Responder Communications in Disaster: “Is Less Really More?”

Amelia Duran-Stanton, LTC, PA-C, PhD, DSc, DFAAPA
Ready and Resilient Integration Branch Chief/Deputy Surgeon
Installation Management Command
U.S. Army

Mary Showstark, MS, PA-C
Yale School of Medicine Physician Assistant Online Program

Ralph R. Stanton, Jr., MA, Graduate Certificate in GIS
Disaster scholar with military background
(former Medical Service Corps Officer, U.S. Army)

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Built Environments

Vulnerable Populations

Responder Communications in Disaster: Is Less Really More?

"Less is more" (Simplicity or KISS Principle)
—Ludwig Mies van der Rohe (1886-1969)
Kluczynski Federal Building (Chicago, IL)

Or: "Less is a bore." (*Complexity and Contradiction*)
–Robert Venturi (1925-2018)
Learning from Las Vegas (1972)

Outline

1. Introduction
2. Disclaimer
3. Purpose
4. Emergency Management/MASCAL
5. Accounting for Convergence Behavior
6. Incident Command System
7. Create Key Messages
8. Create Thematic Maps
9. Vulnerable Populations
10. Logistical Resources
11. Discussion
12. Conclusion
13. Questions

Disclaimer

•The authors' views are theirs and do not reflect the official policy of Yale University, the Department of Army, Department of Defense, or the U.S. Government

Purpose

- To provide clinicians an understanding of the disaster management and the importance of responder communications

Learning Objectives

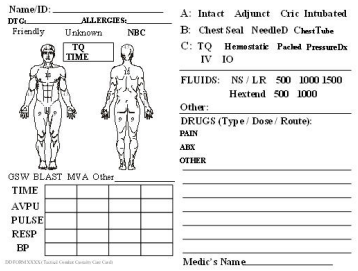
- Describe responder communications in disaster medicine (IDEA Model)
- Describe emergency management & MASCAL (Mass Casualty) situation
- Describe how to provide situational awareness (via complexity and contradictions of convergence behavior)

Introduction: Responder Communications in Disaster

- Emergency Management
  (Four Phases)
  1. Mitigation
  2. Preparedness
  3. Response
  4. Recovery
- Emergency Management when there is a MASCAL that overwhelms local resources

MASCAL

- Mass casualty (MASCAL) situation is whenever sick and wounded casualties overwhelms capabilities of a medical treatment facility (MTF)
- Triage with IDME (Immediate, Delayed, Minimal, Expectant) and try to document

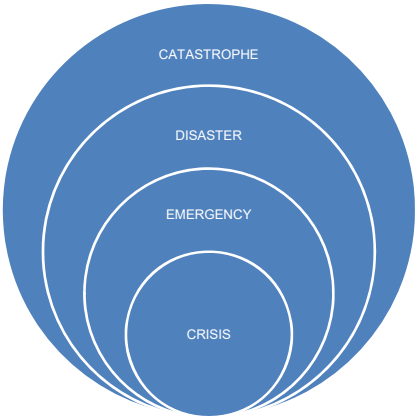


MASCAL SITUATIONS & EMERGENCY MANAGEMENT

Disaster Examples linked to MASCAL Situations

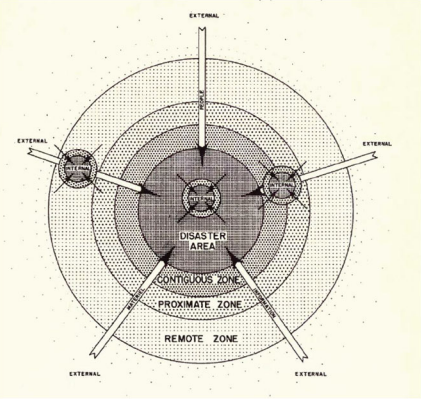
- Floods
- Hurricanes
- Tornadoes
- Volcanic eruptions
- Earthquakes
- Tsunamis
- Wildfires
- Drought
- Nuclear & Chemical
- Mass Shootings
- Refugee Crisis

Largest to smallest scales of Emergency Management



Account for **convergence behavior**

Spatial Model of Convergence Behavior (Fritz & Mathewson, 1956)

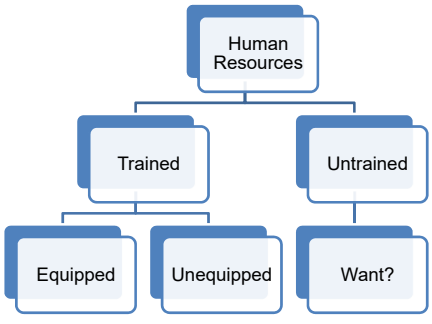


CONVERGENCE BEHAVIOR

- People are attracted to disasters for sundry reasons
  - Altruism/empathy
  - Entertainment/excitement
  - Greed/Opportunity
- Problems with social control
- Spontaneous movement of resources into disaster area
  - Human
  - Informational
  - Logistical (e.g. material)

Account for Convergence Behavior

Human, Informational, & Logistical Resources



Develop a strategy for resources (Art of War)

Acknowledge emergency management linked to **improvisation**

- Emergency Management
  - Mitigation (Not Prevention)
  - Preparedness (Rehearse)
  - Response (Perform)
  - Recovery (New Normal)
  - Mitigation (New Policies)
- Organizational Improvisation
  - Reproductive
  - Adaptive
  - Creative
- Responder Communication
  - Practice & Rehearsals
  - Relating to an Audience
  - Theaters of Operation

Prepare to Respond!

Improvisation & Innovation

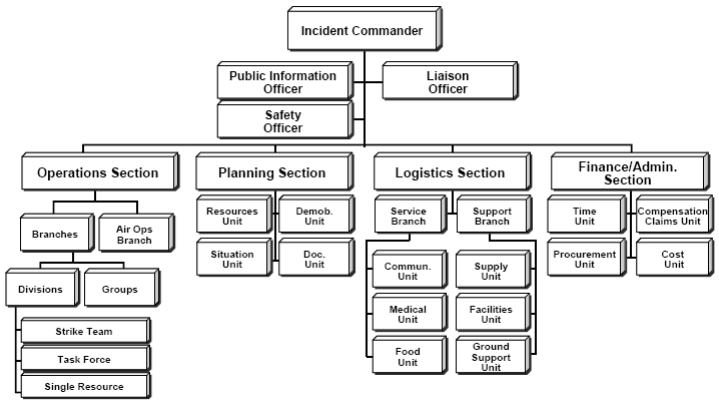
- Reproductive Improvisation
  - Execute existing plan
  - Remember rehearsals
- Adaptive Improvisation
  - Derive from existing plan
  - Environmental impacts
- Creative Improvisation
  - Something new
  - Something very different

Think Jazz!

Assign Spokespersons to:

- Collect data, identify resources, and share information with stakeholders
  - Be specific
  - Distinguish between needs and wants
  - Quantify needs and Specify Timelines
- Coordinate resources via the Incident Command System (ICS)
- Facilitate dialogue with stakeholders
  - External: ICS Commander, Police, Fire, etc.
  - Internal: Clinicians, Laypersons, Volunteers, etc.

Incident Command System (ICS)



Collect Information and Facilitate Dialogue

Collect information

- Collect data
- Identify resources
  - Human Resources (i.e. casualties, staff, volunteers, etc.)
  - Informational Resources, such as Wireless Emergency Alerts (WEAs)
- Share information with stakeholders

Facilitate dialogue

- Assign a spokesperson for external stakeholders such emergency managers and first responders
- Assign a spokesperson for internal stakeholders such as staff, trained volunteers, untrained volunteers, etc.

Create key messages with IDEA Model

- Internalization
  - Most effective from known sources
  - Trustworthy, Credible
- Distribution
  - Social Media
  - Texts, Tweets, etc.
  - Wireless Electronic Alert (WEA)
- Explanation
  - What happened (maybe why)
  - When and Where
- Actions to be taken
  - Who does what
  - When and where
  - Use thematic maps and URLs

Create Thematic Maps

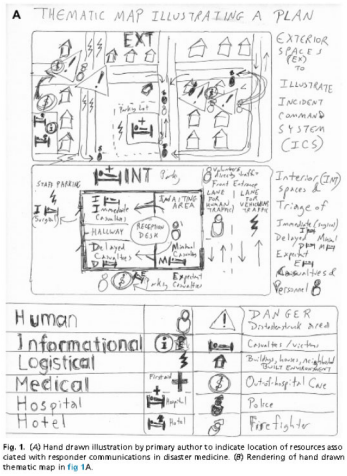


Fig. 1. (A) Hand drawn illustration by primary author to indicate location of resources associated with responder communications in disaster medicine. (B) Rendering of hand drawn thematic map in fig 1A.

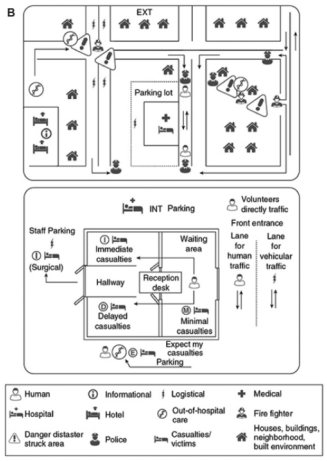


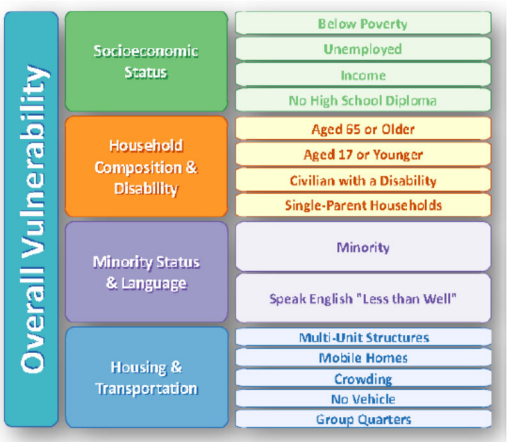
Fig. 1. (*continued*)

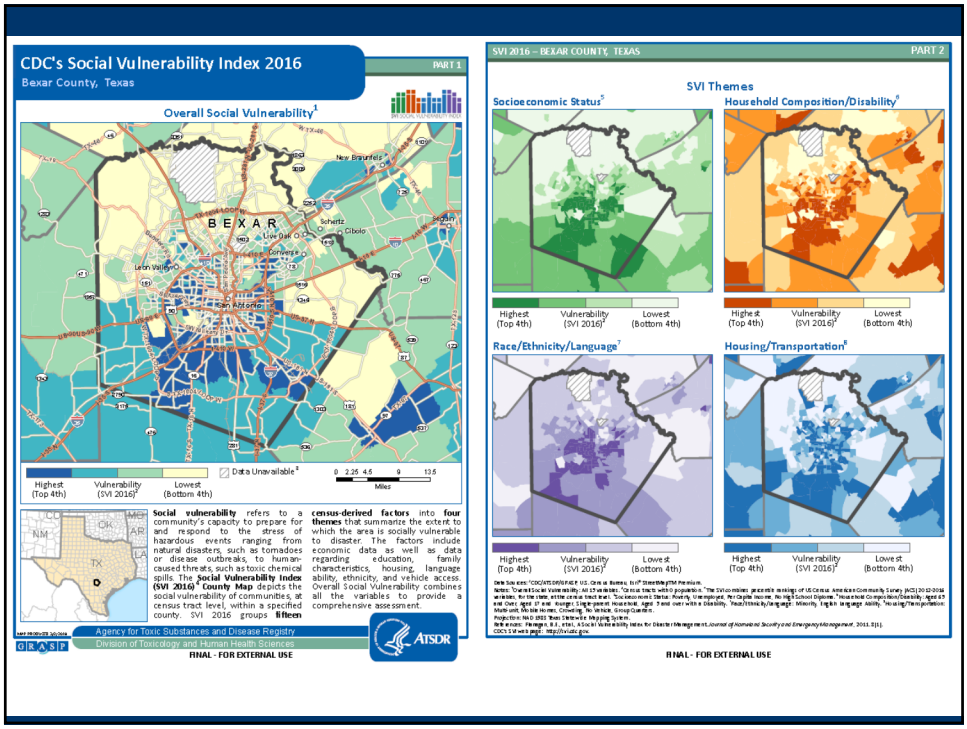
Create Thematic Maps

CDC's Social Vulnerability Index (SVI) Tool

- Old Paradigm
  - Hazards+Risks=Vulnerability
  - Two-Variable Simplicity
- New Paradigm: Overall (Social) Vulnerability
- Four Themes
  - Socioeconomic Status
  - Household Composition/Disability
  - Race/Ethnicity/Language
  - Housing/Transportation
- Fifteen Variables From U.S. Census Bureau Data/Demographics

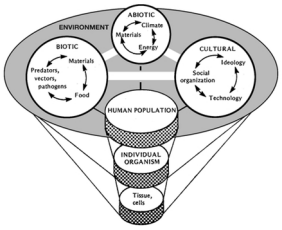
Pre-prepared Thematic Maps: Bexar County, Texas

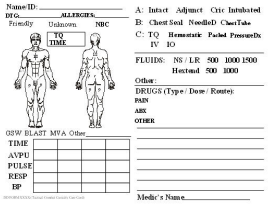




Overall Social Vulnerability

Some factors linked to Vulnerability: From environment to documentation



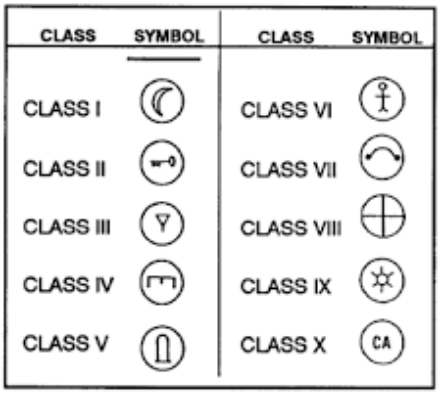


PACE & Responder Communications

- **Primary**
  - Facility Electronic Devices (e.g. emails, etc.)
  - Facility land-lines
  - Facility Spokespersons
- **Alternate**
  - Social Media
- **Contingent**
  - Smartphones
- **Emergent**
  - Personal Runners
  - Short-wave Radio/Walkie-talkie
  - Signs, Thematic Maps
  - Volunteers, etc.

Logistical Resources

- The Department of Defense (DOD) uses joint logistics to supply and sustain troops, as well as humanitarian interventions in different places throughout the world when the DOD is ordered to provide Defense Support to Civil Authorities (DSCA) operations.[13]



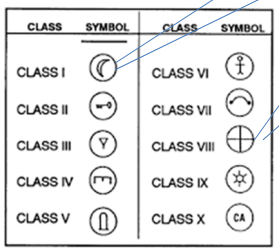
Logistical Resources

- There are ten classes of supply to sustain people. These supplies include everything from subsistence to repair parts and material not supported by the DOD, such as local contracts to acquire goods and services.

SUPPLY CLASS	DEFINITION
I	Subsistence items, gratuitous health and welfare items
II	Items of equipment other than major end items
III	Petroleum, Oil, And Lubricants (POL)
IV	Construction and barrier materials
V	Ammunition
VI	Personal demand items normally sold through exchange
VII	Major end items
VIII	Medical material
IX	Repair parts and components. (Class IXa is aviation-peculiar products)
X	Material to support nonmilitary programs
Miscellaneous	Water, maps, captured material, and salvaged material

Logistical Resources

- They may be seen as symbols and viably placed on thematic maps to indicate where supplies are (e.g. Class I & VIII)



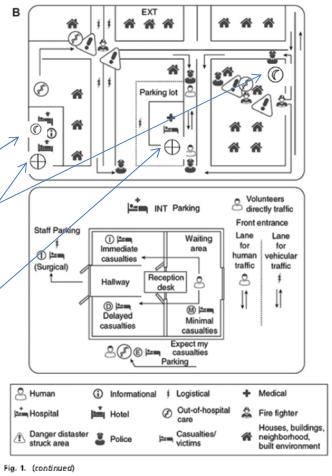
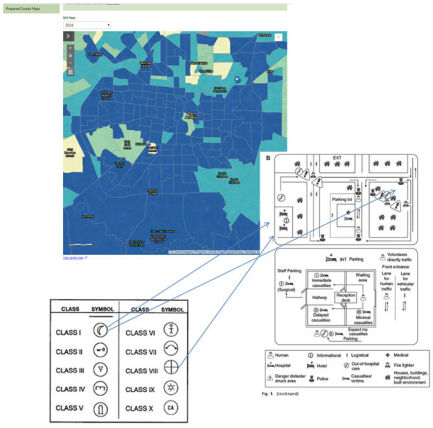


Fig. 1. (*continued*)

IN SUMMARY: "IS LESS REALLY MORE?"

Less is more **(Simplicity, Two Variables): Hazards + Risks = Vulnerability**

Is less, really, a bore? **(Complexity):**
CDC's Social Vulnerability Index (SVI) Tool,
Human, Informational, & Logistical Resources, Thematic Maps, etc.



Discussion

- This project asked a metaphysical question: "*Is less more?*" From a theoretical perspective, "less is a bore" was the counterpoint to the old adage "*less is more*." In other words, there were old-school versus new-school paradigms to raise questions about complexity versus simplicity in built environments. *So what*, right?

- The *so what* is that the built environment is frequently where responder communications (in disaster medicine) *literally* takes *place*, yet it is easy to forget how convergence behavior (i.e. spontaneous movement of human, informational, and logistical resources) takes place in a built environment. There will be (un)equipped, (un)expected, (un)trained, and (un)wanted professionals and volunteers arriving at the scene because people are attracted to disasters.

Discussion

- They will use social media and spatial analysis to communicate verbally and visually as dispatchers and first responders try to collaborate with stakeholders.
- They will need to coordinate the movement of logistical resources over space and time.
- Ultimately, the goal is to collect data, facilitate dialogue, leverage technology, organize action, and share information to improve responder communications (in disaster medicine).

Conclusions

- Medical professionals in clinic and hospital settings need to account for convergence behavior to disrupt responder communications in disaster, especially when there is a mass casualty (MASCAL) situation that overwhelms local resources
- It is key to acknowledge the art of *emergency management* (i.e. *mitigation*, *preparedness*, *response*, and *recovery*) linked to different types of *improvisation* (i.e. *reproductive*, *adaptive*, and *creative*).
- Medical professions should collect data, identify resources, and share information with internal stakeholders to facilitate dialogue about key messages, situation reports, and social media.

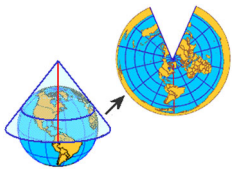
Conclusions

- It is important to define stakeholders and design a communications strategy to create key messages and viably use the IDEA Model to distribute key messages.
- Convergence behavior (i.e. spontaneous movement of human, informational, and logistical resources over space and time) impacts responder communications (in disaster medicine).

Conclusions

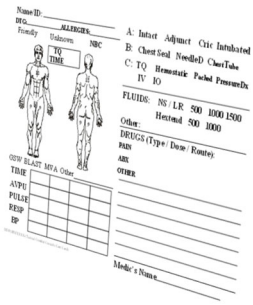
Responder Communications in Disaster: *Is Less, Really More?*

- Convergence Behavior
- Emergency Management & MASCAL Situation
- Situational Awareness



***Or, is less a bore?* From global to local spaces**

- MASCAL (Mass Casualty) Situation
- Social Media & Social Vulnerability Index (SVI)
- PACE:
  - Primary
  - Alternate
  - Contingent
  - Emergent forms of communication
- IDEA Model
  - Internalize
  - Distribute
  - Explain
  - Act



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11. Ibid.
12. Schroeder, K. Keep it simple, stupid.
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Additional Resources

- Responder Communications in Disaster: Is Less Really More
  - Stanton, R. & Duran-Stanton, A. (edited by Showstark, M.)
  - *Physician Assistant Clinics*, Volume 4, Issue 4, 687 - 699
  - DOI: https://doi.org/10.1016/j.cpha.2019.06.003
- Vulnerable Populations in Disaster Medicine: Residence, Resilience, Resources
  - Stanton, R. & Duran-Stanton, A. (edited by Showstark, M.)
  - *Physician Assistant Clinics*, Volume 4, Issue 4, 675 - 685
  - DOI: https://doi.org/10.1016/j.cpha.2019.06.005
- https://www.army.mil/article/208673/mascal_exercise_enhances_readiness_at_tripler_army_medical_center
- https://asprtracie.hhs.gov/technical-resources/33/pre-hospital-mass-casualty-triage-and-trauma-care/0
- https://www.cdc.gov/cpr/readiness/healthcare/tools-resources.htm

Questions/Discussion