Improving ED CT Patient Flow

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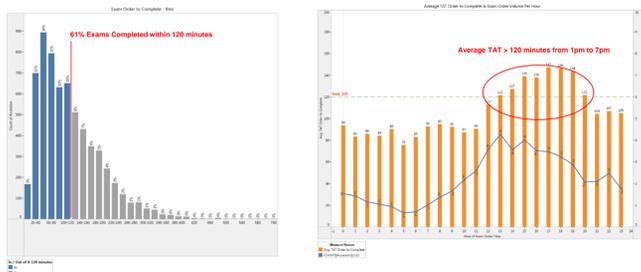
1 Aim Statement

Increase percent of ED CT exams completed within 120 minutes from 61% to 71% by March 2019.
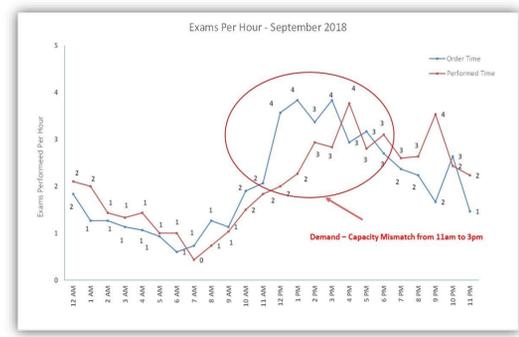
2 Background

Emergency Department (ED) visits have increased at twice the rate of the United States' population growth, while the number of ED facilities across the nation has declined, resulting in widespread ED overcrowding. Overcrowding leads to delays in patient care, raises costs and creates patient flow challenges across the hospital system. Approximately 60% of our ED visits involve imaging, with CT as the most common imaging modality. As part of improving overall flow of patients through the ED, our team attempted to improve CT turnaround times.
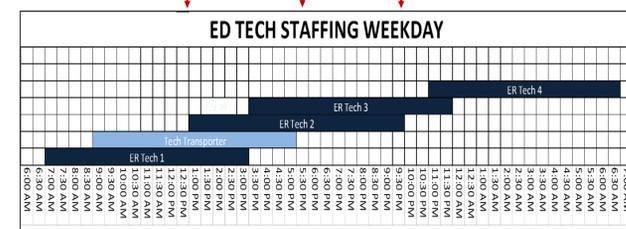
3 Baseline Conditions

- EUH ED CT volume – 53 exams/day
- 60% of ED volume is between 11am to 11pm
- Capacity to meet CT demand lagged between 11am to 3pm


4 Takt Time Calculations

Exams Per Hour - September 2018

Demand – Capacity Mismatch from 11am to 1pm

Tech Workflow Time Study

1pm - second shift starts
~5:30pm to 6pm - End of Transporter Shift and Lunches
9pm – End of second shift

ED TECH STAFFING WEEKDAY

High-level Process Map

Takt Time	# of Minutes Worked	720	18	← Takt Time ~3 pts./hr.
	Demand	39		
Number of Staff Required	Sum of Cycle Time	22:01	1.4	← # of Techs Required to Meet Takt = 2
	Takt Time	18		

11am — Number of Staff Required to Meet Peak Demand = 2 — 11pm

11am — Current Staffing = 2 — 11pm
1pm — 10pm
Short Staffed by 1 — Short Staffed by 1

5 Actions/Tests of Change

Test of Change 1 – Create Checklist and Standard Work for CT Patient Flow

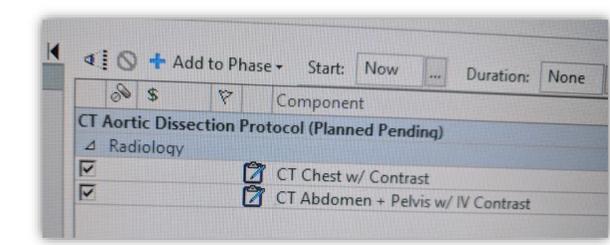*Key Drivers Impacted – Improve patient communication and Prioritize CT exams.*
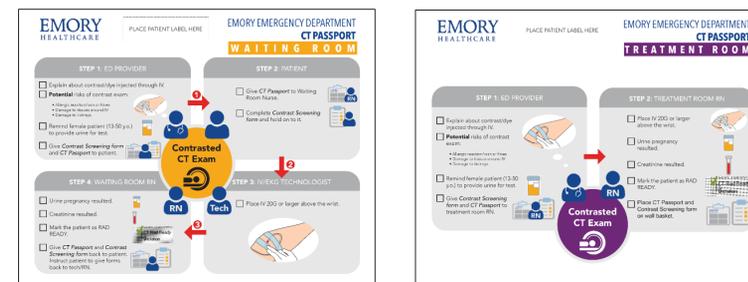
Test of Change 3 – Optimize Contrast Screening Form

Key Drivers Impacted – Eliminate non-value add work

Questions	# of Questions		% Reduction
	Pre	Post	
Patient Facing	29	12	60%
Technologist Facing	28	20	65%

Test of Change 2 – Revise CT Aortic Dissection PowerPlan

Key Drivers Impacted – Remove barrier to first pass yield and Eliminate non-value add work

List of Tests of Changes – Completed, Abandoned, On Hold

Category	Action Item	Who	Status
Just Do It	Dissection protocol update	Radiology Informatics/Pratik	Complete
Just Do It	Use walkie-talkie to communicate with RNs to bring patients	Philip Haun + Derik Close/CT Techs	Complete
Just Do It	ER-CT faculty collaboration – bi-annual meetings to review protocols and processes	Dr. Pendley	Complete
Just Do It	POC Testing - QC schedule	CT Techs	Complete
Just Do It	Optimize time between stroke alert page and patient arrival: Scan stable Head w/o patient if there is a >15 minute window between stroke alert and patient ETA	CT Techs	Abandoned
Requires Planning	Update contrast screening form and vet by CT Quality Committee Clarify/Update Allergy and Contrast Policy	Dr. Duong	Complete
Requires Planning	CT Passport in triage and rooms will include - Checklist of key steps with patient recorded time stamps - Guide on IV site and gauge - Contrast and pregnancy screening forms to be completed by patients when they are waiting	Team: Dr. Pendley + Philip Haun + Radiology representative/s	Complete
Requires Planning	CT Waiting space for stable Head w/o exams - 4 chairs next to charge RN station - Patients from waiting room will be led to CT waiting space - Patient will drop off CT passport in a bin next to CT - CT passport is prompt to tech that patient is available - Tech scans CT waiting space patient per their best judgement	Team: Dr. Pendley + Philip Haun + Radiology representative/s	Abandoned
Parking Lot	Stocking and Restocking Process/Schedule	CT Techs	On Hold Till 30

6 Results

ER CT Exams Completed in < 120 minutes - 24 hr.

Pre-implementation Phase
1/14 - CT Passport & CT Head Workflow
2/1 - Walkie Talkie
2/14 - Scan Till Stroke Pt. Arrival
2/26 - CT Techs moved to ED CT
5/20 - CT Passport Tracking

Upper Control Limit 69%
68%
71%
77%
77%
77%
72%
75%
71%
Average 61%
64%
69%
69%
61%
64%
57%
Lower Control Limit 52%

Pre-implementation Average, 61%
Achieved goal in June 2019
Post-implementation Average, 71%

TAT Order to Complete
2018   2019

Median TAT <90 minutes since February 2019

Median: 138, 134, 140, 151, 141, 93, 95, 96, 92, 87, 83
September October November December January February March April May June July