

# Care at Arrival – Emergency Department Model for Improving Time to Care & Patient Throughput with a Physician in Triage

## Overview

### Problem Statement:

In 2011, due to emergency department overcrowding, increased overall ED length of stay, and hospital capacity challenges such as inpatient/psych patient boarding in the ED, patients arriving to Northwestern Memorial Hospital's Emergency Department experienced prolonged delays to receive a medical screening examination (MSE).

These delays created potential safety risks for those patients sitting in the waiting room for protracted periods of time without a medical evaluation. During the 2011 summer benchmark period, only 35% of patients saw a physician within 30 minutes of arrival. The median Door-to-MSE was 44 minutes. The delays also resulted in large numbers of patients leaving the ED without receiving a MSE (known as "LWBS" – left without being seen), at a rate of 4.6%, equating to an average of 12 patients leaving per day.

In order to address this worsening problem, the Emergency Department piloted a new model of care with a physician in triage, known in the department as Care At Arrival (CAA). Two variations of this model were piloted; the first in the summer of 2012 with a physician in triage 3 days/week, and the second, during the summer of 2013 with a physician in triage 5 days/week. The objective was to minimize the number of patients leaving prior to the initiation of a MSE by initiating care sooner.

### •Goal/Benefit:

- LWBS rate will decrease by 25% from 4.6% to 3.5%

### •Scope: All Emergency Department Patients.

### •Deliverables: Develop a model that minimizes the number of patients leaving before the initiation of a MSE

### Primary Metrics:

- % of patients with a MSE initiated within 30 min of arrival (ESI Level II), and within 60 min (ESI Level III)
- LWBS rate
- Press Ganey Overall Patient Satisfaction

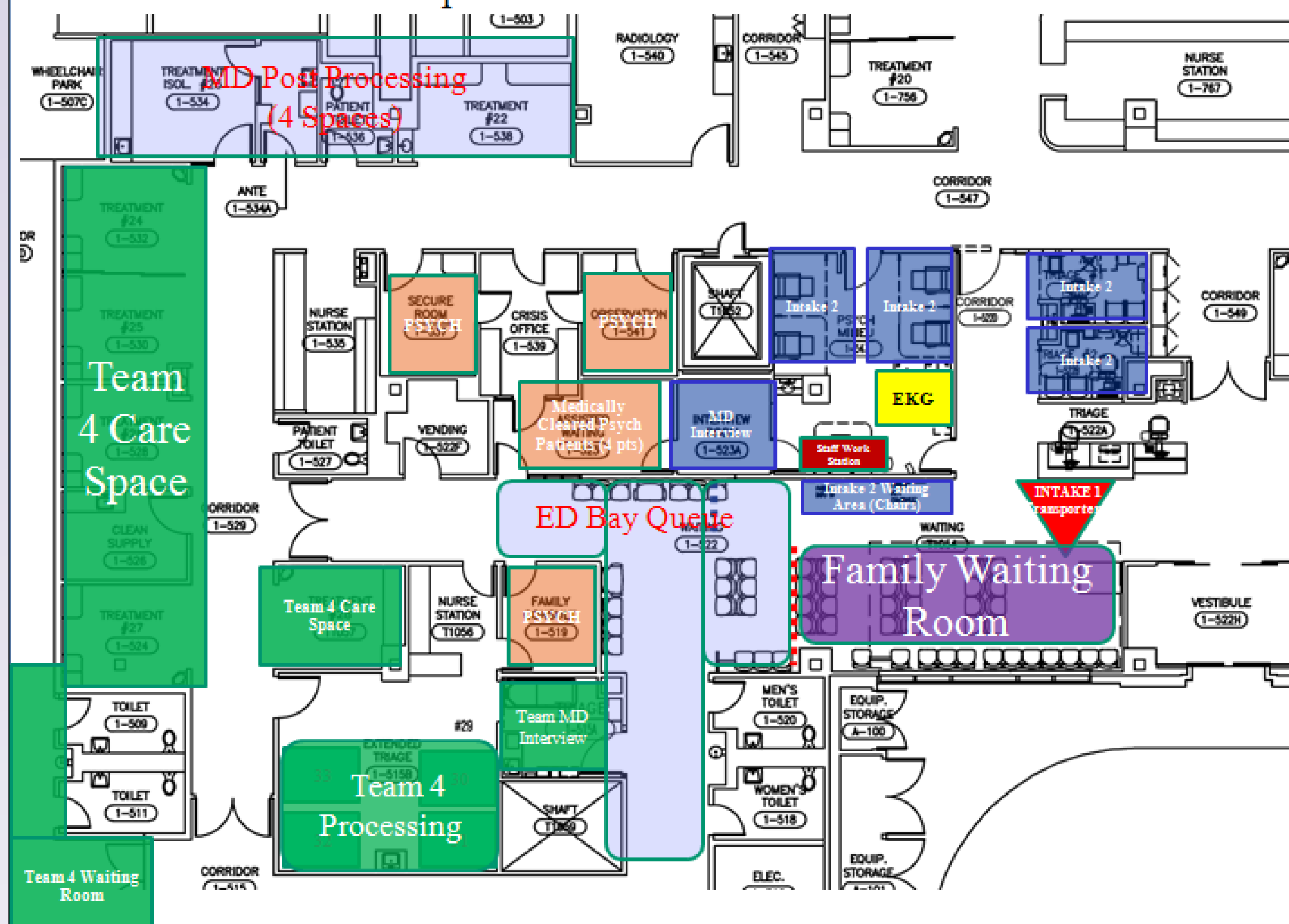
### Secondary Metrics:

- Length of Stay (LOS) for discharged patients
- Door-to-EKG completion

## Analyze: Root Causes of Delays

Process Step	Potential for delay	Comment
T1	•Waiting in line for T1 •Patient does not know about the T1 process and sits down	The physical line that forms is not ideal for comfort or privacy (crowded, at doorway, can overhear conversations) Can we change the configuration of the line to be more patient friendly?
Registration	•Waiting in line for registration •Volunteers completing registration duties	
T2	•Wait in line for T2 •Practice variation of the T2 nurses •No way to prioritize queue for T2 •Not using the ESI algorithm	We have to go back to the beginning and consider the objective of triage. What is the purpose of triage? The purpose of triage is to "prioritize incoming patients and to identify those who cannot wait to be seen". So, if capacity is available and there is no wait, what is the point of prioritizing before placement? If the whole purpose is to identify those who can't wait to be seen, are we succeeding if patients are waiting even for triage itself? Are we meeting suggested wait times in our model (immediate – immediately, emergent – 1-14 minutes; urgent – 15-60 minutes; semi-urgent – 1-2 hours)? While the ESI process definitely has value, we need to reassess the value and safety of our current triage system in place.
Post T2	•Waiting after T2 when all ED beds are full •Patient doesn't match placement criteria of space (e.g. Red patients waiting when team 4 has capacity) •Waiting after T2 when ED is not full to staff constraints •Waiting after T2 when ED is not full to staff reluctance •Culture that every patient goes back after T2 •Transportation	

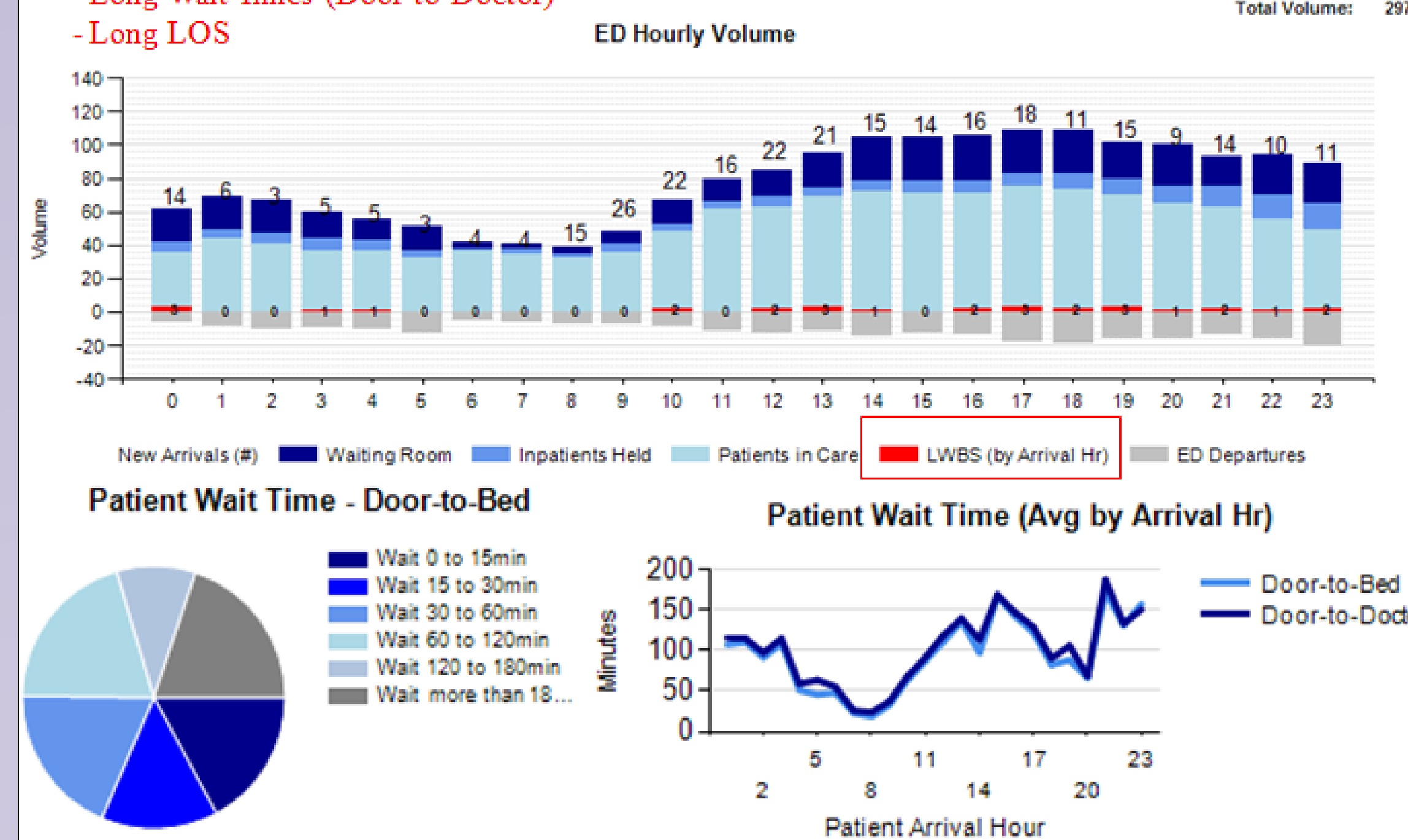
## Improve: ER Floor Schematic



## Define: Current Performance

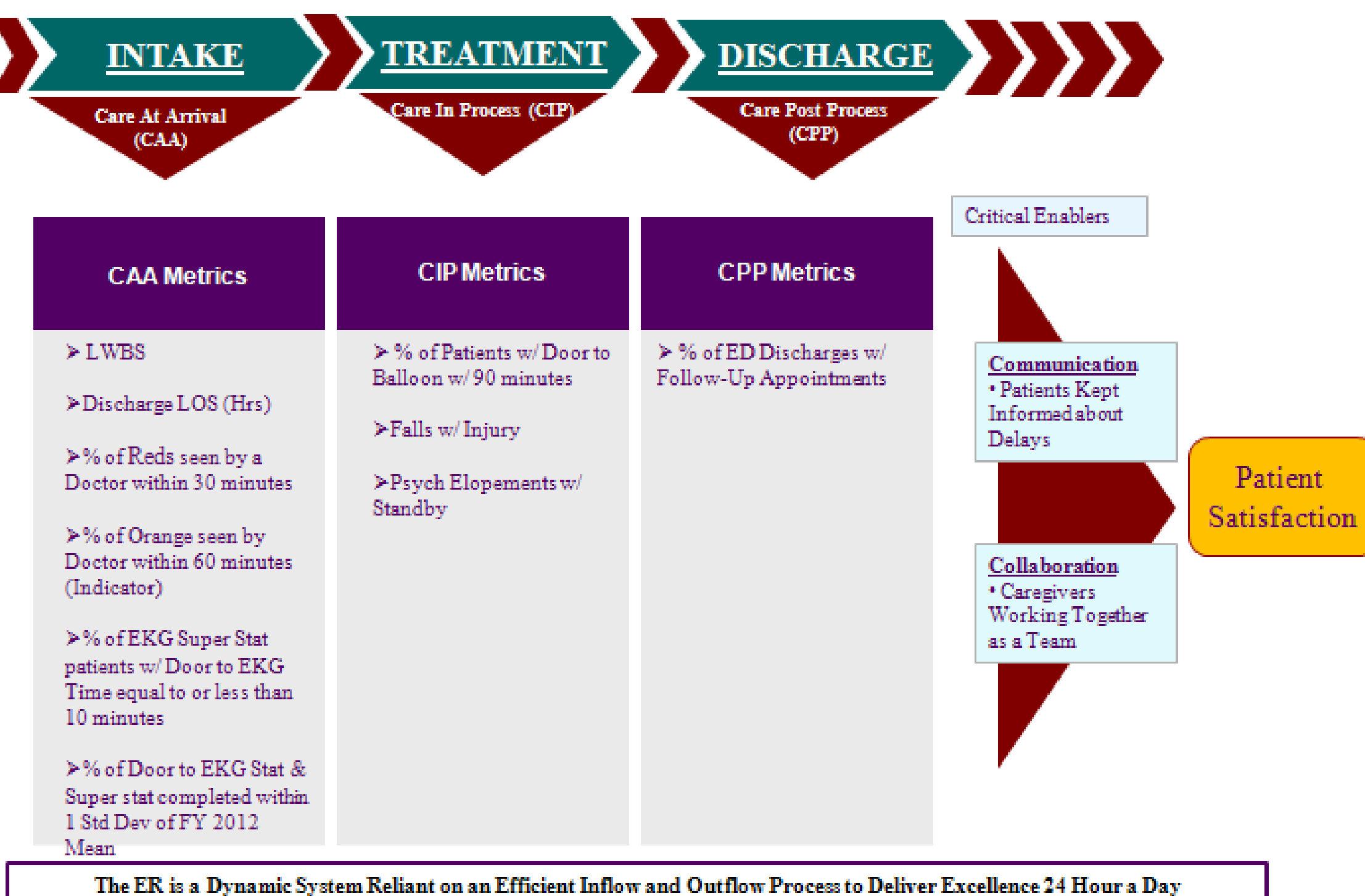
### Problems:

- High LWBS
- Long Wait Times (Door-to-Doctor)
- Long LOS



## Improve: Communication Initiative

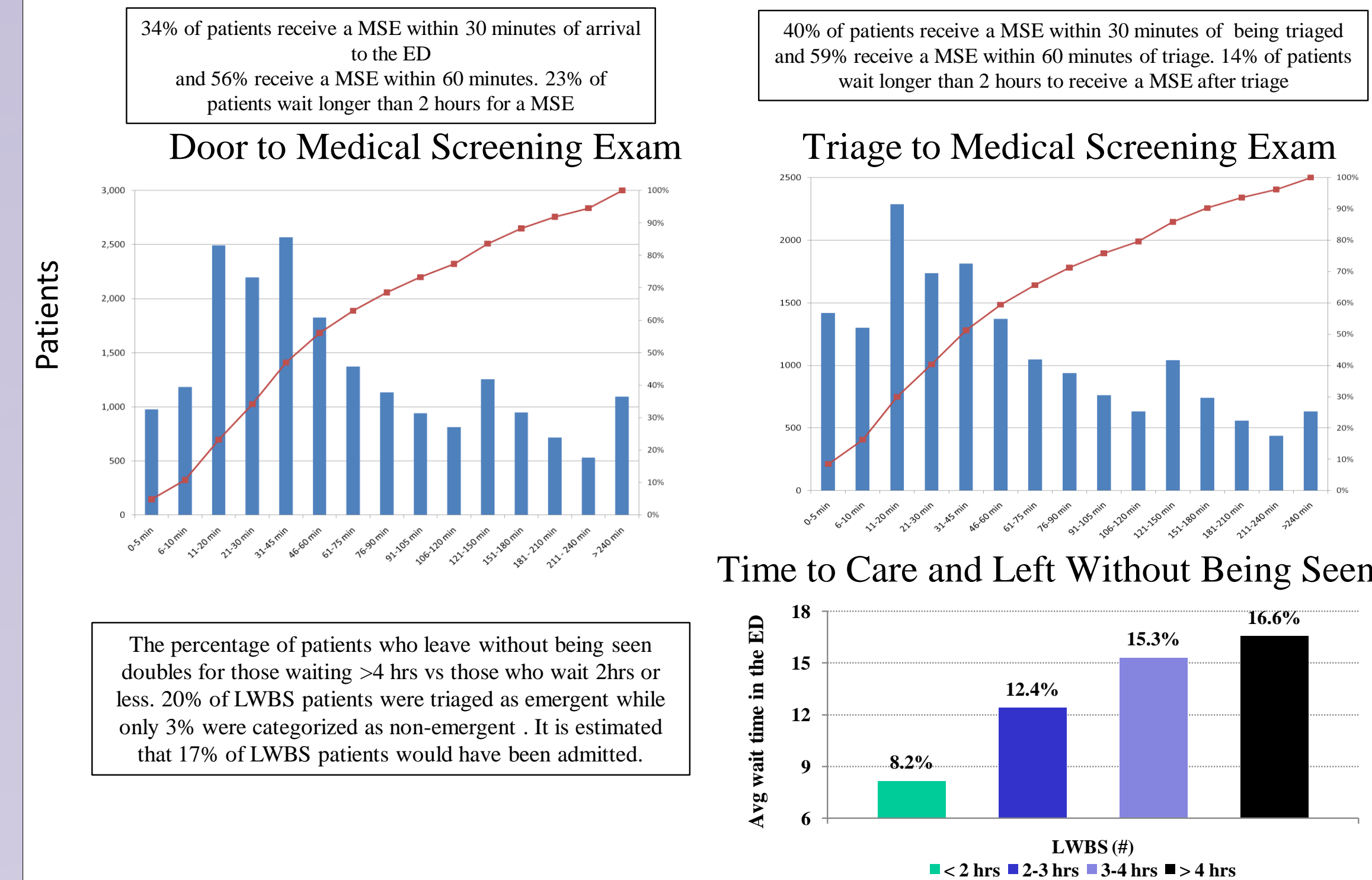
### 24/7 HOUR CARE FLOW MODEL: ALWAYS IN MOTION



## Improve: Care At Arrival Analysis

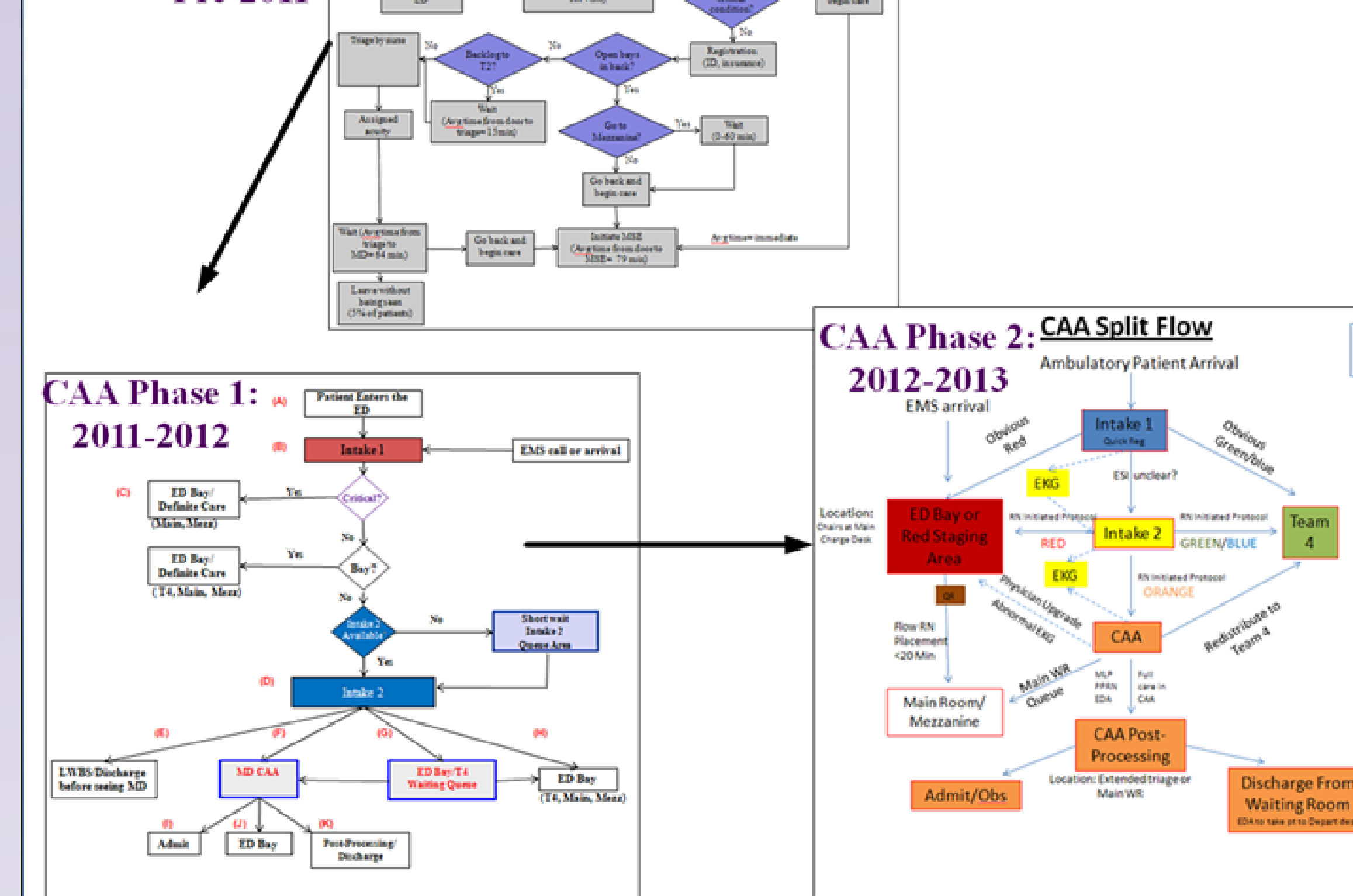
Comparative Metrics					
Timeframe: Summer Peak Volume Months May 1 - August 31					
	2011	% Δ '11-12	2012	% Δ '12-13	2013
CAA Coverage Days/Week	0		3		5
Total ED Patient Volume	31,104	- 1%	30,845	- 1%	30,537
LWBS-%	4.6%	+ 7%	4.9%	- 29%	3.5%
Total Patients (Seen & Treated)	29,670	- 1%	29,330	+ 1%	29,478
Door-to-Doc [mins] (Median)	44	+ 9%	48	- 19%	39
Door-to-Doc: ESI 2	37	+ 5%	39	- 23%	30
% seen within 30 min	43%	- 3%	42%	+ 20%	50%
Door-to-Doc: ESI 3	58	+ 16%	67	- 24%	51
LOS-Overall [hrs] (Median)	4.7	+ 6%	5.0	- 7%	4.6
LOS-Admit (Median)	6.6	+ 3%	6.8	- 8%	6.3
LOS-Discharge (Median)	3.7	+ 9%	4.0	- 5%	3.8
Door-to-Pain Meds (Pain > 4) [mins] (Median)	46	- 4%	44	+ 2%	45
Door-to-EKG Median [mins] (Median)	14	- 21%	11	- 27%	8
Door-to-EKG (Stddev)	19	- 29%	13	+ 1%	13
Patient Satisfaction	55%	+ 4%	57%	+ 2%	58%

## Measure: Time to Care



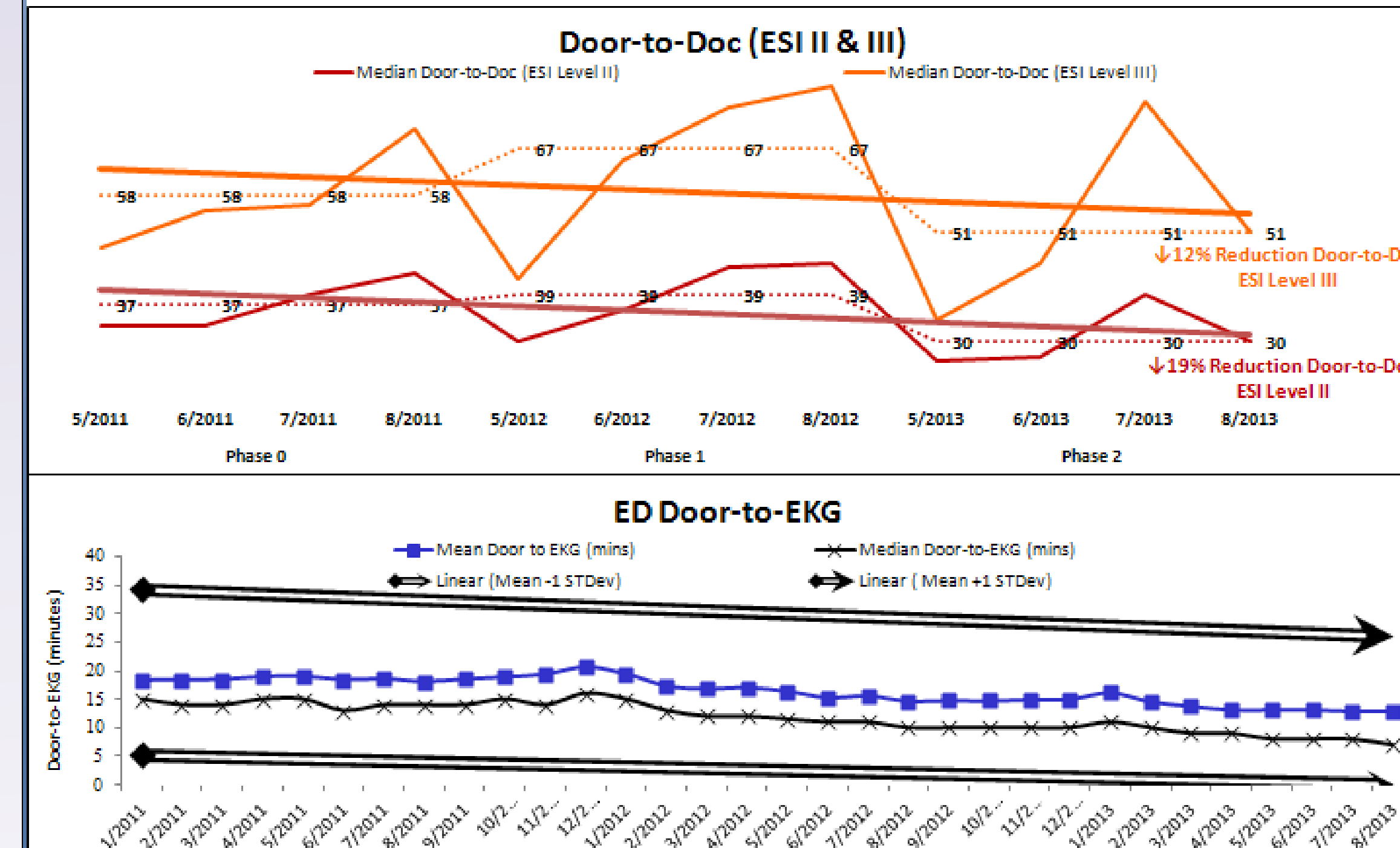
Data Source: EDW, Sept 1<sup>st</sup> – Nov 30<sup>th</sup> 2011. T1 sign in to MD assessment. Excludes LWBS. N= 20,036

## CAA Phase 0: Improve: Three-Phase Approach



## Conclusions

- ✓ Despite decrease in ED arrivals, able to see & treat more patients due to 25% reduction in LWBS rate
- ✓ 19% Reduction in Door-to-Doc for ESI II Patients
- ✓ 12% Reduction in Door-to-Doc for ESI III Patients
- ✓ 1% Reduction in Median LOS
- ✓ 5% Increase in Press Ganey Overall Patient Satisfaction
- ✓ 43% Reduction in Door-to-EKG



## Project Team

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