1. **Takt time**: At peak 12 hour flow (7A-7P) an ED patient arrives every 6.7 min.

   Rooms (operators) needed = LOS/takt time  
   (Mean LOS = 311 min)

2. **Number of ED rooms needed** = mean LOS/takt time = 47 rooms. Total new ED capacity = 59 beds = 80% of capacity; old ED = 56 beds.

3. **Only three ways to achieve flow**: 1) reduce demand; 2) reduce LOS; 3) increase (staffed) bed capacity.
Mean ED LOS = 311 min ± 40 min

1. Current staffing and ‘operationalization’ of new ED results in 80% or less capacity utilization. Demand exceeds capacity more than half of the time.

2. For capacity to exceed demand must: 1) improve staffing and ‘operations’; 2) reduce LOS; 3) if possible, reduce demand (esp. at peak)
Stratification of ED volume by ESI and LOS identifies where to focus to reduce LOS

1. The three largest ‘buckets’ of LOS are: 1) discharged ESI3 patients (38%), admitted patients (31%), discharged ESI4/5 patients (18%).
2. LWBS rate correlates with fastrack LOS; reducing LOS of ESI4/5 patients via fastrack reduced the LWBS rate.
Longest (and most variable) LOS are admitted patients

ED LOS Stratified by Mean Daily LOS, FY 15/16

- Admitted
- ESI1/2 DC
- ESI3 DC
- ESI4/5 DC

ED Admitted LOS Stratified by Mean Daily LOS, FY 15/16

- Greet to Decision to Admit
- Decision to Admit to Exit
- Admitted
Rates of decision to admit and patients leaving the ED

- Decision to Admit
- Admitted Exit ED
- Average Level Exit

Hour of day

Decision to Admit per Hour
Mean Number of Admitted Patients (6/1 to 8/18/16)

(in the ED after decision to admit)
What would it take to have patient flow?

- No diversion/No LWBS
- LWBS
  - Reduce time to provider/LOS for ESI4/5 patients
  - A rate of 0 = an additional 4,000 patients/year; 10/day
  - Almost certainly would require shuttling some to Urgent Care’
- Diversion
  - Reduce overall mean ED LOS
    - Need 24 hour hospital bed capacity matched to demand
  - Fully staff ED bed capacity
  - Put process around going on and off diversion and how we respond when we are on
  - Anticipate at least 8,000 additional ED patients/year; 22/day; at a 25% admission rate would require additional 22 hospital beds