A Method to Define and Deliver Sub-regional Pediatric Capacity During Disaster in Seattle-King County Hospitals

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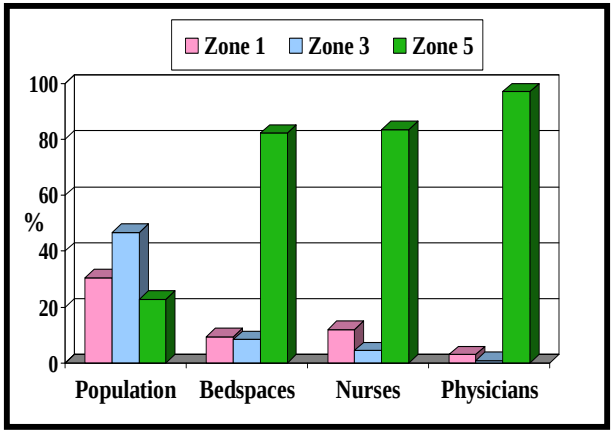
Geographical Context

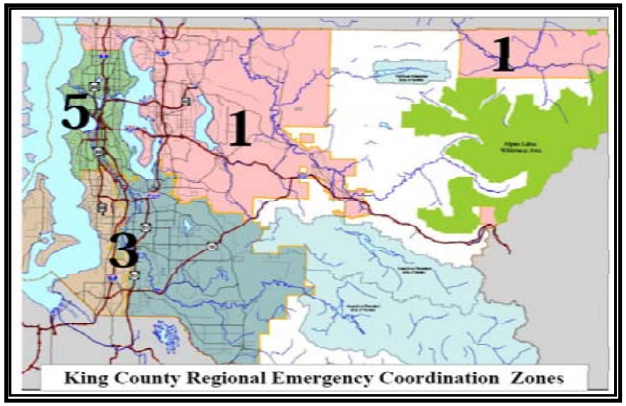
- Seattle-King County (SKC), WA
- >2000 square miles
- Vulnerable bridges
- Large bodies of water
- SKC divided into three 911 zones:
  - Zone 1 = East Side
  - Zone 3 = South End
  - Zone 5 = Seattle Area

Background SKC Survey Data

Zone 5 (City of Seattle):
> 80% of all pediatric resources

Zones 1 and 3 (Eastside & South End):
77% of pediatric population





Hypothesis: Inaccessibility can be addressed

- Define bedspace by acuity
- Estimate sub-region capacity per population
- Identify sub-region capacity deficiencies
- Model alternate sub-region capacity at some "reasonable level" (**Model I**)
- Model alternate sub-region capacity at a target minimum level per population, assuming that sub-regions may need to function independently (**Model II**)

Bedspace defined by acuity

High-acuity (HA) = PICU, NICU, peds PACU
Low-acuity (LA) = Peds floor, peds ED

Target pediatric minimum capacity

- 100 LA and 100 HA beds per 100K children
- Based on current SKC capacity at 100% surge = 127 LA and 119 HA per 100K children

Alternate Care Facility (ACF) Models

- **Model I:** 50 LA + 10 HA beds in Zone 1 and 3
- **Model II:** Target pediatric minimum capacity

Bedspaces per 100K children	Zone 1		Zone 3		Zone 5	
Acuity	LA	HA	LA	HA	LA	HA
Baseline	11	28	5	18	252	186
100% Surge	22	56	10	36	505	374
ACF Model I	62	64	37	41	505	374
ACF Model II	100	100	100	100	505	374
Additional # Beds Needed						
ACF Model I	50	10	50	10	0	0
ACF Model II	97	55	171	123	0	0

Conclusions

- **ACF Model I improves capacity** in Zones 1 and 3.
- **ACF Model II allows us to calculate** the number of LA and HA beds needed in Zones 1 and 3 to achieve a selected target minimum capacity in each zone.
- **This methodology can be applied to other regions** with sub-regions separated by potential geographical barriers to delivery of pediatric care during a disaster.
- **Further study and discussion** is needed around:
  - target sub-regional pediatric minimum capacity
  - utilization of excess capacity within single zone