


Communications
Intelligent Notification:
Using Emergency Communications Systems
to Alert, Notify and Inform
Occupants and Emergency Forces



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Agenda

- Overview of some problems and challenges
- Approaches for addressing some of the problems and challenges
- Strategies for effective communications

27/9/3

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The Problem

- Emerging technologies
- Back-loaded designs
- Rapid system deployment
- We are still in the “learning & training” feedback phase.
- A failure to effectively communicate.

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**Intelligent Communications:
It's the message, stupid!**

Beep, beep, beep. Attention please. The signal tone you have just heard indicates a report of an emergency in this building. If your floor evacuation signal sounds after this message, walk to the nearest stairway exit and leave the floor. All handicap occupants shall follow the building evacuation plan. While the report is being verified, occupants on other floors should await further instructions.




The Massachusetts Message 4

**Intelligent Communications:
It's the stupid message!**






The Massachusetts Message 5


Lessons Learned

- 25 March 2010 stabbing on a college campus at about 9:03 PM.
- Reported immediately, suspect flees
- Text message and phone audio message: "WE HAD A FELONIOUS ASSAULT BY THE RECREATION CENTER SUSPECT AT LARGE TUNE INTO LOCAL MEDIA FOR MORE."
- Sent 1.5 hours after incident
- 4600 of 21,000 messages not delivered, others delayed



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The Solution (one small part)



- *Effective Communications*
 - Convey relevant information
 - When needed (time)
 - In a manner that triggers desired response

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The APP Model

- Anticipate
- Plan
- Practice




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Strategies for Effective Emergency Communications

- Identify and organize stakeholders
- Hazard identification and risk assessments
- Profile hazard events – scenarios
- Inventory existing assets
- Begin to develop plans



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Strategies for Effective Emergency Communications

- Identify communications needs
- Identify assets needed to meet communications needs
- Rework plans, integrating new & existing assets
- Pre-plan messages and templates for each
 - Hazard
 - Audience
 - Event stage
 - Type of communication channel/asset

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Intelligent Communications: Identify the stakeholders.

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Intelligent Communications: Understand that the system has a life.

Planning
Design
Review
Approval
Configuration
Installation
Inspection
Testing
Maintenance
Use

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Intelligent Communications: Get all the players involved.

	Govt & Admin	Community	Utility / Infrastructure	Safety Units (Police, Fire & EMS)	Telecommunications/IT	Human Resources	Architects	Engineer - Other	Engineer - Fire Protection	Technicians - Installing	Manufacturers	Distributors	Technicians - PM	Command/CP / Dispatch Station	AMI - Inspector	Listing Agencies	Insurance Companies
Planning	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Design	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Review	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Approval	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Configuration	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Installation	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Inspection	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Testing	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Maintenance	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Use	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

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What are the hazards and risks?

- Tsunami
- Tornado
- Mud/Landslide
- Technological
- Terrorism
- Industry Hardship
- Hurricane
- Tropical Storm
- Chemical
- Biological
- Extreme Temps
- Flooding
- Virus Threat
- Drought
- Dam/Levee Break
- Wildfire
- Earthquake
- Severe Storm
- Coastal Storm
- Typhoon
- Winter Storm
- Fire
- Volcano
- Nuclear

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Assets Inventory: Emergency Communications Systems

IPAWS
Integrated Public Alert Warning System

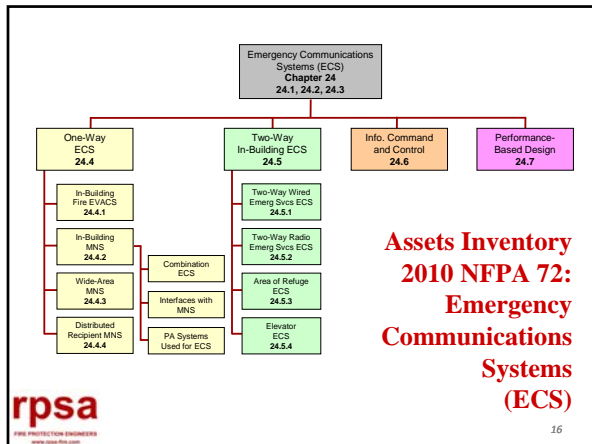
PRIVATE MODE

CMAS
Commercial Mobile Alerting System

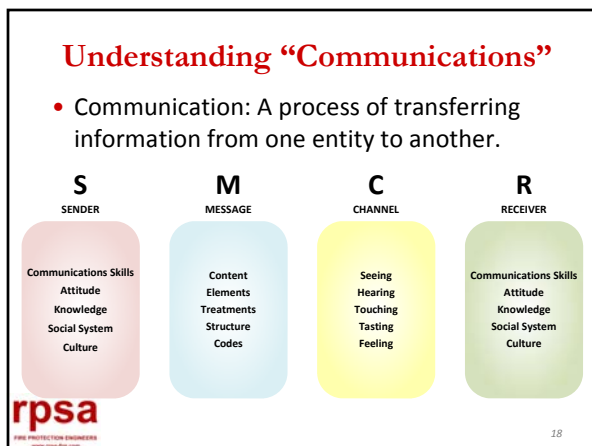
PUBLIC MODE

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- ### ECS Assets Inventory
- Building voice
 - Giant voice
 - Bullhorns
 - Call Boxes
 - Digital displays
 - Pop-up messages
 - Talking lights
 - RFID
 - E-mail
 - Text (SMS)
 - IRC
 - IM
 - Intercoms
 - Telephone (push)
 - 800 numbers (pull)
 - Near field comm.
 - Directional voice
 - Posters
 - Radio
 - Television
 - Cable capture
 - Web pages
 - Blogs
 - Social networks: Twitter, F.B., etc.
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Understanding “Communications”

- Communication
 - Alert
 - Notify
 - Inform
 - Affect behavior

Hear/
Notice

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Understanding “Communications”

27/9/3

- 27 WORDS
- 9 SECONDS
- 3 MESSAGES

- Communications noise
 - Environmental
 - System
 - Physiological impairment
 - Cognitive impairment
 - Semantics
 - Syntactical
 - Psychological
 - Organizational
 - Cultural

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Effective Emergency Communications

- Message content
 - A description of the event or hazard:
What is happening. 27/9/3
 - Location •27 WORDS
 - What to do •9 SECONDS
 - When to do it •3 MESSAGES
 - Why you should do it
 - Source of information / authority

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Effective Emergency Communications

- Message design (style)
 - Simple language
 - Accurate information
 - Precise instructions
 - Authoritative

27/9/3

•27 WORDS

•9 SECONDS


•3 MESSAGES



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Effective Emergency Communications

- Message Format: Use layered message channels
 - Text
 - Voice
 - Visual
 - Graphics
 - Pictures
 - Drawings
 - GIS
 - Models
 - Real time video

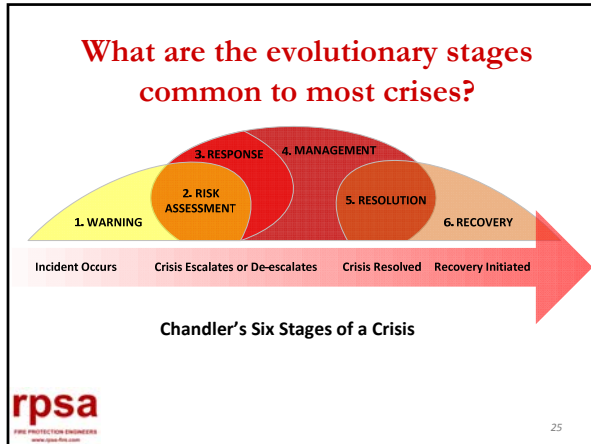


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S SENDER	M MESSAGE	C CHANNEL	R RECEIVER
Communications Skills Attitude Knowledge Social System Culture	Content Elements Treatments Structure Codes	Seeing Hearing Touching Tasting Feeling	Communications Skills Attitude Knowledge Social System Culture
Training Authorization Authority Language Accent	Relevance Size/length/time Templates Resources Pre-crafted messages Checklists Reviewers	Immediacy Availability Redundancy Communications Noise Capacity Capability Security	Training Language Cognition Communications Noise



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**Intelligent Communications:
ECSs can not be fully automated.**

- There are too many possible threats/hazards.
- Information and instructions change with time.
- Pre-recorded messages can become "noise" and lose credibility.
- Information gathering is as important as information/instruction dissemination.

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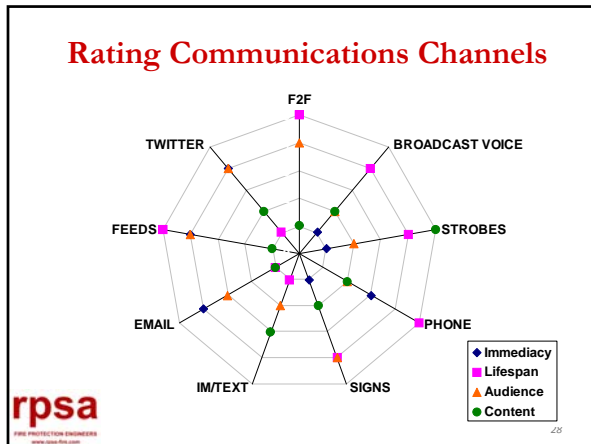
**Intelligent Communications:
It's not just voice.**

"Emergency notification systems should be both layered and redundant – no single means of communication should be solely relied upon to reach the entire campus community."

The Report of the University of California Campus Security Task Force

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Create Preplanned Messages and Message Templates

- For each stage, of each event, for each communications channel, for each target audience, for each desired action.

Example:
6 x 5 x 3 = 90 possible messages

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Create Preplanned Messages and Message Templates

- Avoid over- and under-loaded messages
- Start with the 27/9/3 rule
- CCO: Compassion, conviction, optimism
- AGL-4: Write for < 6th grade reading level
- Primacy / Recency
- Use graphics

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Message Mapping

Stakeholder Question or Concern [EVENT, STAGE]		
Key Message #1 9 words (average)	Key Message #2 9 words (average)	Key Message #3 9 words (average)
Supporting Info. 1.1	Supporting Info. 2.1	Supporting Info. 3.1
Supporting Info. 1.2	Supporting Info. 2.2	Supporting Info. 3.2
Supporting Info. 1.3	Supporting Info. 2.3	Supporting Info. 3.3

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Chlorine Gas Leak, No Evacuation Message Map #1

Audience/Stakeholder: General Public

Stage of Crisis: ___ Warning ___ Risk Assessment Response ___ Management ___ Resolution ___ Recovery

Questions: What do you want people to do now about the chlorine gas release?

Communications Channel(s): Web Page; Digital Message Boards; CCTV

The chlorine gas release has been stopped.


- Damage to the chlorine canisters was not extensive.
- The chlorine gas released was easy to track because of the color and odor.
- Our best information available indicates that the chlorine gas has dispersed to insignificant levels.

The chlorine release affected only a small portion of the community [use map to show boundaries].

- The affected population has been advised to stay inside.
- Emergency response personnel continue to advise residents.
- The gas release will have no lasting effects on the impacted area.

Those in the area of the release should remain indoors.

- We are asking residents in the [identify area] area to remain indoors.
- We will make an announcement when it is safe for residents in this area to go outdoors again.
- If additional information is needed, please contact the emergency hotline at [insert number].

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High Rise Fire Evacuation Message Map #1

Audience/Stakeholder: Occupants of Fire Floor, Floor Above and Floor Below

Stage of Crisis: ___ Warning ___ Risk Assessment Response ___ Management ___ Resolution ___ Recovery

Questions: What do you want people on these floors to do now?

Communications Channel(s): Emergency Voice Alarm Communications System to affected floors.

There is a fire on floor number 7.


- The fire is in an office.
- There is some smoke in the hallways and stairs.
-

Fire sprinklers have activated and the fire department is responding.

- The sprinklers will control the fire to allow safe evacuation of the area.
- The fire chief will make additional announcements when more information is available.
-

People on floors six, seven and eight must leave using the stairs.

- Occupants can go to other floors.
- It is not necessary to evacuate the building.
-

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Fine Tune Messages

- Adjust for communication channel
- Use Message Maps as a guide for specific templates
- Coordinate communications channels

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Plan a Test and Test the Plan

- Use scenario testing.
- Include all stakeholders.
- Introduce random failures and dynamic changes.
- Reassess and redefine the systems and the plans.
- Test again.

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Summary

- Hardware by itself is not a complete *system*
- Messages and people are a part of the *system*
- Messages must be crafted and delivered to affect behavior

27/9/3
 •27 WORDS
 •9 SECONDS
 •3 MESSAGES

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**Messaging Strategies
FPRF Research Project**

- **BEST PRACTICE GUIDANCE FOR EMERGENCY MESSAGING.**
- Come to session W34, Research Planning in Support of the National Fire Alarm Code
- Wednesday, 6/9 at 9:30 AM – 1:30 PM in Lagoon AB.

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