



Terrorism in Chicago: Applying the Knowledge

Pacific Emergency Management, Preparedness and
Response Information Network and Training Services
(Pacific EMPRINTS)

University of Hawaii

Developed by Seiji Yamada, MD, MPH

A View From the South Side Section 2

"We've got to get into our radiation suits," Phillips said.

"But they're back at the station." Szymaniak protested.

"That's why we've got to go back." Phillips took the ambulance out of the hospital turnaround and onto the street.

A block down the street, a woman flagged them down. "My mother was looking out the window, and now she can't see!"

"Ma'am, we've got other patients to take care of. Can you walk your mother to the hospital?" Szymaniak rolled the window back up.

Over the radio, they heard, "... the epicenter of the blast appears to have been the Sears Tower. The South Loop is an inferno. Available units are instructed to respond."

At the station, Szymaniak and Phillips donned their HazMat suits and headed toward downtown.

Facts and Problems Section 2

Based on what you have just read, please
think about what facts may be important in
dealing with this event.



Possible Answers Section 2

- People looking at the flash unable to see.
- EMS workers putting on HazMat suits.



Urakami Tenshudo (Catholic Church in Nagasaki) in January, 1946, destroyed by the atomic bomb. The dome of the church has toppled off. Photo courtesy of Wikimedia Commons.

Questions Section 2

Q: What are the principles of triage in a mass casualty incident?

Q: How might the principles of triage be different in the case of biological, chemical, or radiological contamination?



Possible Answers Section 2

- The most commonly used triage system in the U.S. is the color system:
 - Red: Immediate
 - Yellow: Delayed
 - Green: Minor
 - Black: Dead / Do Not Treat
- In the case of biological, chemical, or radiological contamination, limiting the spread of contamination becomes crucial. A major priority is limiting contamination of those responding to the incident.



Questions Section 2

Q: What personal protective equipment is necessary?



Possible Answers Section 2

- "Wear a mask to reduce the dose from inhalation of radioactive dust. Ideally the mask should be a full face mask with a HEPA filter, but even breathing through a wet handkerchief or cloth will help. There will be little danger from radioactive gases, so a self contained breathing mask, while effective, is not necessary.
- Dust will collect on your clothing. Remove and discard it after you leave the area. If you fail to remove clothing you will continue to receive radiation exposure and expose others. Wear loose fitting clothes covering as much of your body as possible. Any removable garment that will prevent the dust from coming into direct contact with your skin will suffice."

<http://emergency.cdc.gov/radiation/casualtiesdetonation.asp>

Possible Answers Section 2



Other considerations:

- Open wounds or abrasions must be protected from radioactive contamination.
- Wash vehicles before permitting them to leave the scene, except for emergency vehicles performing life-saving functions.
- Do not eat, drink, or smoke while exposed to potentially radioactive dust or smoke. If absolutely necessary to drink water, drink from a canteen or other closed container.
- Beware of heat stress.
- If radiation monitoring instruments are available, wrap them in plastic bags to prevent their contamination. Use them to map the areas leading up to the highest dose rates. Enter the high dose rate areas only when necessary to save a life, make these entries as short as possible, and rotate the personnel who make these entries.
- Record contact information for all exposed workers so they can be given medical examinations later.
- Wash thoroughly with lukewarm water as soon as possible after leaving the area, even if you decontaminated before leaving the scene.

<http://emergency.cdc.gov/radiation/casualtiesdetonation.asp>

A View From the South Side Section 3

Heading toward downtown, they came upon a group of people with burns, their skin peeling from their bodies. Szymaniak and Phillips put as many of the most severely burned as they could carry into the ambulance. As the downtown hospitals were either damaged or overwhelmed, they were instructed to take as many patients as they could to outlying hospitals.

Fighter jets flew overhead. The mayor of Chicago appeared on TV to appeal for calm. "It appears that terrorists have struck with a fission weapon of considerable size. We believe at this time that it was a so-called "suitcase bomb" detonated somewhere in the lower floors of the Sears Tower."

Facts and Problems Section 3

Based on what you have just read, please think about what facts may be important in dealing with this event.



Possible Answers Section 3

- Mass casualties with physical injuries, including burns
- Radioactive contamination



Victim of an atomic bomb. The dark portions of the garments this victim wore at the time of the blast were emblazoned on to the flesh as scars, while skin underneath the lighter parts (which absorb less energy) was not damaged as badly. Photo courtesy Wikimedia Commons.

Questions

Section 3

Q: What are principles of treating the injured in the aftermath of a nuclear detonation?



Hiroshima in the aftermath of the bombing. Photo courtesy Wikimedia Commons.

Possible Answers

Section 3

- Deal with life-threatening conventional injuries first before addressing radioactive contamination.
- Tell nearby hospitals to expect the arrival of radioactively contaminated and injured people.
- Victims will have radioactive dust on their clothing. Set up a facility where each person can remove and discard their outer clothing, wash as thoroughly as possible, and don coveralls or wrap in blankets. This facility should be upwind and far enough from ground zero to prevent radiation levels from interfering with monitoring of patients.

<http://emergency.cdc.gov/radiation/casualtiesdetonation.asp>

Possible Answers

Section 3

- Record keeping is as important for the long-term health of the victims as it is for the emergency responders. Record contact information for as many exposed persons as feasible without interfering with life saving efforts. This information may be requested later by government agencies, and used for medical monitoring.
- Many people without apparent injuries will leave the scene. Make public service announcements on radio and television advising these people to bag their clothes, place the clothes outdoors, and wash thoroughly.
- People experiencing nausea, vomiting, reddening of the skin, or unexplained lesions should be advised to report to a hospital immediately and request a checkup for **Acute Radiation Syndrome (ARS)**.

<http://emergency.cdc.gov/radiation/casualtiesdetonation.asp>

Sources

1. Medical Response to Nuclear and Radiological Terrorism:
<http://www.phppo.cdc.gov/PHTN/webcast/radiation-04/Radiationscript.htm>
2. Casualty Management After Detonation of a Nuclear Weapon In an Urban Area
<http://emergency.cdc.gov/radiation/casualtiesdetonation.asp>
3. Acute Radiation Syndrome: A Fact Sheet for Physicians
<http://emergency.cdc.gov/radiation/arsphysicianfactsheet.asp>
4. Emergency Medicine: A Comprehensive Study Guide - 6th Ed. (2004) TABLE 6-2. Triage Categories

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Terrorism in Chicago: Applying the Knowledge Part 2 Pacific EMPRINTS

Course Transcript

Slide 1: "Terrorism in Chicago: Applying the Knowledge"

Welcome to Part 2 of the Terrorism Problem-Based Learning Case "Terrorism in Chicago: Applying the Knowledge" presented by the Pacific Emergency Management, Preparedness and Response Information Network and Training Services at the University of Hawaii Department of Anthropology.

Slide 2: "A View From the South Side, Section 2"

We've got to get into our radiation suits," Phillips said. "But they're back at the station." Szymaniak protested. "That's why we've got to go back." Phillips took the ambulance out of the hospital turnaround and onto the street. A block down the street, a woman flagged them down. "My mother was looking out the window, and now she can't see!" "Ma'am, we've got other patients to take care of. Can you walk your mother to the hospital?" Szymaniak rolled the window back up. Over the radio, they heard, ". . . the epicenter of the blast appears to have been the Sears Tower. The South Loop is an inferno. Available units are instructed to respond." At the station, Szymaniak and Phillips donned their HazMat suits and headed toward downtown.

Slide 3: "Facts and Problems, Section 2"

Based on what you have just read, please think about what facts may be important in dealing with this event.

Slide 4: "Possible Answers, Section 2"

Some facts that may be relevant in dealing with this event are that people looking at the flash are now unable to see. Additionally, EMS workers are putting on HazMat suits in preparation for dealing with the situation. In the aftermath of the nuclear weapon attack on Nagasaki, the dome of the Catholic Church Urakami Tenshudo toppled off of the destroyed church.

Slide 5: "Questions, Section 2"

Please think about the following questions: What are the principles of triage in a mass casualty incident? How might the principles of triage be different in the case of biological, chemical, or radiological contamination?

Slide 6 “Possible Answers, Section 2”

The most commonly used triage system in the United States is the color system. In this system, different colors are used to denote varying levels of urgency of care. The color red represents “Immediate,” and indicates that the patient will probably survive if given immediate care. The color yellow means “Delayed,” and indicates that the patient is likely to be able to withstand a 45 to 60 minute wait without immediate risk. The color green translates to “Minor,” meaning that the patient is unlikely to deteriorate. Black is used to indicate that the patient is dead or should not be treated, meaning that the patient has otherwise catastrophic injuries that point to a poor chance for survival. In triage, limited resources must be used as wisely as possible to do the greatest good for the largest number of people. In the case of possible biological, chemical or radiological contamination, limiting the spread of contamination becomes crucial. A major priority is limiting contamination of those responding to the incident.

Slide 7: “Questions, Section 2”

Please think about the following question: What personal protective equipment is necessary?

Slide 8: “Possible Answers, Section 2”

The Centers for Disease Control and Prevention advises EMS workers to: “Wear a mask to reduce the dose from inhalation of radioactive dust. Ideally the mask should be a full face mask with a HEPA filter, but even breathing through a wet handkerchief or cloth will help. There will be little danger from radioactive gases, so a self contained breathing mask, while effective, is not necessary. Dust will collect on your clothing. Remove and discard [your clothing] after you leave the area. If you fail to remove clothing you will continue to receive radiation exposure and expose others. Wear loose fitting clothes covering as much of your body as possible. Any removable garment that will prevent the dust from coming into direct contact with your skin will suffice.”

Slide 9: “Possible Answers, Section 2”

The Centers for Disease Control and Prevention give a series of instructions for EMS personnel who are working on-site at or near the scene of a nuclear explosion. Their advice is as follows: “Open wounds or abrasions must be protected from radioactive contamination. If running water or showers are available, full body rinsing with lukewarm water is advised. Even a fire hose may remove most contamination not already removed with the outer clothing. Wash vehicles before permitting them to leave the scene, except for emergency vehicles performing life-saving functions. Do not eat, drink, or smoke while exposed to potentially radioactive dust or smoke. Water may be necessary for people working in high temperatures with bulky protective clothing. If absolutely necessary to drink water, drink from a canteen or other closed container. Beware of heat stress. If radiation monitoring instruments are available, wrap them in plastic bags to prevent their contamination. Use them to map the areas leading up to the highest dose rates. Enter the high dose rate areas only when necessary

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to save a life, make these entries as short as possible, and rotate the personnel who make these entries. . . . Record contact information for all exposed workers so they can be given medical examinations later. [This information may also be requested later.] Wash thoroughly with lukewarm water as soon as possible after leaving the area, even if you decontaminated before leaving the scene.”

Slide 10: “A View From the South Side, Section 3”

Heading toward downtown, they came upon a group of people with burns, their skin peeling from their bodies. Szymaniak and Phillips put as many of the most severely burned as they could carry into the ambulance. As the downtown hospitals were either damaged or overwhelmed, they were instructed to take as many patients as they could to outlying hospitals. Fighter jets flew overhead. The mayor of Chicago appeared on TV to appeal for calm. “It appears that terrorists have struck with a fission weapon of considerable size. We believe at this time that it was a so-called “suitcase bomb” detonated somewhere in the lower floors of the Sears Tower.”

Slide 11: “Facts and Problems, Section 3”

Based on what you have just read, please think about what facts may be important in dealing with this event.

Slide 12: “Possible Answers, Section 3”

As a result of this “suitcase bomb,” there are mass casualties with physical injuries, including burns. In addition, there is radioactive contamination of the scene. An example of physical injuries that might be sustained as a result of a nuclear detonation is provided in this picture of a victim of an atomic bomb. The dark portions of the garments this victim wore at the time of the blast were emblazoned on to her flesh as scars, while the skin underneath the lighter parts of the dress, which absorb less energy, was not damaged as badly.

Slide 13: “Questions, Section 3”

Please think about the answer to the following question: What are the principles of treating the injured in the aftermath of a nuclear detonation, or, in this case, “suitcase bomb”? An example of the destructive force of such an event is provided by this picture of Hiroshima in the aftermath of the bombing.

Slide 14: “Possible Answers, Section 3”

The CDC advises personnel dealing with the aftermath of a nuclear detonation to use the following principles for dealing with the injured. “Physical injuries are more serious than radioactive contamination. Deal with life-threatening conventional injuries first. When the patients are stable, then deal with radioactive contamination. Patients who were treated and are now stable should be evacuated from radiation areas. Tell nearby hospitals to expect the arrival of radioactively contaminated and injured people. Victims will have radioactive dust on their clothing. If many people are covered with dust, it will not be feasible to conduct a careful survey of each person. Assume all of the dust is radioactive.

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Set up a facility where each person can remove and discard their outer clothing, wash as thoroughly as possible, and don coveralls or wrap in blankets. This facility should be upwind and far enough from ground zero to prevent radiation levels from interfering with monitoring of patients.”

Slide 15: “Possible Answers, Section 3”

In addition, the CDC notes that “Record keeping is as important for the long-term health of the victims as it is for the emergency responders. . . . Record contact information for as many exposed persons as feasible without interfering with life saving efforts. . . . This information may be request[ed] . . . later and use[d] . . . for medical monitoring. Many people without apparent injuries will leave the scene. Make public service announcements on radio and television advising these people to bag their clothes, place the clothes outdoors, and wash thoroughly. People experiencing nausea, vomiting, reddening of the skin, or unexplained lesions should be advised to report to a hospital immediately and request a checkup for Acute Radiation Syndrome, [or] ARS.”

Slide 16: “Sources”

The displayed sources were consulted in the development of this tutorial. This course was developed in part by Seiji Yamada, MD, MPH.

Slide 17: “Pacific EMPRINTS”

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Sources:

1. Medical Response to Nuclear and Radiological Terrorism:
<http://www.phppo.cdc.gov/PHTN/webcast/radiation-04/Radiationscript.htm>
2. Casualty Management After Detonation of a Nuclear Weapon In an Urban Area <http://emergency.cdc.gov/radiation/casualtiesdetonation.asp>
3. Acute Radiation Syndrome: A Fact Sheet for Physicians
<http://emergency.cdc.gov/radiation/arsphysicianfactsheet.asp>
4. Emergency Medicine: A Comprehensive Study Guide - 6th Ed. (2004)
TABLE 6-2. Triage Categories