



Institute *for*
Healthcare
Improvement

This presenter has
nothing to disclose

Surge Planning

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Objectives

After this session, participants will be able to:

- Identify key drivers of overcrowding
- Describe strategies to mitigate problems
- Look at technology to standardize and drive improvement



Overcrowding

- Primary causes:
 - Mismatch between bed supply and demand
 - Poor flow of patients through beds
 - Extended length of stay and long stay patients
- As demand increases and bed supply shrinks, flow through the hospital becomes impaired and patients back up in the ED



Key Principles

- There must be a partnership between ED, inpatient and the outpatient side to completely solve the problem
- Change management and new communication techniques: become a patient centered work group
- Objective data
- Be sure to optimize all ED and short stay hospital processes



The Long View...

- Better for patients, better for the system
- Boarding increases the total length of stay in the hospital, further worsening access
- If patients are boarded optimize care in the ED- the long view!



Solutions

- Create institutional awareness of the dangers of overcrowding due to boarding patients
- Match resources to demand... request transparency along the continuum
- Move toward 24/7 operational culture
- Surgical smoothing
- Smooth the nurse to nurse reporting
- Look at the inpatient discharge process- most hospitals need early discharges to match ED arrivals (discharge lounge)
- Bed czar- computerize as much as possible



Day to Day Operations



Overcrowding Scores

- NEDOCS
 - Look at ED beds, hospital beds, total pts in ED, # ventilators, longest admit time, # admissions, waiting room wait time
- CEDOCS
 - ED visits per year, # ED beds, total # ED pts, # critical care patients, waiting time of longest admitted patient
- EDWIN score
 - #patients in each triage level, # ED MD's on duty, staffed ED beds, admitted pts in beds
- Homegrown... Used variables in CA state law
 - Total ED pts, total staffed beds in the ED, total #admissions waiting, total # of inpatient hospital beds, total ICU patients, longest admit time in hours, waiting room times, hospital census



How is NEDOCS calculated?

NEDOCS is calculated by:

$$\text{NEDOCS} = [\text{ED Capacity}] \times 85.8 + [\text{ED Boarders}] \times 600 + [\text{ED Wait Time}] \times 5.64 + [\text{Admitted Patient Wait Time}] \times 0.93 + [\text{ED Patient Acuity}] \times 13.4 - 20$$

Where:

- **ED Capacity** defined as:

ED patients¹ in licensed beds and overflow locations, such as hallway beds or chairs

Number of licensed ED treatment beds (inc. CDA beds)

- **ED Boarders** defined as:

admitted patients to be transferred to a hospital space (inc. inpatient, obs, or OR status)

of functional, licensed adult hospital beds equipped to accept a patient at any time

- **ED Wait Time** defined as: Wait time from registration to triage for last patient placed in ED
- **Admitted Patient Wait Time** defined as: Longest time spent in the ED among admitted patients waiting to be transferred to a hospital space²
- **ED Patient Acuity** defined as: Number of respirators in use (maximum of 2), pulled from flowsheet row that RNs document for vented patients

Standard Overcrowding Levels

Standard Overcrowding Level	Normal Operations <i>Green</i>	Busy <i>Yellow</i>	Overcrowded <i>Orange</i>	Severely Overcrowded <i>Red</i>	Critically Overcrowded <i>Black</i>
NEDOCS Threshold*	0-60	61-100	101-140	141-180	>180

Critical!

- The interdepartmental agreements are much more important than the scoring system
- Score makes findings objective



Create Surge Plan Agreements

NEDOCS_SurgePlan [Read-Only]						
	A	B	C	D	E	F
1	HOSPITAL					
2	OVERCROWDING SCORE	0-50	51-100	101-140	141-180	> 180
3		Normal	Busy	Overcrowded	Severely Overcrowded	Critically Overcrowded
4				Weekend bed huddle	Weekend bed huddle	Internal disaster: start command center, evaluate procedures hour by hour
5	GENERAL				Initiate PM bed huddle in addition to AM huddle	
6						
7						
8	ED	ANM or designated personnel to calculate NEDOCS at 0900, 1100 and 1900 daily	ANM or designated personnel to calculate NEDOCS at 0900, 1100 and 1900 daily	ANM or designated personnel to calculate NEDOCS at 0900, 1100 and 1900 daily	ANM or designated personnel to calculate NEDOCS at 0900, 1100 and 1900 daily	ANM or designated personnel to calculate NEDOCS at 0900, 1100 and 1900 daily
9						
10		NEDOCS on Kaiser homepage, discussed at Bed Huddle	NEDOCS on Kaiser homepage, discussed at Bed Huddle	NEDOCS on Kaiser homepage, discussed at Bed Huddle	NEDOCS on Kaiser homepage, discussed at Bed Huddle	NEDOCS on Kaiser homepage, discussed at Bed Huddle
11						
12		Bed huddle to look at anticipated admissions in the AM to prevent overcrowding later in day.	Bed huddle to look at anticipated admissions in the AM to prevent overcrowding later in day.	Bed huddle to look at anticipated admissions in the AM to prevent overcrowding later in day.	Attend bed huddle, encourage command center if rapid decompression unlikely	Attend bed huddle, open command center with inpatient nursing, q 1 hour NEDOCS score on webpage
13					If greater than 25 pts in WR and >2 hr waiting time, physicians meet to discuss calling in backup MD	If greater than 25 pts in WR and >2 hr waiting time, physicians meet to discuss calling in backup MD
14					Evaluate RN and tech staffing.	
15						
16						
17						
18						
19						
20						
21						
22	MEDICAL STAFF	Standard operations	HBS representative to attend bed huddle	HBS representative to attend bed huddle	HBS representative to attend bed huddle	HBS representative to attend bed huddle

- Standardized Overcrowding Score
- Visible on Homepage to all Employees
- Linked to a Surge Plan



But assure accountability



Automated system

- Want clear and consistent communication
- Standardization of workflows with feedback mechanism
- Transparency in census and capacity issues

- Users are informed immediately of any change to the hospital overcrowding score and respond with updates based on actions identified in the Surge Plan



Surge Plan: Departmental Agreements

Activities build on one another as volume increases or color coding escalates from Green to Black

HOSPITAL OVERCROWDING SCORE	0-60	61-100	101-140	141-180	> 180
	Normal	Busy	Overcrowded	Severely Overcrowded	Critically Overcrowded
ADMINISTRATOR ON CALL	<ol style="list-style-type: none"> Attend daily AM bed huddle. Maintain Routine Operations including Saturday or Sunday rounds. 	<ol style="list-style-type: none"> Attend daily AM bed huddle. Maintain Routine Operations including Saturday or Sunday rounds. 	<ol style="list-style-type: none"> Attend daily AM bed huddle. Maintain Routine Operations including Saturday or Sunday rounds. Collaborate with CNO/CA on any outside care requests. Assess 24/7 hospital staffing needs in consultation with the House Supervisor (1300, 2100, 0530). 	<ol style="list-style-type: none"> Attend daily AM bed huddle and initiate PM bed huddle. Consider initiating conference call, virtual Command Center, or Command Center if rapid decompression is unlikely. Evaluate OR cases, hospital census, and Suspend all non-critical meetings. Consider deploying educators to clinical areas. All patient transfer requests will be considered on a case by case basis. Notify Cath Lab bed status. Consider opening a discharge lounge. Monitor department status in T2 application. 	<ol style="list-style-type: none"> Attend all bed huddles/initiate conference calls (0600, 1400, 2100). If improved status not anticipated in a matter of hours, consider Internal Disaster and open a Command Center, evaluate hospital status hour by hour. Suspend all hospital based meetings. Review diversion options: Trauma/Stemi ED Diversion. Collaborate with Service Line Directors for patient care and placement decisions. Consult with Periop Director on decisions surrounding OR plan. Monitor departmental actions and follow-up as needed hourly in T2 application.
CATH LAB	<ol style="list-style-type: none"> Maintain Routine Operations. 	<ol style="list-style-type: none"> Maintain Routine Operations. 	<ol style="list-style-type: none"> Maintain Routine Operations. Collaboration with PACU and House Supervisor for recovery bed availability. 	<ol style="list-style-type: none"> Maintain Routine Operations. Advise Interventional Cardiology of ICU bed status. Consider use of CCL recovery beds for recovery if no PACU beds. 	<ol style="list-style-type: none"> Maintain Routine Operations. Consider rescheduling of non emergent cases. Advise Interventional Cardiologists of ICU bed status. Consider use of CCL recovery beds for recovery if no PACU beds.



Created a Clear Escalation Structure

Overcrowded
(101-140)

- Continuous Communication
- ED ADM and HS

Severely
Overcrowded
(141-180)

- Escalated Communication
- ED ADM, HS, AOC, and ED Director or Designee

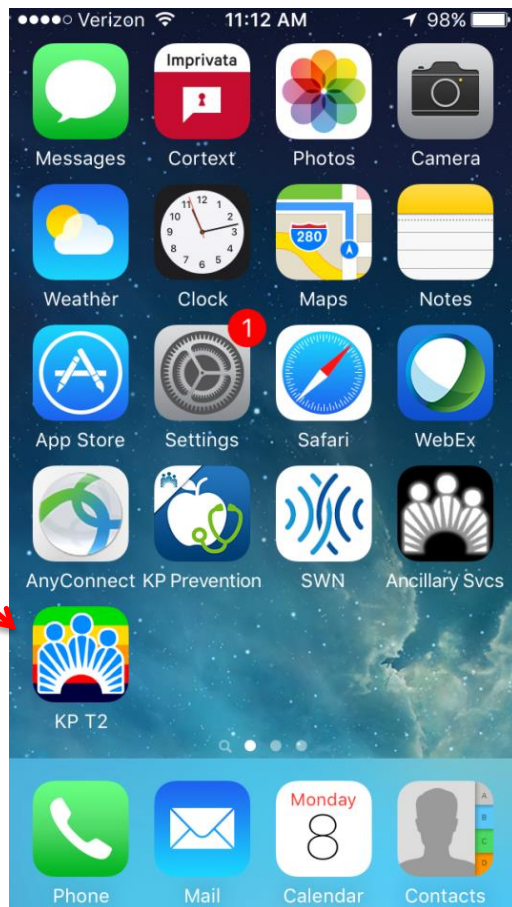
Critically
Overcrowded
(>180)

- Escalated Communication
- Initiate Conference Call
- ED ADM, HS, AOC, ED Director or Designee, Department Directors or Designees, APIC, AMGAs, Hospital Administrators, and Chiefs as necessary.



Example: T2 App Tied to Home Page

iPhone App



SSC Website

The screenshot shows the Kaiser Permanente South Sacramento website. The header includes the logo and navigation tabs for Home, About Us, Strategy, News, Policies, and Departments. The main content area features a large banner for 'Lunchtime Yoga Break' with a photo of a man and a woman. To the right, there are several news and alert items. A red arrow points to a green box in the 'Hospital Overcrowding Score' section that reads 'Normal Green Alert - 57 click to load T2 app'. Other items include 'Planned Downtime - Pharmacy (ePIMS) for Discharge Meds' and 'Apple iOS 9.2.1 is now certified by KP-IT.'



Summary Page



KP Throughput Tool
Severely OC 160
Posted Feb 8, 2016 11:50 AM

Hospital Census: 88% Feb 8, 2016 11:54 AM








Admin Oncall	PEND	+
Cath Lab	PEND	+
COCSO & PCC's	PEND	+
Emergency Dept	PEND	+
EVS	PEND	+
House Sup	PEND	+
Inpatient Units	PEND	+
Laboratory	PEND	+
Pharmacy	PEND	+
Radiology	PEND	+
Supply Chain	PEND	+

T2 Actions

- Log Off
- Hospital Census
- Update T2
- Send Text Alert


Available Pages


Options


- Admin Contact 
- Call Escalation 
- FAQ 
- Links 
- App Support 
- Special Thanks 
- Console: Feb 8, 2016 5:21 PM 




Easy for ED Staff

T2 Actions 


- Log Off
- Hospital Census
-  Update T2
- Send Text Alert

Available Pages 

of ED Pts: Total number of ED patients, including hallways, chairs, etc.

49 


Number of ED Admits

170 

of Critical Care Pts (1:1): Number of critical care patients in the ED

Last Door-to-Bed Time - Hours : Minutes

Longest Admit - Hours : Minutes

DO NOT Clear Surge Plan 

DO NOT Send Text Alerts

Calculate KPT2: 00

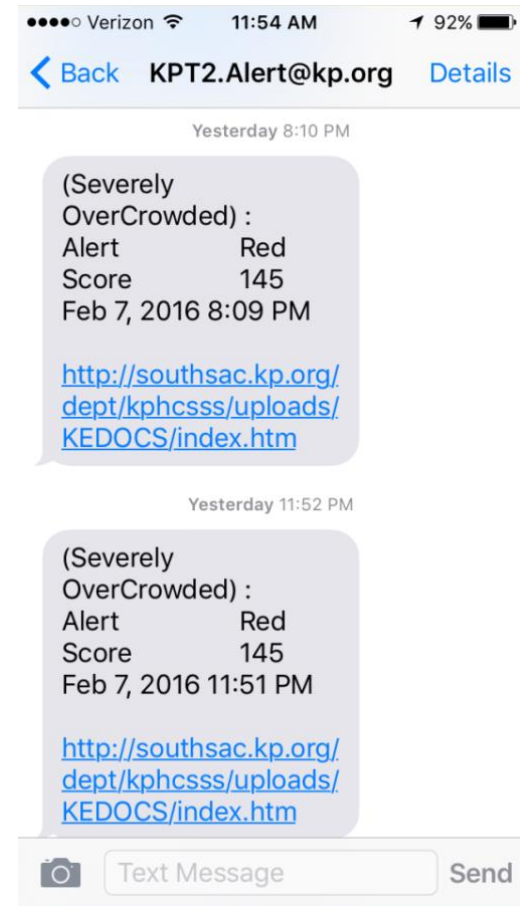
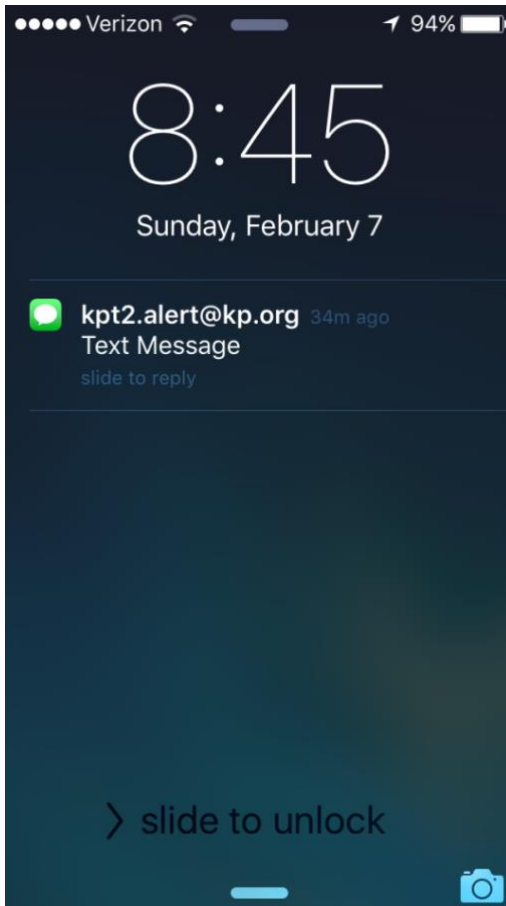
Upload KPT2

Activity Status Will Display Here.

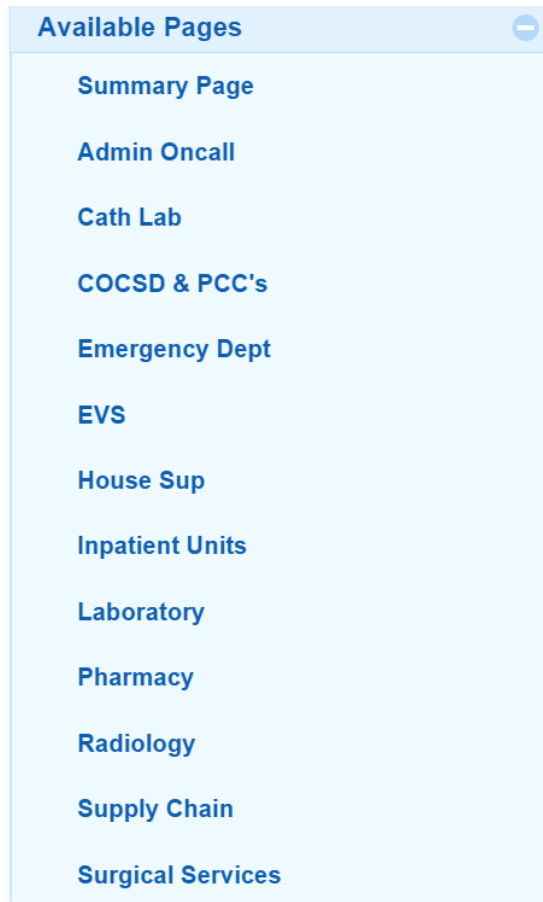


Alert Notifications

*Alert notifications will be auto suppressed for green, yellow, and orange.



Department Actions



- Agreements visible to each department
- Administration able to easily see if tasks were done

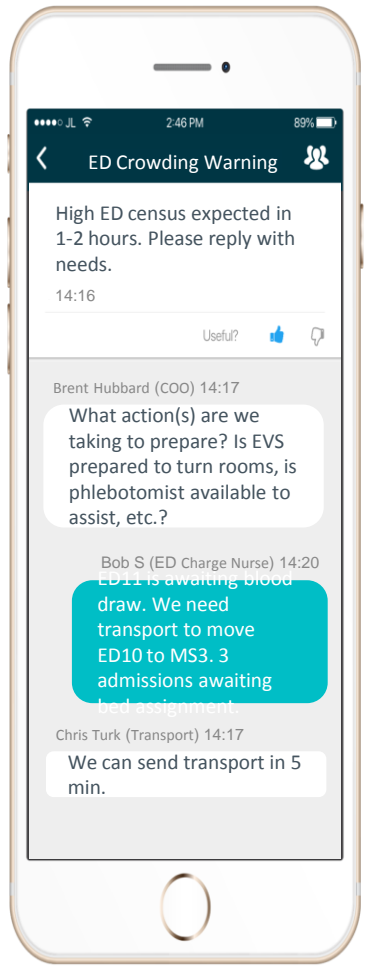
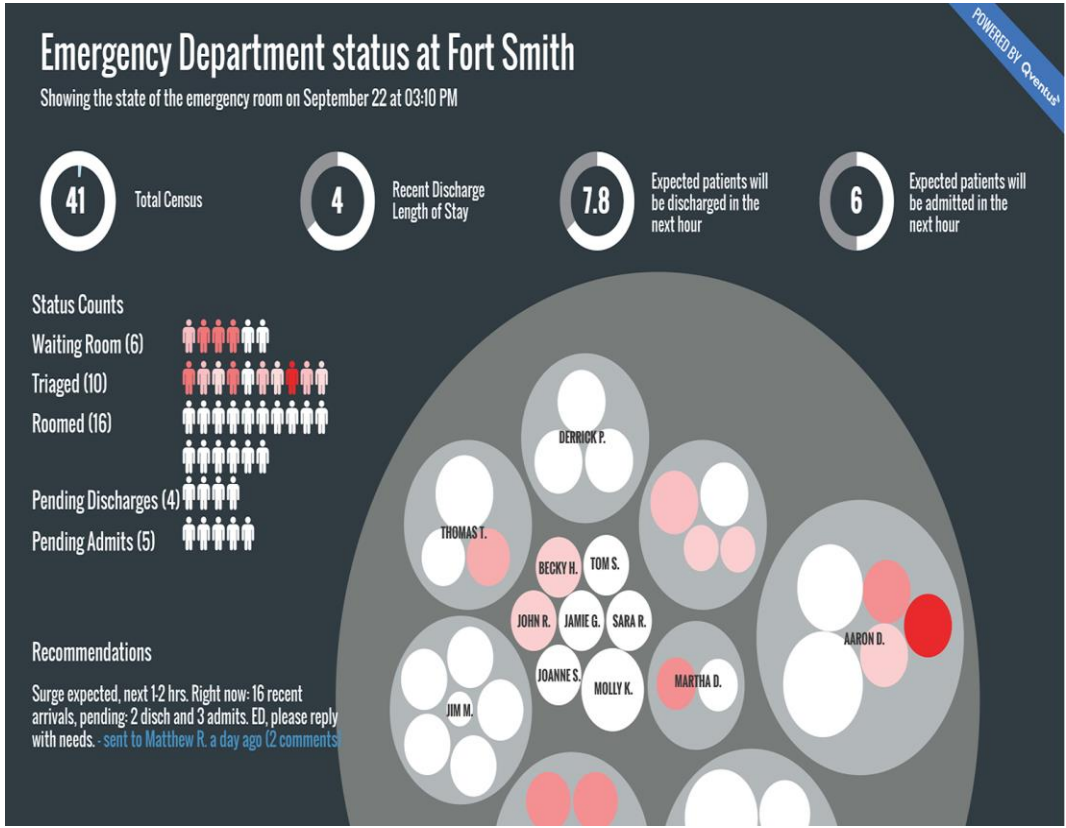


Summary Page Status Updates

KP Throughput Tool		
Severely OC 160		
Posted Feb 8, 2016 11:50 AM		
Hospital Census: 88% Feb 8, 2016 11:54 AM		
Admin Oncall	PEND	+
Cath Lab	PEND	+
COCSO & PCC's	PEND	+
Emergency Dept	DONE	+
EVS	PEND	+
House Sup	PEND	+
Inpatient Units	PEND	+
Laboratory	PEND	+
Pharmacy	PEND	+
Radiology	PEND	+
Supply Chain	PEND	+
Surgical Services	ON IT	+



Future: Proactively Preventing Crowding



Questions?

