

Disaster Drills: Planning,
Conducting, Evaluating and
Reporting -
The Denver Health Experience

Third National
Emergency Management Summit

March 4, 2009

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Denver Health – Who are we?

- 500 bed full-service safety-net hospital
- 400,000 outpatient visits / year
- Level 1 Trauma Center
- Rocky Mountain Poison Center
- Denver Prehospital 911 EMS (third service)
- Handles all public mass gatherings/disasters in the City of Denver

Some of the Fun Stuff

- Continental 1713 DC-9 crash
- World Youth Day (week)
 - Visit by the Pope and President
- Summit of Eight
- TopOff 2000
- Super Bowl and Stanley Cup “celebrations”
- Columbine High School shootings
- Democratic National Convention

Some Disaster Drill Axioms

- A fully successful drill/exercise is a failure
 - You didn't learn anything
 - You didn't stress the system
 - Administrators, local, state and federal governments have a hard time with this concept
- A total failure drill/exercise is a failure
 - Demoralizing: “What's the use?”

Some Disaster Drill Axioms

- Physicians are the toughest group to engage
 - Not “paid to train”
 - Fail to appreciate the need for training
- Volunteer “victims” are becoming harder to find
- Joint Commission has actually made it easier to hold exercises

Some Disaster Drill Axioms

- Start small, grow big
- Start with Hospital Incident Command System (HICS) (and NIMS) training
- Do a hazard vulnerability analysis (HVA)
- An institutional advocate is mandatory
- Getting buy-in from all players is a challenge

Some Disaster Drill Axioms

- Don't just use the upper level players that know how it should be done – they will be in bed when the ball drops for real
 - Use real workers
- Make it fun: it is a learning experience

The Continuum of Exercises

- Discussion-Based
 - Seminars, Workshops, Tabletops, Games
- Operations-Based
 - Drills, Functional Exercises, Full Scale Exercises
- Notice vs No-Notice vs “Some”-Notice

One Approach: Step-wise Progression

1. Management and Staff HICS Training
2. Tabletop exercises
3. Section Specific Drills:
(Operations, Planning, Logistics, Finance,
Command)
4. Functional Exercises
5. Hospital Wide Exercises
6. Full Scale Community Exercises

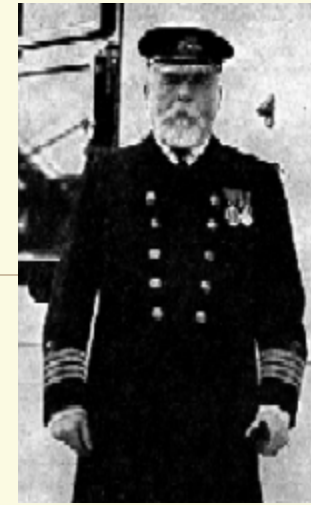
What we want to avoid:

...there's always a first time!

“ When anyone asks me how I can best describe my experience in nearly 40 years at sea, I say, ‘Uneventful’ .”

“...I have seen but one vessel in distress in all my years at sea...I never saw a wreck and have never been wrecked.”

“ ... in all my experience I have never been in any accident of any sort worth speaking about. Nor was I ever in any predicament that threatened to end in disaster of any sort.”



Captain E.J. Smith

RMS Titanic

The Captain, his crew/passengers and the Titanic itself were all ill-prepared for an emergency:

- *Poor communication (Delayed SOS transmission)*
- *Inadequate training of staff and passengers*
- *Inadequate number of lifeboats*
- *It won't happen to me, us, here*

“Emergency Response”

“Uncomfortable officials,
in unfamiliar surroundings,
playing uncomfortable roles,
making unpopular decisions,
with inadequate information,
with too little time.”

CHAOS

CHIEF

HAS

ARRIVED

ON

SCENE

Where do you start in terms of planning and evaluation?

➤ *Tool for Evaluating Core Elements of Hospital Disaster Drills*

- Cosgrove SE, Jenckes MW, Wilson LM, et al..
AHRQ Publication No. 08-0019, June 2008.
Agency for Healthcare Research and Quality,
Rockville, MD.

<http://www.ahrq.gov/prep/drillelements/>

Hospital Incident Command Guidebook

- Outline the important tenets of
 - Response planning
 - Incident command
 - Effective response



➤ www.emsa.ca.gov/HICS/files

The Issues – Pre-Drill

- Who is going to play?
- What are we going to stress?
 - Overall objectives
 - Specific objectives
- What is the scenario?
- What is the duration?

Pre-Drill Module

Hospital Disaster Drill Evaluation

Pre-drill Module

Note: Circle or check (✓) as indicated. NA=Not applicable

1. Background Information

1.a Name of person completing module: _____

Title: _____ Office phone: _____

Hospital: _____ Cell phone: _____

Room number: _____ E-mail: _____

Street address: _____ FAX: _____

City and state: _____ Pager: _____

Best method of contact during the drill. (Check one.)

Cell phone E-mail FAX Office phone Pager

1.b What will the disaster scenario include? (Check all that apply.)

- | | |
|--|--|
| <input type="checkbox"/> Biological agent | <input type="checkbox"/> Chemical agent |
| <input type="checkbox"/> Fire | <input type="checkbox"/> Incendiary device/explosive |
| <input type="checkbox"/> Natural disaster (e.g., earthquake) | <input type="checkbox"/> Radiological agent |
| <input type="checkbox"/> Structural collapse | <input type="checkbox"/> Transportation accident |

Pre-Drill Module/Checklist

- Level and Scope of Drill
- Drill Activity
 - Notification
 - Expected participants
 - Expected level of activity
 - Outside participation
 - Incident Command
- Communications
- Evaluation

The Issues – Pre-Drill

- Development of objectives
- Develop evaluation guides (3)
- Develop detailed timeline and exercise injects
- Develop 20 unique patient presentations
- Obtain necessary controllers/evaluators/victims
- Meetings:
 - Hospital participants
 - Controllers/evaluators day before exercise

The Exercise

- **Exercise Name:** Metropolitan Denver Hospital Exercise 2008
- **Exercise Date:** Part A - June 10, 2008 and Part B - July 11, 2008
- **Duration:** Approximately 3 hour on each date
- **Type of Exercise:** Drill
- **Sponsors:** Colorado BNICE Training Center, Denver Metropolitan Medical Response System and Denver Office of Emergency Management
- **Scenario:** Radiological Attack – Radiological Dispersal Device (adapted from National Planning Scenario 11)

Scenario Synopsis

- Radiation dispersal device – Cesium-137
 - Exploded at the Denver Pepsi Center
 - 180 fatalities on scene with 270 injured
- Secondary device exploded at scene about 30 minutes into event; patients reported seizing at scene



Who Plays?

- Individual hospitals
- Denver Office of Emergency Management
- Denver Metropolitan Medical Response Team

Number of Exercise Participants:

➤ Part A – June 10, 2008

– Hospitals	8
– Victim Volunteers	153
– Controllers	9
– Evaluators	24

➤ Part B – July 11, 2008

– Hospitals	9
– Victim Volunteers	140
– Controllers	9
– Evaluators	27

General Exercise Objectives

- Utilize established protocols to appropriately assess, triage and treat a surge of patients presenting with a variety of conditions.
- Respond to the incident using procedures consistent with their emergency operations plan ensuring the safety of hospital personnel and the general public.
- Utilize established protocols to discuss the steps that would be taken to increase surge capacity.
- (These were related to participating hospitals)

Specific Expectations of Hospital Participation

- Activate their hospital command center and hospital emergency operations plan
- Properly triage and treat victims/patients
- Appropriately use personal protective equipment and decontamination equipment
- Provide written surge capacity plans
- Walk through/discuss surge capacity plans with evaluator
- Have appropriate participation from administration, clinical staff (including physicians), non-clinical staff, and security and safety personnel
- Provide a list of personnel that participated in the exercise
 - List to include: name, title/position, and functional role related to exercise
- Participate in review after exercise at hospital location
 - Provide location/room for exercise review
- Participate in after exercise wrap-up
- Provide staging area for controller and victim volunteers

Specific Areas of Evaluation (Summary)

1. WMD/Hazardous Materials Response and Decon at Hospital
 1. Patient Decon
 2. Personal Protective Equipment
 3. Triage and Treatment of Patients
 4. CHEMPACK Activation and Request

Specific Areas of Evaluation (Summary)

2. Onsite Incident Management: Hospital Command Center (HCC)
 1. HCC is activated
 2. HICS structure is used
 3. HICS forms are used as needed
 4. Job Action Sheets are distributed
 5. Departments are notified that HCC is active
 6. Departments communicate with HCC
 7. HCC communicates with Denver EOC throughout event

Specific Areas of Evaluation

3. Medical Surge

1. Plan in place to identify pts for early discharge to handle surge
 1. Floor patients to home or ACF
 2. ICU patients to floor
 3. Plan for patient transport to ACF
2. Plan in place to open alternate care facility to handle surge
 1. Staffing plan
 2. Supply plan

Exercise Evaluation Guide

Exercise Evaluation Guide: WMD/Hazardous Materials Response and Decontamination at Hospital Location

Capability Description: Weapons of Mass Destruction (WMD)/Hazardous Materials Response and Decontamination is the capability to assess and manage the consequences of a hazardous material release, either accidental or part of a terrorist attack. The capability includes proper use of personal protective equipment, decontamination equipment and proper assessment, triage and treatment of patients.

Capability Outcomes: Hazardous material release is rapidly identified and mitigated; victims exposed are rescued, decontaminated, triaged, and treated. Procedures are in place to prevent cross contamination and to protect hospital personnel and other hospital patrons.

Name of Exercise: Metropolitan Denver Hospital Exercise 2008	Date: June 10, 2008
Location:	Evaluator Phone Number:
Evaluator:	Evaluator Email:

+ Task/Observation

Activity	Time	Task Completed		
1. Patient Decontamination				
a. Using Decon tents or fixed decon facility		Yes	No	N/A
i. Decontamination tents are properly set up		Yes	No	N/A
ii. Decontamination tents are in an appropriate and safe location		Yes	No	N/A
b. Adequate personnel are available for decontamination of patients		Yes	No	N/A
c. Patients are given clear decontamination instructions		Yes	No	N/A

Timeline & Injects

Metropolitan Denver Hospital Exercise 2008

⊕ Draft Injects

Seq. #	Inject Type	Delivery Method	Simulated Originator	Recipient Name	Inject Name	Inject Status	Time of Inject
1	Expected Action	DTN, EM Systems	Green Cell	All Hospitals	Initial incident explosion information		0900
2	Expected Action	DTN, EM Systems	Green Cell	All Hospitals	Fire Department is reporting that radiation has been detected at the scene		0903
3	Expected Action	DTN, EM Systems	Green Cell	All Hospitals	Scene Assessment – victims will require decontamination		If needed
4	Event	Other/Victim Volunteers	Green Cell	Controllers at Hospitals	Patients begin entering the hospital locations – Patients 1-3		0915
5	Expected Action	Onsite Controller	Green Cell	All Hospitals (not TCH)	Hospital fixed radiation detector is activated		0915
6	Event	Other/Victim Volunteers	Green Cell	Controllers at Hospitals	Patients 4-6 enter hospital		0917
7	Expected Action	DTN, EM Systems	Green Cell	All Hospital	Casualty Information: 180 fatalities; 270 injuries; 20,000 detectible contaminations. Victims exceed capacity		0920
8	Event	Other/Victim Volunteers	Green Cell	Controllers at Hospitals	Patients 7-8 enter hospital		0920
9	Expected Action	DTN, EM Systems	Green Cell	All Hospitals	Secondary event-another explosion report of people seizing at the scene		0925
10	Event	Other/Victim Volunteers	Green Cell	Controllers at Hospitals	Patients 9-11 enter hospital		0925
11	Event	Other/Victim Volunteers	Green Cell	Controllers at Hospitals	Patients 12-14 enter hospital		0927
12	Event	DTN, EM Systems	Green Cell	All Hospitals	Radiation identified as beta and gamma		0930
13	Event	Other/Victim Volunteers	Green Cell	Controllers at Hospitals	Patients 15-18 enter hospital		0930
14	Event	DTN, EM Systems	Green Cell	All Hospitals	National News Agencies are beginning to report this as an intentional act		0931

Patient Presentations

Metropolitan Denver Hospital Exercise

Patient—1

*Patient Names/Ages/Sex and complaints are fictional and were created for use in this exercise.

Transport: EMS

Pre Hospital Triage Category: **RED**

Name: Rankin, Travis

Age: 2

DOB: 06/1/2006

Sex: Male

HT: 2'3"

WT: 12 Kilos

PRE hospital Vital signs: **B/P:** pale, warm, and dry **HR:** 160 **RR:** 30 **SP02:** 95%
Room air

CC/Findings: **Right arm deformity with cyanosis to right hand.**

Pre Hospital Treatment: Attempted to reduce per pre hospital protocol times one unsuccessfully, ice bag on arm.

ED Arrival Vitals: **B/P:** pale, warm, and dry **HR:** 155 **RR:** 36

Temp: 99.0 (37.2) **SP02:** 100% Room air

Triage: Uncontrolled crying, obvious deformity to right forearm with cyanosis to right hand

Medical HX: None

Surgical HX: None

Home Medications: None

Allergies: None

Last meal: 0800 Breakfast

The Exercise



Post Exercise

- After Exercise Review held immediately post exercise at each institution facilitated by a site controller
- An Exercise Wrap-up meeting was held the day following each exercise for members of each participating hospital, controllers and evaluators
- After Action Report developed and circulated to all participants

What went well:

- Incident recognition and the need for decontamination
- Hospitals had the need equipment available
- Successfully staff and operate decontamination facilities
- Decontamination tents were set up properly
- Employees were knowledgeable on their roles
- Incident Commander identified
- HICS structure was used
- EMSystems was effectively used by emergency departments and HCC
- HCC were activated in an appropriate timeframe
- Responded timely to HA v BED requests via EMSystems



Things that could have gone better:

- Faster set up of decontamination equipment
- All personnel responding need to be in appropriate PPE
- Quicker donning of PPE
- Better communication between HCC and departments
- Equipment need to respond to a radiological event
- Treatment and triage of radiological trauma patients
- Decontamination equipment did not always function properly
- With the secondary explosion, possible chemical event was not identified
- Need to have written surge capacity plans easily accessible

Corrective Action Suggestions

- Response teams need consistent training on decontamination equipment
- Hospital staff need consistent and proper training on appropriate PPE and donning and doffing procedures
- Scheduled equipment checks to make sure decontamination equipment is functioning correctly
- Review of treatment and triage standards for contaminated patients
- Training on HICS, Command Staff positions, and HICS forms
- Verify that a copy of the hospital's emergency operations plan is available in the HCC
- Training on CHEMPACK activation and request process
- Conduct a decontamination drill once every six months

“A drill with no problems is a
wasted learning experience”