



# Radiological Preparedness & Emergency Response



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## Special Session

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### Table Top Exercise



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## EXERCISE PROCEDURES

### Situation Update



1. Scenario advances
2. Questions

↳ **Group Reaction**

3. Participants brainstorm independently or discuss questions openly (5 min.)

↳ **Group Discussion**

4. Participants respond individually or through appropriate agent (10 min.)  
collectively through appropriate agent  
Each group will identify a spokesperson



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## Divide the audience into 2 groups:

- Prehospital:
  - Fire , EMS, Hazmat and Police
- Hospital
  - Nurses, Physicians, Administrators, Social Services, Mental Health and Security



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## EXERCISE PROCEDURES

### Ground Rules

Assume that the information you are given is accurate and that scenario events directly impact your position

You are playing yourself but you'll need to think outside normal role

Keep criticism constructive

Promote maximum group interaction

**PARTICIPATE !!**  
(no wrong answers ... only better ones ... that's why we're here)



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## QUESTIONS BEFORE EXERCISE BEGINS...



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## Stadium Video



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## What PPE will Responders Don?

- Standard Precautions
- Respirators? Level C?



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## What Triage System will you Use?

- START
- SALT



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## Any Special Triage Considerations with Radiation?

- Time of onset of vomiting.
- Other manifestations:
  - Diarrhea
  - LOC



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## Will you Transport Victims in the Ambulance?

- Victims will be transported in ambulances.
- Scene decontamination may be performed.
- If decontamination is not performed, clothes removal and or wrapping the patient in a sheet is sufficient.



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## Situation Update

- You are now at the local Community Reception Center (CRC).
- Several people have arrived requesting to be evaluated.

Please Refer to the CRC Chart in Manual



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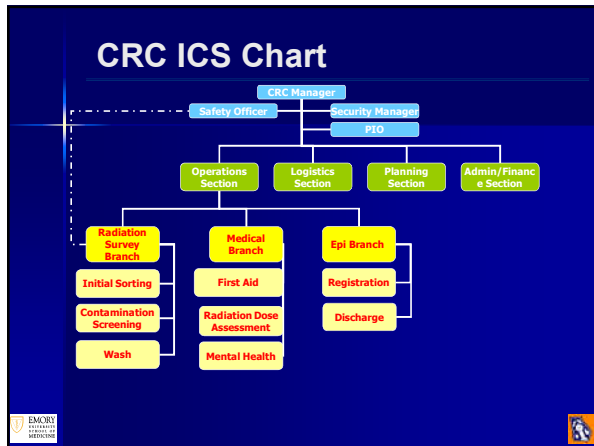
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### What PPE Should the CRC Staff Use?

- Level D or Standard Precautions

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### What are Initial Sorting Issues and Components that Need to be Addressed?

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## Initial Sorting Staff Identify People Who:

- 1- Have an urgent medical need.
- 2- Are highly contaminated.
- 3- Require special assistance.
- 4- Have showered or been decontaminated before coming to the reception center.



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## Victim 1: Peter Fines

- 55 yo male who was outside the stadium in the outdoor parking lot explosion.
- He has no complaints but wants to know if he was injured by radiation.
- He has not showered and has not been decontaminated.
- Vital Signs: Stable
- Exam: No obvious injuries.



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## What Should be Done to this Person?

- Contamination Screening
- Screening shows that he is not contaminated. What is the next step?
- Registration and Discharge. Consider mental health screening.



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## Victim 2: Mary Hurt

- 45 yo female who was inside the stadium when the explosion occurred. She walked out on her own.
- She has shortness of breath and right arm pain.
- She has not showered and has not been decontaminated.



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## Victim 2: Mary Hurt

- Vital Signs: HR 125 bpm, SBP 100mm of Hg, RR 25/min
- Exam: Deformed RUE with gaping wound. Chest wall pain and crepitus.



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## What should be your Next Step?

- Transport to First Aid Station.
- Transport to ED immediately.
- May remove clothes if time permits
- If stable, may perform contamination screening and decontamination prior to transport.



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### Victim 3: Anguish Williams

- 25 yo female who was outside the stadium when the explosion occurred.
- She has throat tightness and feels the world is closing in on her.
- She has showered after the incident and has not been decontaminated.
- Vital Signs: Stable.
- Exam: No obvious injuries.



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### What Should be Done to this Person?

- Contamination Screening
- Screening shows that he is not contaminated. What is the next step?
- Registration and Discharge.
- Mental health counseling.



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### Victim 4: Paul Rubbles

- 25 yo male who was inside the stadium when the explosion occurred.
- He complains of a minor headache and nausea. He vomited twice, 3 hours after the explosion.
- He has not showered after the incident and has not been decontaminated.
- Vital Signs: Stable.
- Exam: No obvious injuries.



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## What is your Next Step?

- Contamination Screening.
- She is found to be contaminated. What is next?
- Decontamination step (clothes removal and shower).
- The patient is no longer contaminated. What is the next step?



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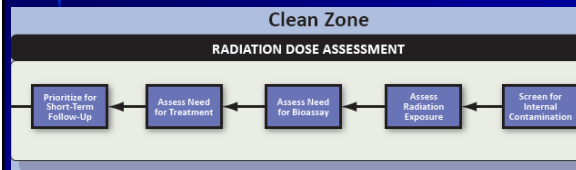
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## What is your Next Step?



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## Scenario Update: You are now in the ED.



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## You are Expecting to Receive Several Victims by EMS:

- What steps do you need to take in preparation?



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## Preparatory Steps

- Decontamination set up.
- PPE.
- Radiation Safety Officer.
- Radiation detector.
- Radiation Emergency Area.
- Diagnostics and Therapeutics.



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## How do you Care for the Following Victims?



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## Victim 1: Janet Blue

- 25 yo female patient with an open right leg fracture and cough.
- VS: Stable.
  
- What do you do in the radiation emergency area?



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## Radiation Emergency Area (REA)

- Remove clothes.
- Radiation survey.
  
- Survey shows radiation over open fracture wound and face.



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## Decontamination

- Soap and water.
- Face and wound.
- Repeat survey, stop when indicated.
  
- What do you do next?



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## Assess for Internal Contamination

- Nasal swab?
- Bioassays (urine, feces).
- In vivo testing.
  
- What else do you need to do?
- Assess for exposure.



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## The patient Vomited 3 hours after the Explosion.

- The patient may develop the hematopoietic syndrome.
  
- What blood tests do you perform?
- CBC with differential every 4-6 hours.



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## Cell Counts

	T1=3 hours after explosion	T2=7 hours after explosion
WBCC x10 <sup>9</sup>	4	3.6
Lymphocytes (%)	25	25
Absolute Lymphocyte Count	1	0.9



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
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## Using REMM Tool

1. Date/time of exposure  
02/22/2011 7:00  
(e.g., 01/22/2008, 14:25)



2. Date/time of one or more blood counts lymphocyte count (x 10<sup>9</sup>)  
02/22/2011 10:00 1  
02/22/2011 14:00 0.9  
mm/dd/yyyy 00:00  
(e.g., 01/22/2008, 23:00) (e.g., 1.25)

3. Estimate dose from exposure

4. Dose estimate 95% confidence limits  
0.7-0.4 Gy

5. Suggest treatment

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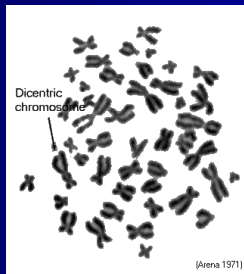
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## What Additional Test Can you Obtain a Few Days Later?



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## What Therapies Are Recommended?

- G-CSF
- Antibiotics
- Antivirals
- Antifungals
- Neutropenic precautions
- Stem cell transplant
- Early surgery

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## You Are Informed the Patient is Internally Contaminated with Cesium-137

- What therapy do you need?



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## What if it was Plutonium?

- Calcium or Zinc DTPA



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Thank you for your time!



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