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THE URGE TO SURGE

The train is coming

bells & whistles probably won't help a whole lot

Madrid Commuter Train Attack

- Election eve March 11, 2004
- 10 bombs exploded
- 4 commuter trains
- During rush-hour
- 177 killed instantly
- 2000 injured
- 1000 patients transported to 15 hospitals
- 270 patients arrived at a single hospital ER within 3-hours
  - 89 required admission
  - 29 required critical care

U.S. House of Representatives Committee on Oversight & Government Reform

Evaluate nation's preparedness for surge

- Is the emergency care system in the U.S. prepared to respond to a terrorist attack?
- Do major cities in this country have the capacity to respond to the same level of casualties as was seen in Madrid?

Survey of Level–1 Trauma Centers

- Five at highest risk of a terrorist strike
- Two where the 2008 DNC and RNC were held

Study design

- Federal resources will require > 72-hours to deploy
  - So local ERs & trauma centers will provide main access
- Most likely scenario for a terrorist strike
  - Large number of traumatic injuries
  - 2° to conventional explosives
- Paradigm of Golden-hour of trauma
  - Treating patients in Level-1 trauma
  - Highest level of injury care
  - Lowest risk of disability & death (25%

A Little Context

- Last 2o years
  - Disasters claimed 3-million li[v]
  - Adversely affected 8-million n
- 93 terrorist attacks from 1991-2000
- Explosive devices
  - Most commonly used terrorist weapon
  - Traumatic injury is most likely the primary result
- 52 Centers for Public Health Preparedness
  - Focusing on bioterrorism
  - None focusing on civilian effects of

Survey Methodology

Snapshot

- 34 of 41 level-1 trauma centers (83%) participated > 20% of total emergency care capacity

- Designed to determine real-time 'surge-capacity'
  - Emergency rooms, critical-care & inpatient units
  - To absorb a sudden influx o
  - From a mass-casualty event
  - Of the Madrid-type

- At a precise moment
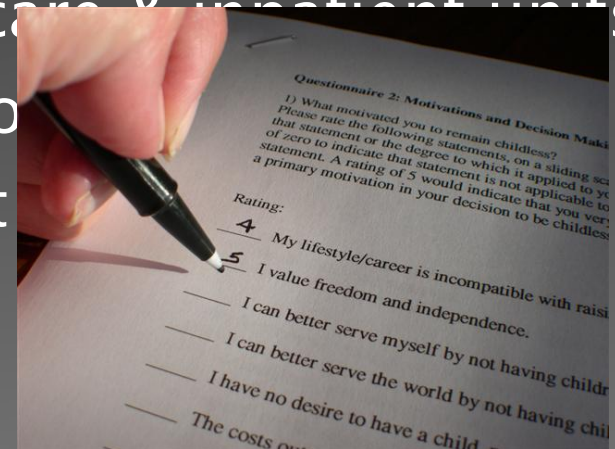
Survey results

ER capacity

- ½ of the Level–1 ERs operating above capacity
  - With the average ER operating at 115% capability
    - Not counting patients in the waiting room
    - And with 15% of patients already being seen in overflow areas

ting

Survey Results

ER capacity

- Of 16 level-1 trauma centers in N
  - No space available in 1o
- Only 56 ER beds available citywide
    - < 21% of the surge absorbed by a single hospital in Madrid
- 5 Level-1 trauma centers in L.A.
  - 3 hospitals were on diversion
  - Only 6 ER beds were available city-wide
- No available level-1 ER beds in D.C.
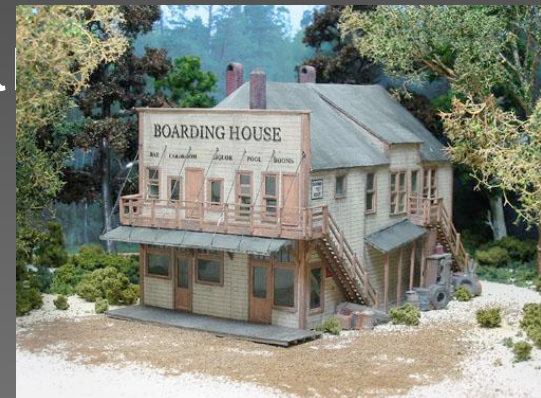 - 1 of these centers operating at 286% of its

Survey Results

ER capacity: boarders

- Hospital full = ER patients can't be moved
  - Bottleneck creates 'boarders'
  - Limits already strained resources
- Boarders in 25% 0f all ER beds in the 7 cities
  - 60% of the level–1 beds in D.C.
- 6/8 boa... hou...
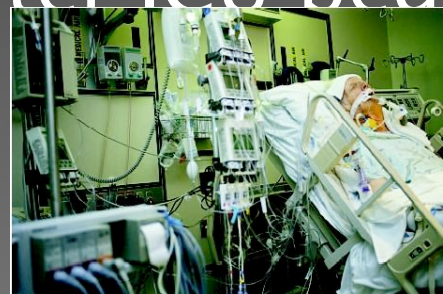
Survey Results

ER surge capacity: bottom Line

- Of all trauma centers surveyed
- Not a single facility had sufficient capacity
  - To absorb more than 10% of the surge
    - Single hospital In Madrid
- Even with pooling resources
- Not one city in the U.S. had sufficient capacity
- Altogether the total # available ER beds in all 7 U.S. cities
  - < 1/8 the total # cases transported in Madrid

Survey Results

Critical-care capacity (ICU beds)

- 29 patients arrived in critical condition
  - At a single hospital in Madrid
- No U.S. level-1 center had sufficient capacity
  - Average of 5 ICU beds available in each center
  - Six hospitals (18%) had no available beds
- Even with all trauma center ICU beds pooled

Survey Results

Inpatient capacity

- 89 patients
  - Required admission to an inpatient bed
  - At a single hospital in Madrid
- No U.S. level-1 center had sufficient capacity
  - Average of 24 inpatient beds available

So what do you do?

Potential strategies for dealing with surge

- Clean house
- Increase hospital capacity
- 'Better' management
- Spend more money, but spend it better

Strategies for Surge

Clean House

- Of the 270 patients who went to one hospital
  - 123 patients discharged from the ER
  - 161 in-patients d/c'd home (9% of 1800 beds)
- How many of our hospitals could pull this off ?

Strategies for Surge

Increasing hospital capacity

- Might remedy ER congestion & overcrowding
- But, 'If you build it and they will come'
  - More elective treatments & surgeries scheduled ?

Strategies for Surge

'Better' Management: Reduce ER overcrowding without building extra capacity

- Reduce or eliminate diversion
- Reduce ER boarding with better through-put

Strategies for Surge

Reduce or eliminate diversion
- Israel, Massachusetts
- Diversion is bad (No diversion is good)
  - Continuity of patient care
  - Utilization of EMS resources
  - Shifting of over-crowding
- The old 'Yin-Yang: No diversion is also bad
  - Safety valve vs. crutch for hospitals
  - Studies: Increased EMS turn-around times

Strategies for Surge

'Better' Management

- Reduce ER 'boarding' through better patient through–put
  - SWAT
    - Bedside registration and triage
    - Rapid evaluation & treatment beds in the ER
    - Zone defense
  - In–patient hall beds
  - Turn–over & cleaning of beds
  - Early discharge & patient waiting areas
  - Better scheduling of elective surgeries

Strategies for Surge

Spend more money

- Over $2.2 trillion/year in healthcare costs &
- $4 billion spent by HHS since 9/11
  - Waxman study suggests U.S. still unprepared
  - Hospitals & EMS systems unable to manage
  - Lack of coordination
    - Emergency management
    - Public safety

Strategies for Surge

Spend more money

- ▪ Compensate for diversion/turnaround
  - ▫ Additional EMS resources
- ▪ Current economic climate is diffi
  - ▫ Better distribution of existing resou
- ▪ EMS's place in 1st response orde
  - ▫ 2003–2005
  - ▫ < 4% federal grants awarded to EMS
  - ▫ Little pass-through from Fire
  - ▫ Few measurable goals
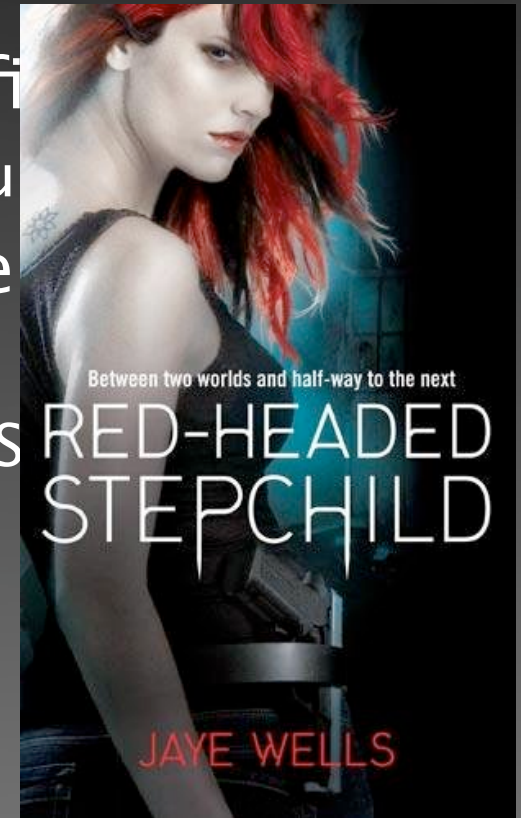
5 Axioms of Surge

- Disasters are characterized by many people trying to do quickly what they do not ordinarily do, in an environment with which they are not familiar
- Davis principle: Manage expectations
- All response is local
- If we can do it everyday, then we can do it in a disaster
- So, no more bells & whistles