

Air Medical Integration into an MCI

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Topics to be Covered

- Understand Helicopter Emergency Medical Services (HEMS)
- Role in disaster planning
- Various entities needed for successful response
- Value of incorporating HEMS in disaster drills
- How HEMS will benefit your current disaster plan

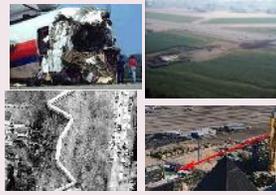


Considerations: Integration of HEMS in a MCI

- Is HEMS in your current disaster plan?
- How is it being utilized?
- Active/passive or no participation in mass casualty drills?
- Performance metrics?
- Has the role of HEMS been incorporated into all phases of disaster management?

What we deal with...

- Shootings
- Mass transportation crash
- Terrorism – various forms
- Natural disasters



Helicopter Emergency Medical Services (HEMS)

- Optimize/speed
- Coordinate
- Integrate
- Brakes traditional paradigm of ground transport medical care
- Decreases medical disparity between rural and urban settings



Traditional uses of HEMS

- Rapid retrieval of patient
- Ability to transport to appropriate center
- Austere environment entry
- Focuses around Trauma, STEMI, Stroke, OB, Peds, Neonates

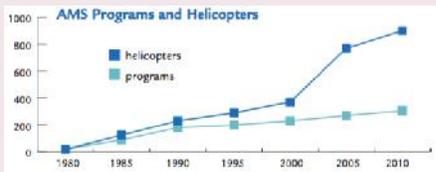


HEMS History

- Military – war experience – Korea and Vietnam
- Success in transporting multiple injured vehicles downrange
- Adopted various military practices into civilian MCI
- 1972 – first continuous HEMS – St Anthony in Denver
- Over 300 services with over 900 helicopters and 300 fixed wing



HEMS



HEMS – Air Med Services White Paper

Various HEMS assets – helicopter specific

- Types of Helicopter assets in your area
 - Single engine
 - Dual Engine
 - Military
 - Corporate
 - IFR capable

HEMS – other assets

- Triage
- Communications
- Advanced care personnel
- Surveillance
- Are they being utilized?
- Are they being optimized?



Triage



- Many times first on-scene
- Ability to act as scene commander under appropriate assets arrive
- Most critical initial steps in an MCI

Communications

- Various modalities are used
- UHF and VHF still mainstays
- Multiple hazards can cause many communication issues:
terrain/earthquakes/hurricanes
- HEMS can act as repeaters connecting ground units to disaster centers/hospitals, etc



Advanced care personnel/Augmented response

- HEMS can bring uniquely trained medical personnel specific for MCI
- Trauma surgeon, toxicologist, pharmacist, administrators
- Supplies: Blood products, medications, antidotes, Geiger counter, etc



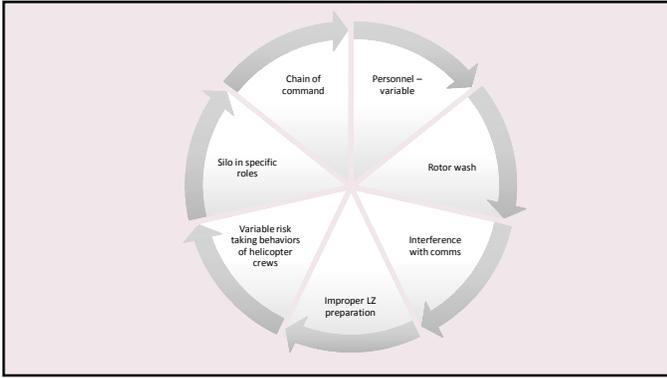
Surveillance

- Ability to extend radius of monitoring MCI
- Locate victims
- Alert of potential hazards
 - HAZMAT
 - Road/bridge destruction
- Quick determination of damage assessment





MCI Issues - HEMS



Role of HEMS in Disaster Planning

Four images illustrating the role of HEMS in disaster planning: a group of people, a helicopter, a person in a field, and a large industrial facility.

Joint Planning

- Key stakeholders
- Civilian, Military, Corporate
- Hospitals, Government, EMS agencies
- Drills, drills, drills and more drills...

Coordination

- Success of HEMS relies on local/regional/state and federal cooperation/communication
- Best practices
- Coordination of movements
- Best utilization of resources

Integration of a helicopter emergency medical service in a mass casualty response - Jacobs

- Tasked to develop integrated response plan
- 6 New England states
- 3 hospitals based HEMS
- Simulated drills
- Mass casualty events 150 mile radius
- 4 year period

Review of incidents

- Type of event
- Number of victims involved
- Air medical response
- Utilization
- Medical scene control
- Communications
- Hospital involvement
- Transportation

Incident	# Casualties
Actual	
Building Explosion	7
Hotel Fire	12
School Bus Accident	46
Aircraft Accident	2(18)*
Motor Vehicle Accidents	4.5
Chemical Spill	18
Simulated	
Military Conflict, overseas	100, 85, 85, 85
Aircraft Accident	45, 85, 165
School Bus/Car	30
Bus Accident	20, 163, 20, X**
Chemical Spill	10
Radiation	2
Train Accident	150

* alert=18, actual =2; ** Managed by State PD

Prehospital and Disaster Medicine © 1997 Jacobs et al



Table 2
MCI Responses, 6/85 to 12/87

Actual Events	Number of Victims	Augmented Response	Triage	Medical Treatment	Air Surveillance	Evacuation
Building Explosion	7		x	x		
Hotel Fire	12		x	x		x
Bus Rollover	46		x	x		x
Plane Crash	2(18)*	x	x	x		x

n=67
*Initial request for response to plane crash included 18 total victims.

Stoller Journal of med transport

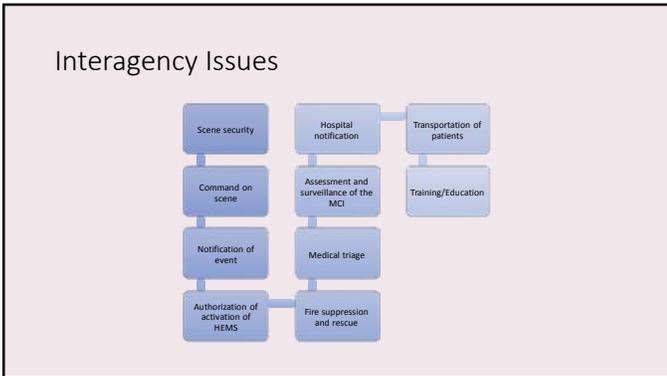
Table 3
Simulations, 6/85 to 12/87

	Number of Victims	ROLES				
		Augmented Response	Triage	Medical Treatment	Air Surveillance	Evacuation
Overseas Military Conflict; U.S. Navy Drill Victims Ferried to Conn.	100		x	x		x
Airliner Crash	45		x	x		x
School Bus Collision	30		x	x	x	x
Overseas Military Conflict; U.S. Navy Drill	85		x	x		x
Overseas Military Conflict; U.S. Navy Drill	85		x	x		x
Bus rollover	20		x	x		x
Airline Crash	86		x	x		x
Bus Collision	63		x	x	x	x

Stetler Journal of med transport

Connecticut
HEMS

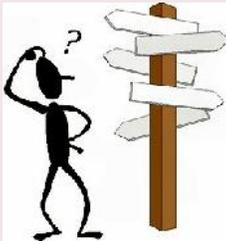
- HEMS assets are determined by responding team
- Planning process provided excellent cooperation between military and civilian assets
- Each incidents has its specific requirements (hazmat, radioactive, burns)
- Main focus areas:
 - Chain of command
 - Communications system
 - On-scene triage
 - Hospital notification
 - Hospital response



Connecticut HEMS

- HEMS success rests on pre-established response system and defined roles
- Scene safety very static – importance of updates
- Early notification and key specific info improves overall success of mission
- HEMS should be flexible to provide multiple nontraditional roles at the MCI
- Practice makes perfect (almost...)

Is HEMS in your MCI...





Assessment of U.S.
Helicopter Emergency
Medical Services'
Planning and
Preparedness for
Disaster Response- Fenn

- Survey to 187 rotor wing members of Association of Air Medical Services
- Divided into three categories
 - Written policy that fulfilled all guidelines
 - Written policy with partially fulfilled guidelines
 - No written policy

Table 1

Guidelines for Disaster Planning

- Annual policy review
- Triage training for medical crew members
- Incident command training for medical crew members
- Annual participation in disaster drills
- Policy incorporation into local EMA disaster plan
- Airborne communication plan
- Ground communication plan
- Automatic CISM for crew members

Results

- 104 of 187 surveys returned
- 58% responded to an actual disaster
- Only 16% addressed all guidelines
- 53% had written plan with partial met guidelines
- 31% no written plan

Table 2

Comparison of Programs with and without Written Disaster Response Plans

	% with plan (n = 71)	% without plan (n = 32)	P value
Triage training	93	66	0.001
Incident command training	62	31	0.004
Annual drills	94	85	0.22
Incorporation into EMA plan	90	90	0.08
Air communication plan	68	39	0.01
Ground communication plan	84	63	0.02
CISM	81	69	0.21

Results

Established programs addressed issues better than ones without a plan

Conclusions

- Annual participation in disaster drills
- Disaster response guidelines are keys to success
- Overall: US HEMS are not well prepared for disaster response

Drills and the effect on communications

- Evaluation of Responses of an Air Medical Helicopter Program during a Comprehensive Emergency Response Drill - Burns, et al
- Emergency scenarios
 - Power outage
 - Large number of patients presenting with abdominal pain, n/v
 - Crash on interstate
 - Gasoline truck crash in large building
- Checklist scores – how communications effectively coordinated HEMS
- Exposed various issues that were not in protocols
- Specific problems that would have gone unrecognized without participation in the emergency preparedness exercise
- Reinforces need for drills

Take Home Points...

- Understand how HEMS can enhance your MCI response
- Fully incorporate HEMS into your MCI
- Ensure HEMS has full participation into MCI exercises
- Drills and HEMS optimization



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