

TRUE NORTH TACTIC: Optimize patient flow throughout ZSFG

OWNER(S): Jim Marks and Terry Dentoni

I. BACKGROUND AND PROBLEM STATEMENT

**Background:** Patient flow within and between Departments is characterized by long wait times that impact our ability to provide timely access to care for patients. In the ED, SFGH is on ambulance diversion 42% of the time, patients leave the ED without being seen 8.3% of the time and patients wait on average 225 minutes before being admitted to the hospital. Within the hospital, average lengths of stay are long (4.9 days), patients are discharged late in the day (3:05 PM on average) and lower level of care patients (LLOC, FY14-15 average ) not requiring hospitalization reduce available beds. The net impact is poor patient access to timely care, reduced quality of care, poor patient and staff satisfaction and a negative financial impact.

**Problem Statement:** Poor patient flow within and between service lines results in lack of access to care, long wait times, reduced quality of care and patient satisfaction, physician and staff frustration and a negative impact on our financial health.

II. TARGET STATEMENT

Metric	Baseline	1 Year Target	3 Year Goal
Initiate a plan to improve ED and hospital flow based on A3 thinking			
Decrease ED diversion rate	42%	35%	0%
Reduce ED LWBS rate	8.3%	6%	2%
Reduce ED LOS for discharged patients	244 min	210 min	150 min
Reduce ED LOS for admitted patients	473 min	360 min	210 min
Reduce time from decision to admit to leave ED	225 min	180 min	150 min
Increase inpatient discharge by noon rate	16%	20%	35%
Decrease inpatient average LOS	4.9 days	4.4 days	3.9 days
Reduce Urgent Care LOS	112 min	45 min	35 min
Reduce number of lower level of care patients	23.1	12	6
Reduce out of medical group costs	\$8.0M	\$6.0M	\$4.0M

III. COUNTERMEASURE IMPLEMENTATION

Action	Who	When	Status
A3 thinking workshops ED and inpatient leaders	KPO	7/16-8/16	Done
ED Value Stream map and follow on KW	TD, JDM, ED LT	Oct 2015-present	Ongoing
Inpatient VSM and follow on KW	TD, TM, Inpt LT	Jan 2016-present	Ongoing
Implement daily management in ED and Urgent Care	JDM, BC, JB	Dec 2015	Ongoing
Restructure LLOC meeting	INZ, RP	April 2016	Ongoing

The Who: Terry Dentoni = TD; Jim Marks = JDM, Todd May = TM, Brent Costa = BC; Jenna Bilinski = JB; Iman Nazeeri-Simmons = INZ; Roland Pickens = RP; ED LT = ED Leadership Team; Inpt LT = Inpatient leadership team



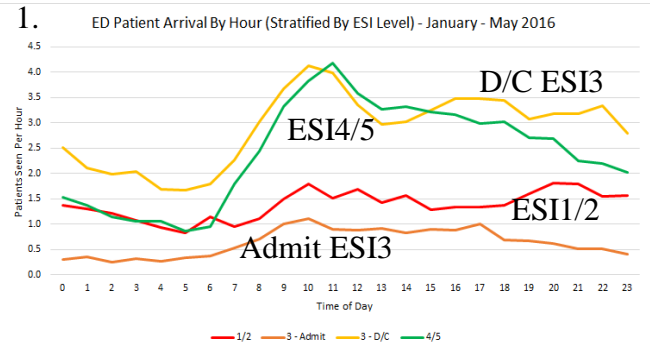
IV. IMPACT (BASELINE/TARGET/ACTUAL/YTD):

- ED median DC LOS decreased 12.9% from a baseline of 249 min to 217 min for FY15-16 but did not meet target of 210 min
- Driven by implementation of a fast track (FT) for low acuity ESI4/5 with a decrease in median LOS from a baseline of 187 min to 144 min (23.2% reduction; did not meet target of 135 min)
- Contributed to a reduction in LWBS from a baseline of 8.3% to 5.7% for FY15-16 which did meet target
- When there is no hospital capacity (e.g. large number of LLOC patients) ED time from decision to admit to ED departure increases, driving up ED admitted patient LOS and increasing diversion rate
- No other Flow metric moved significantly towards target

V. FURTHER ANALYSIS AND STRATIFICATION OF GAPS; LEARNINGS:

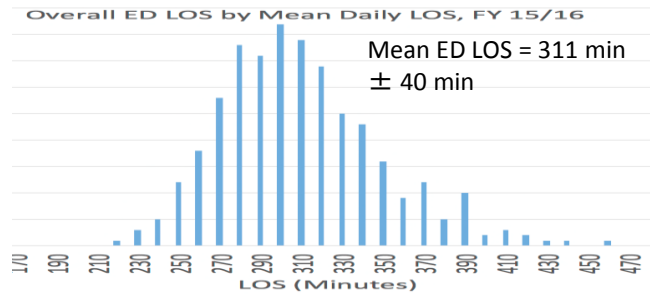
A. Patient flow and LOS determine required ED capacity

- Patient flow into the ED varies by time of day and emergency severity index (ESI). Flow of ESI 1/2 and admitted ESI3's is constant; flow of discharged ESI3's and ESI4/5 patients increases at 7A and peaks by 10A.
- Takt time: At peak 12 hour flow (7A-7P) an ED patient arrives every 6.7 min.
- Number of ED rooms needed = mean LOS/takt time = 311 min/6.7 pts/min = 47 rooms. Total new ED capacity = 59 beds = 80% of capacity; old ED = 56 beds.
- Only three ways to achieve flow: 1) reduce demand; 2) reduce LOS; 3) increase (staffed) bed capacity.



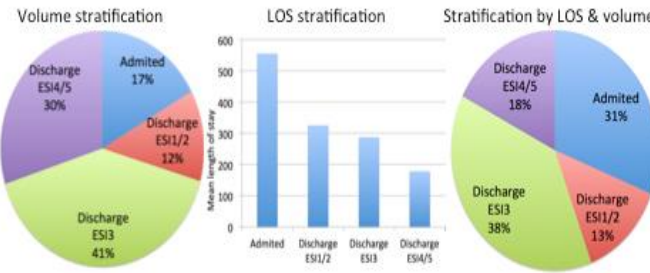
B. Variability in staffing and LOS results in patient flow into ED regularly exceeding room capacity

- If all 59 rooms used; demand exceeds capacity 3% of time. Not possible to operate at 100% capacity. At 90% capacity demand exceeds supply 20% of time.
- Current staffing and 'operationalization' of new ED results in 80% or less capacity utilization. Demand exceeds capacity more than half of the time
- For capacity to exceed demand must: 1) improve staffing and 'operations'; 2) reduce LOS; 3) if possible, reduce demand (esp. at peak).



C. Stratification of ED volume by ESI and LOS identifies where to focus to reduce LOS

- The three largest 'buckets' of LOS are: 1) discharged ESI3 patients (38%), admitted patients (31%), discharged ESI4/5 patients (18%).
- LWBS rate correlates with fastrack LOS; reducing LOS of ESI4/5 patients via fastrack reduced the LWBS rate.

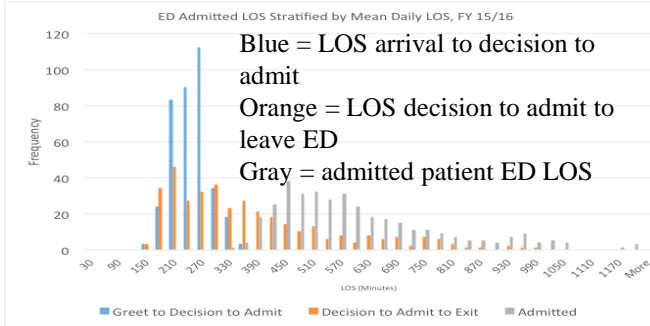


D. Stratification of admitted patients indicates that LOS from decision to admit to leave ED is long and highly variable

- Admitted patient mean LOS FY15-16 = 592 min (10 hours); 359 min (6 hours; 61%) is after decision to admit.
- Daily variability in time from decision to admit is very high.

E. Additional learnings

- Fast track shows how creating ESI specific areas with dedicated teams allows reduction in LOS.
- The daily management system (DMS) supports the Value Stream/Kaizen work using daily data to maintain and drive improvement



VI. NEW COUNTERMEASURES/ ADJUSTMENTS

Action	Who	When
Continue to hire ED staffing (RN, MEA, ?MD)	Schmidt, Staconis, Singh	Present- December 2016
Level load the ED; create Mod(erate) ESI3 area and adjust ESI4/5 area	JM, TW, Singh, Staconis, Pitts, Mercer, Kanzaria	Present-December 2016
Better understand and measure hospital capacity to predict and create capacity before needed	JM, TW, TM, INZ	Present-December 2016
Combined ED/Inpt Flow Kaizen to reduce ED LOS of admitted patients and reduce consult time	JM, TW, TM, INZ	Present-December 2016
Refine A3 flow target LOS metrics based on takt time and room capacity to eliminate waiting	JM, TW, TM, INZ	Present- September 2016