

# ***High Reliability* Trauma Imaging:**

Establishing a ***Collegial Interactive Team***  
as the foundational structure to  
improve trauma patient imaging processes and metrics  
in advance of ACS level 1 trauma recertification.

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with

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# About the presenter



- Class President, UT-Houston Medical School
- Chief Resident, UT-Southwestern Radiology Residency
- Board Certified, American Board of Radiology w/ Neuroradiology CAQ
- Board Certified, American Board of Medical Quality (CMQ)
- Graduate, Clinical Quality Fellowship Program, Greater NY Hospitals/United Hospital Fund
- 1<sup>st</sup> MD in NYC H+H history to achieve highest level in Lean certification
- Certified Physician Executive (CPE), American Association for Physician Leadership
- MBA, UMass-Amherst

## NYU ED Rad 2010 – 2020

Built Trauma ED radiology from:

One section → Division w/ four sections

6 rads → 24 full time ED rads

>\$1 million in moonlighting/year

One level 1 trauma center → three level one trauma centers and four stroke centers.



## Denver Health ED Rad 2020 –

Joined Sept 1<sup>st</sup>, 2020!!!

Tasked w/ improving clinical operations, quality, safety and staff satisfaction in Trauma, ED & Acute Care radiology operations.

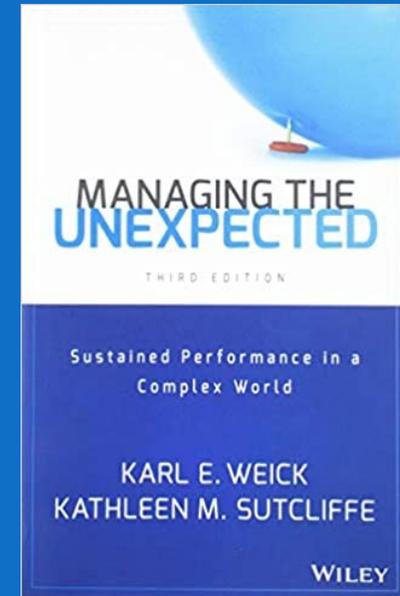
# High Reliability

High reliability is defined by succeeding in avoiding catastrophes in an environment where normal accidents can be expected due to risk factors and complexity.

Cultural and operational framework that puts

**SAFETY 1<sup>st</sup> !!!**

Differs from process improvement in that it is a general, foundational, way of operating, much more focused on HOW we do things, than the WHAT we are immediately trying to accomplish.



The high reliability  
“Bible”

# Collegial Interactive Team (CIT)

What Collegial- A higher standard than collaborative  
Interactive- Free-flowing, open, very regular communication  
Team- Inter-disciplinary >>> Multi-disciplinary

Why More effective  
Will continue to work closely together after project  
Need for further improvement beyond initial interventions

How Establish equality by eliminating power distance & authority gradients



Emphasis on HOW we communicate.

-93% is tone and body language, only 7% is content.

# Problem, Team & Goals

## Problem:

Trauma imaging performance and performance metrics at our new hospital significantly lag our other sites creating issues for radiology leadership and potentially putting the site's 1<sup>st</sup> ACS Trauma recertification in jeopardy.

## Team:

Trauma ED Radiologists, ED CT techs, ED MDs, Trauma Surgeons and Trauma PAs

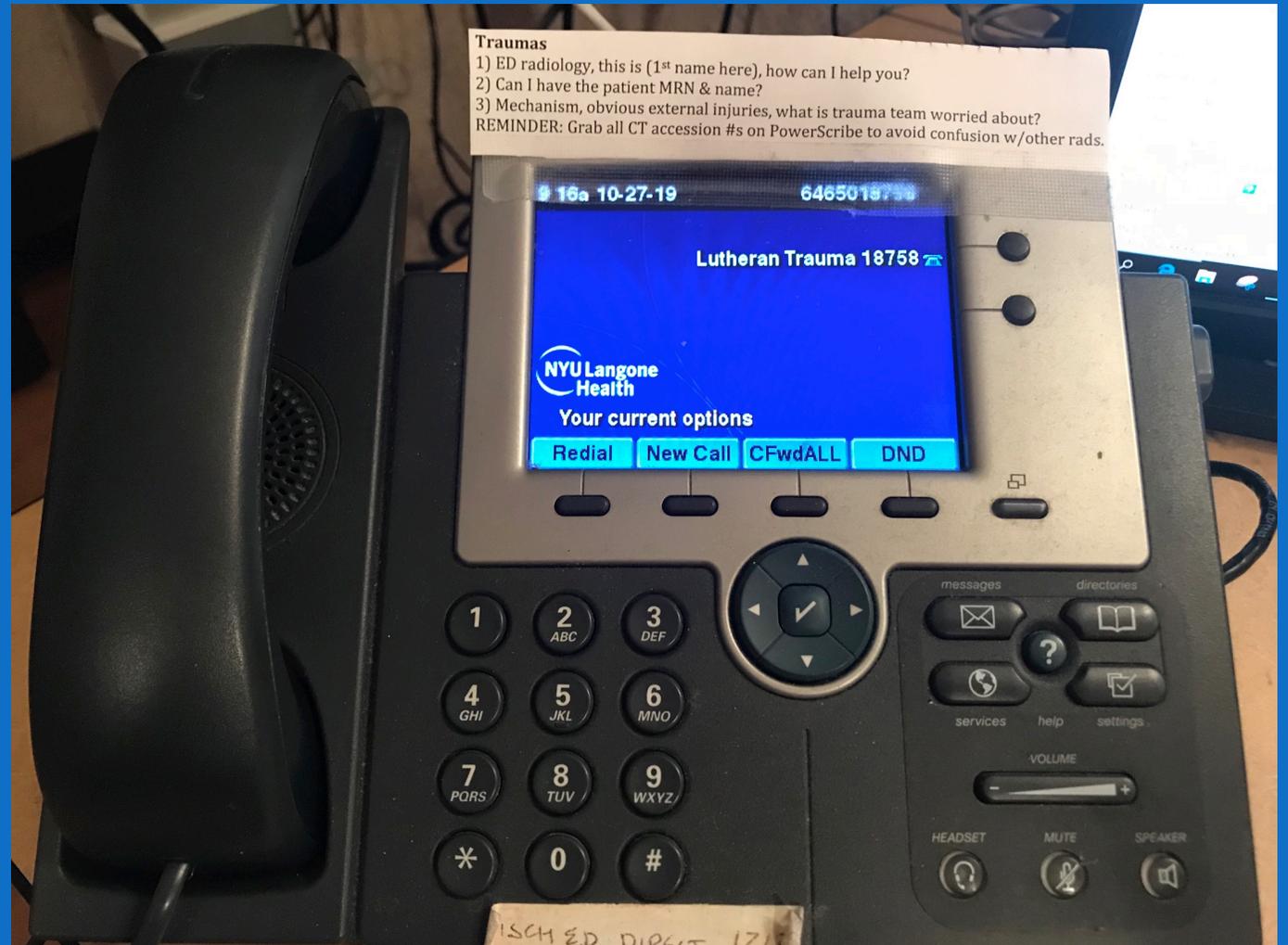
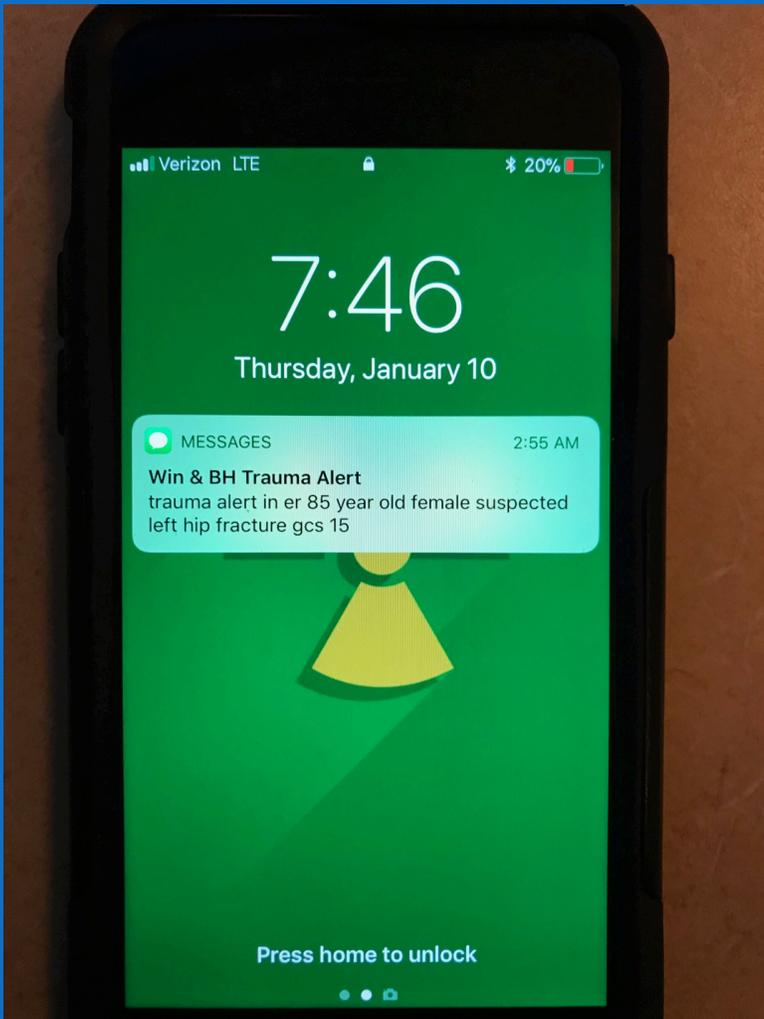
## Goals:

(1<sup>st</sup> Improve Trauma imaging performance in 5 months by decreasing performed image time stamped) to final report times (Powerscribe time stamp) by 50%, variability by 20%, and get 80% of CTs done 7a-MN reported <45 min.

# Interventions

Text alert give ED rads a “heads up”

CT tech calls ED rad



# Interventions

Modification of Trauma CT data acquisition, processing & transmission to PACS.

Convey critical results to Trauma team via 3 step, closed loop, high reliability communication via dedicated trauma mobile phones. For an example of this, think about how your order is taken at...



# Overall Results & Subgroups

	Turn-Around Time (TAT)	
	PRE (July 1 - Sept 3)	POST (Oct 5 - Dec 4)
MEAN	83 min	42 min
ST DEV	51 min	38 min
% UNDER 45 MIN	19%	66%

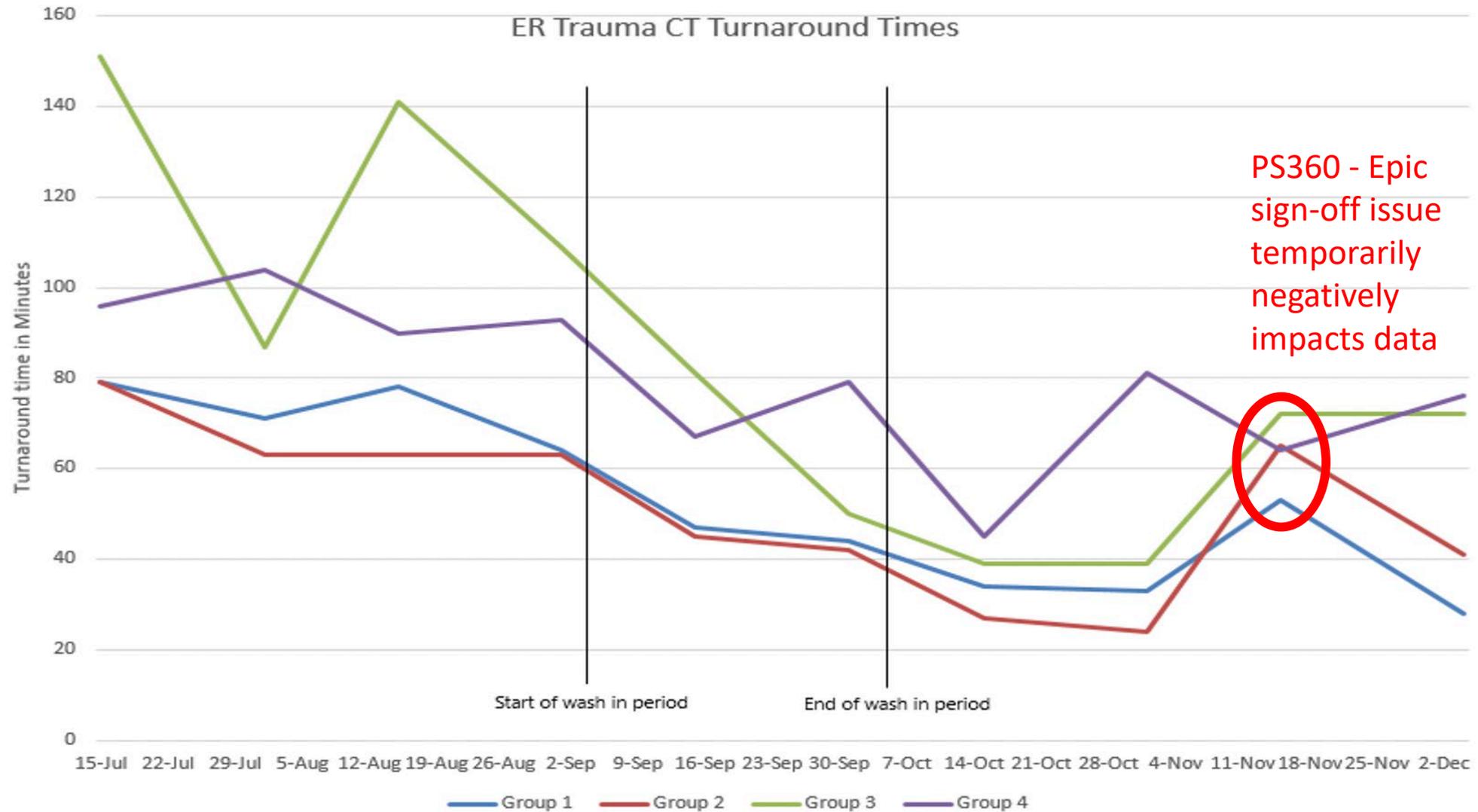
**Group 1 (Mon - Fri, 7AM-12 AM)** single reader, trauma radiologist, CT techs familiar with new workflow

**Group 2 (Weekends 7AM-4PM)** single reader, trauma radiologist, CT techs not familiar with new workflow

**Group 3 (Weekends 4PM-12AM)** multiple readers, general radiologist, CT techs not familiar with new workflow

**Group 4 (7 nights a week, 12AM-7AM)** single reader, general radiologist, CT techs not familiar with workflow

# Results



# Conclusions

Integrating High Reliability principles into your practice can improve clinical performance, team satisfaction, your day-to-day happiness and make you invaluable to your department and institution.

Consider taking a team 1<sup>st</sup> approach and attempting to establish a true CIT when change is needed- particularly if you will continue working with the other team members after the improvement goals are achieved or if further, or continuous, improvement is needed.

## Thank you!!!

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