admissions office is now integrated it into their process.
7/28/17	AB reviewed admission list and reminded outpatient providers to alkalinize urine prior to admission and encourage prompt chemotherapy signatures for elective admissions	Positive – More patients coming in with urine pH >7.5 and chemotherapy being signed in a more timely fashion.	Adopt - Open discussion with providers to keep them involved in process.

# Materials Developed

Columns added to multi-provider workflow so can see when treatment plan has been signed

Signed Tx Plan	Next Treatment Day
No Tx Plan	
Zero Days Left	
Yes	9/30/2017
No	10/6/2017
No	10/5/2017
Yes	9/30/2017
Yes	10/2/2017
No Tx Plan	
No	10/9/2017
No	10/11/2017
Yes	9/29/2017
No	10/25/2017
Yes	10/6/2017
Yes	12/22/2016
Yes	9/29/2017
No	9/22/2017

Admission labs template for providers

**Standard Admission Labs**

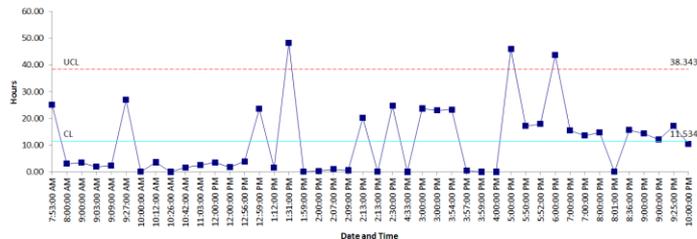
- Complete blood count
- Basic Metabolic Panel
- Liver tests
- Lactic Dehydrogenase
- Uric Acid
- Type and Screen
- Prothrombin time
- Partial Thromboplastin time

**Additional Patient/Regimen Specific Labs:**

- **Pregnancy test**- Required for all females of childbearing potential
- **Urinalysis for pH**- Methotrexate containing regimen
- **Hep B Screening**- All patients receiving rituximab (or anti-CD20) containing regimen
  - Hep B surface antigen
  - Antibody Hep B core

Both tests must be done within the last 3 months
- **G6PD analysis**- If Rasburicase will be ordered
- Any other protocol specific labs required for patients on clinical trial

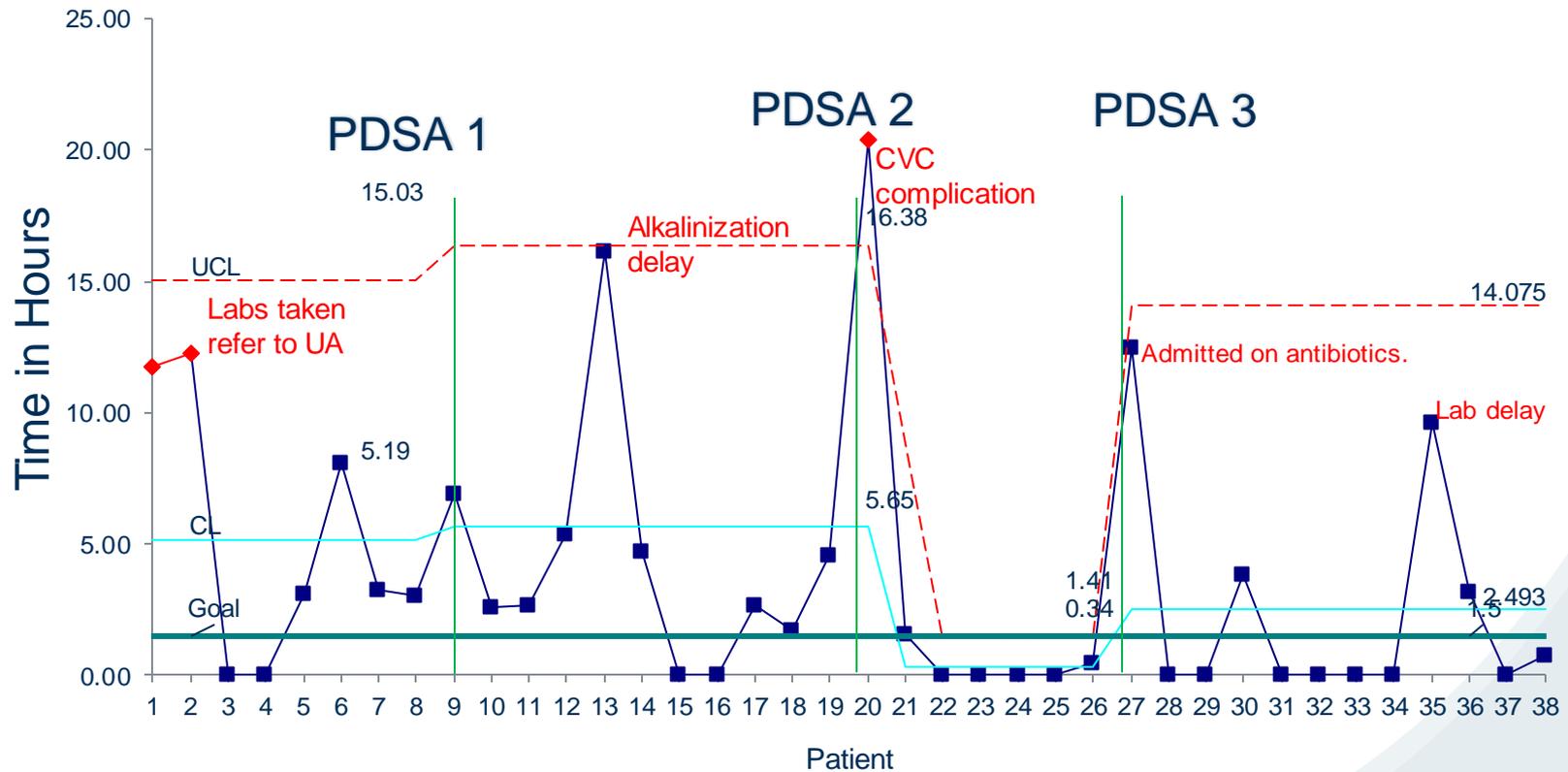
Time from Admission to chemotherapy signature



Display to physicians that the later in the day the patient arrived, the longer it takes for the physician to sign the chemotherapy

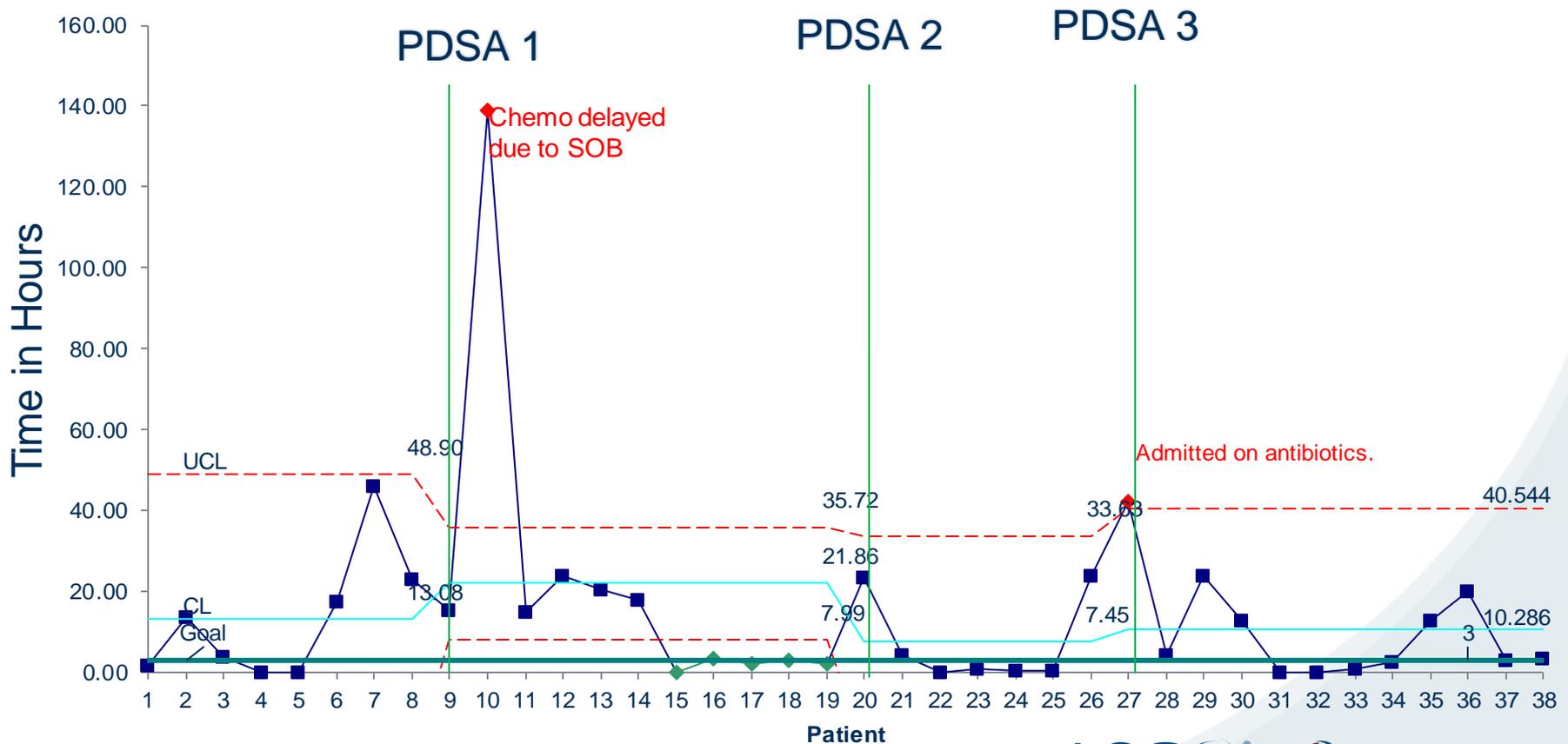
# Change Data

## Time from Admission to Labs Resulted



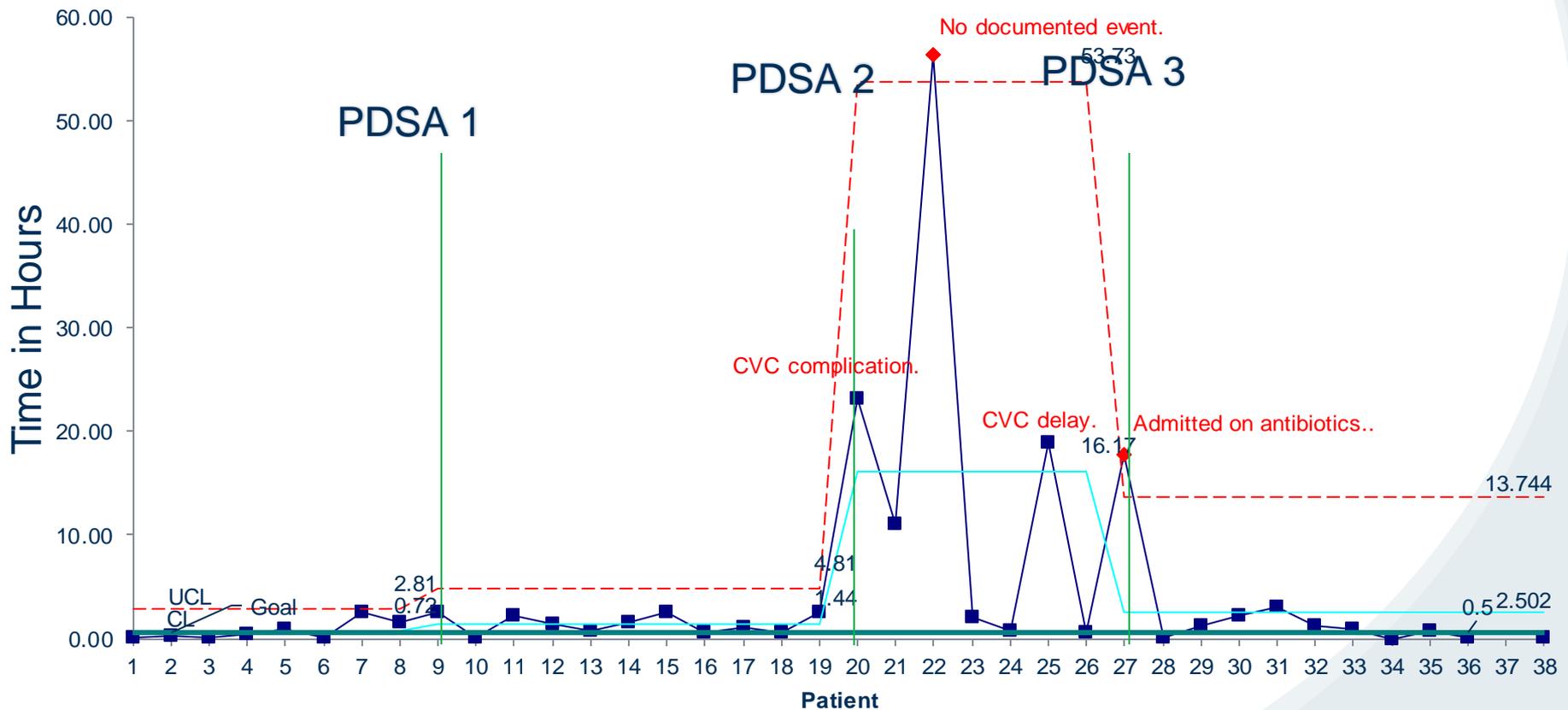
# Change Data

## Time from Admission to 1st Chemotherapy Signature



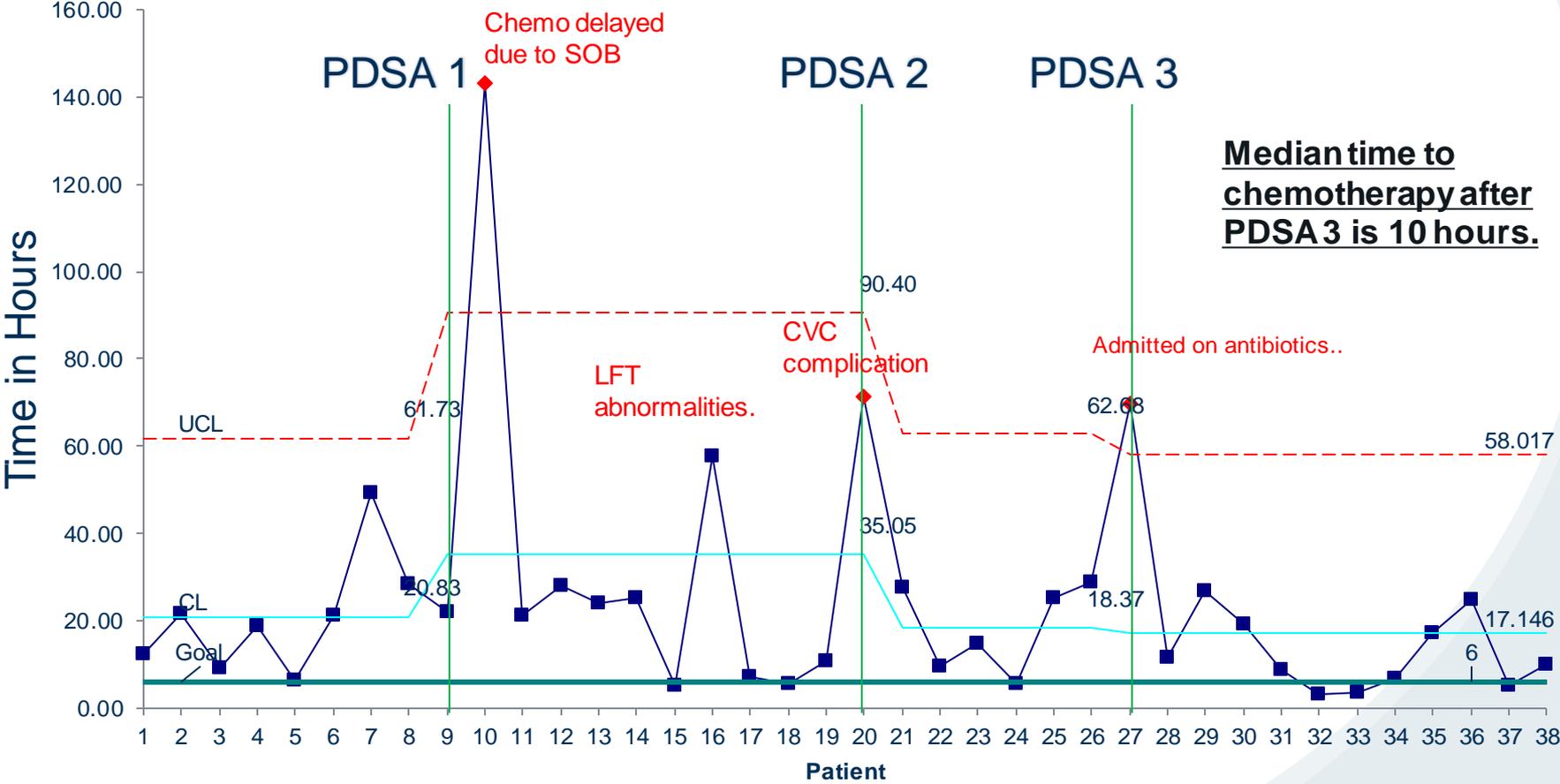
# Change Data

## Time from Last MD Signature to Nurse Releasing Chemo



# Change Data

## Time From Admission to Start of Chemotherapy



# Conclusions

- By implementing new admission workflows, optimizing our use of the EMR to communicate among providers, and improving pre-admission planning we were able to decrease time from admission to initiation of chemotherapy by 60% (initial median 25 hours, new median 10 hours).
- Improvement still needed to meet our goals and fully standardize the processes as part of our daily workflow.

# Median Times to Steps in Process after PDSA

Median 234 min  New median 127 minutes

patient admitted

Admission to labs drawn  
(median: 162 min)

Labs drawn to resulted  
(median: 72 min)

Patient admitted

Admitted to 1<sup>st</sup> chemo signature  
(median: 319 min)  
**(New median 222 Minutes)**

1<sup>st</sup> to 2<sup>nd</sup> signature  
(median: 19.5 min)

2<sup>nd</sup> signature to nursing releasing chemo  
(median: 25.5 min)

Nurse release to pharmacy production  
(median: 19 min)

Pharmacy production to chemo administration  
(median: 194 min)

# Next Steps/Plan for Sustainability

- We will focus next on decreasing time from chemotherapy production to chemotherapy administration.
- We plan to have continuous meetings with all staff involved in the process showing our improvement as well as looking for feedback
- Continue to send E-mails congratulating staff for their hard work, that serve as reminder for the changes we have made to the admission process