Surge Capacity
A Conceptual Framework
Overview of the Science of Surge

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Surge Capacity

What is it?

- New terminology
  - A concept
  - No standardized definition
  - Difficult to describe
- State of California 2007
- Our simple approach
  - Three components
    - The 3 S’s
Ability of the *emergency-care system* to mobilize additional resources and personnel quickly to deal with a sudden influx of *patients*
A New Concept for Surge Capacity

Co-Authors

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“Never, ever, think outside the box.”
Surge Capacity
When do you need it?

Required when
- Patient care needs exceed resources
- At a given point in time

Uncommon to exceed health and medical resources within the United States
1918 Influenza Pandemic

550,000 deaths in US in less than 10 months
4,000 deaths per day in the month of October
Modern Times
Lack of Resources?

29 disasters in the United States
- 6% supply shortages
- 2% personnel shortages

Lack of a *management system* to organize available resources

Hurricane Katrina
- An exception?
Surge Capacity

Traditional focus has been on “stuff”
- “Dr. Koenig, how many ventilators should we buy for the State of California?”
- Purchasing pharmaceuticals and supplies
  - Ventilators
  - Antiviral Medications
  - Decontamination Equipment
  - Personal Protective Equipment
Preventing spread of the bird flu

Buying “stuff” is not enough!
Surge Capacity
Background Considerations

- Managed Care and other cost-containment strategies have increased efficiency, however
  - “Just-in-time” systems lack excess capacity
  - Crowding in emergency health care systems
  - Barely effective for day-to-day operations
- Need a **Surge System** for catastrophic events
Catastrophic Event

- When medical and health needs exceed resources at a given point in time
- Not the absolute number of patients
- Key point is whether system resources are adequate
Surge System
3 Key Components

- Stuff (supplies and equipment)
Surge System

Key Components

- **Stuff** (supplies and equipment)
- **Staff** (personnel)
  - Behavioral issues
  - Will staff come to work?
Surge System
Key Components

- **Stuff** (supplies and equipment)
- **Staff** (personnel)
  - Behavioral issues
  - Will staff come to work?
- **Structure** (2 components)
  - Physical space
  - Management infrastructure
    - Incident Command System
Surge System
3 Components

Stuff

Structure

Staff
Surge System
Goal

“Do the most good for the most people”

– Shift from *individual* care to *population* care
  – Cardiopulmonary Resuscitation?
  – “Triggers” to shift to a “Crisis Standard of Care”
Standard of Care*

- Do not “alter” THE standard of care!
- Goal to optimize *population* outcomes rather than individual outcomes

Science of Surge

F Academic Emergency Medicine
  – May 2006 Consensus Conference
  – Proceedings published November 2006

www.aemj.org/content/vol13/issue11
Surge Capacity Research
Future Directions

- Create, evaluate, improve protocols
- Develop readiness benchmarks
- Metrics to determine *triggers* to implement
  - Simple, all-hazard
  - Fiscally viable
Surge Capacity
Conclusions

🔗 Goals
- Augment patient treatment capacity
- Improve *population* health outcomes

🔗 Surge System
- Staff
- Stuff
- Structure
  - Physical Infrastructure
  - Incident Command System
Selected References


