

## Chapter 36 Special Operations

DOT Directory

EMT

Limmer et al., Emergency Care, 11th Edition  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---

---

---


---

---

---

---

---



## U.S. DOT Objectives Directory

DOT Directory

EMT

Limmer et al., Emergency Care, 11th Edition  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

U.S. DOT Objectives are covered and/or supported by the PowerPoint™ Slide Program and Notes for Emergency Care, 11th Ed. Please see the Chapter 36 correlation below.

**\*KNOWLEDGE AND ATTITUDE**

- 7-3.1 Explain the EMT's role during a call involving hazardous materials. Slides 6-8, 10-27
- 7-3.2 Describe what the EMT should do if there is reason to believe that there is a hazard at the scene. Slides 10-27
- 7-3.3 Describe the actions that an EMT should take to ensure bystander safety. Slide 12
- 7-3.4 State the role that the EMT should perform until appropriately trained personnel arrive at the scene of a hazardous materials situation. Slides 11-22
- 7-3.5 Break down the steps to approaching a hazardous situation. Slide 12
- 7-3.6 Discuss the various environmental hazards that affect EMS. Slide 9
- 7-3.7 Describe the criteria for a multiple-casualty situation. Slide 29, 32

**(cont.)**

---

---

---

---

---


---

---

---

---

---



## U.S. DOT Objectives Directory

DOT Directory

EMT

Limmer et al., Emergency Care, 11th Edition  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

**\*KNOWLEDGE AND ATTITUDE**

- 7-3.8 Evaluate the role of the EMT in the multiple-casualty situation. Slide 32
- 7-3.9 Summarize the components of basic triage. Slides 34-52
- 7-3.10 Define the role of the EMT in a disaster operation. Slide 32
- 7-3.11 Describe basic concepts of incident management. Slides 14, 30-33, 53
- 7-3.12 Explain the methods for preventing contamination of self, equipment, and facilities. Slides 24-27
- 7-3.13 Review the local mass casualty incident plan. Slides 6, 11, 29

**(cont.)**

---

---

---

---

---


---

---

---

---

---

 **U.S. DOT Objectives Directory**

**\*SKILLS**

- 7-3.16 Given a scenario of a mass casualty incident, perform triage.

DOT Directory

Limmer et al., Emergency Care, 11th Edition  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---


---

---

---

---

---

 **Hazardous Materials Incidents**

DOT Directory

Limmer et al., Emergency Care, 11th Edition  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---


---

---

---

---

---

 **Hazardous Materials**

- ✦ Found virtually everywhere
- ✦ Safety is primary concern.
  - EMT and crew
  - Patient and bystanders

DOT Directory

Limmer et al., Emergency Care, 11th Edition  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---

---

---

---

---

---

**Training Required by Law**

- **Two federal agencies**
  - Occupational Safety and Health Administration (OSHA)
  - Environmental Protection Agency (EPA)

DOT Directory

Limmer et al., Emergency Care, 11th Edition  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---

---


---

---

---

---

**Regulations Identify Four Levels of Training**



DOT Directory

Limmer et al., Emergency Care, 11th Edition  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---

---

---

---

---

---

**Examples of Hazardous Materials**

- **Benzene (benzol)**
  - Toxic vapors; can be absorbed through the skin; destroys bone marrow
- **Hydrogen cyanide**
  - Highly flammable; toxic through inhalation or absorption
- **Toluol (toluene)**
  - Toxic vapors; can cause organ damage

DOT Directory

Limmer et al., Emergency Care, 11th Edition  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---

---

---

---

---

---

**Responsibilities of the EMT**

```

    graph TD
      A[Recognize a hazmat incident.] --> B[Control the scene.]
      B --> C[Identify the substance.]
      C --> D[Establish a treatment sector.]
  
```

DOT  
Directory

Limmer et al., *Emergency Care, 11th Edition*  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---

---

---

---

---

---

**Recognizing a Hazardous Materials Incident**

- ✿ Know locations of potential hazmat incidents.
- ✿ Develop pre-incident plans.
- ✿ Control the impulse to rush in and help.

(cont.)

DOT  
Directory

Limmer et al., *Emergency Care, 11th Edition*  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---

---

---

---

---

---

**Recognizing a Hazardous Materials Incident**

- ✿ Approaching the scene:
  - Park upwind, uphill.
  - Keep a safe distance away.
  - Keep people away from area.
  - Avoid contact with material.
  - Do not enter hazmat scene unless trained and equipped.
  - Assume all patients are contaminated.

DOT  
Directory

Limmer et al., *Emergency Care, 11th Edition*  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---


---

---


---

---

---

 **Control the Scene**

- ✿ Establish danger zones and safe zones.
  - Safe zone is upwind and same level as danger zone.
- ✿ Call for help.
- ✿ Utilize the Incident Management System.

DOT Directory  
  
Limmer et al., Emergency Care, 11th Edition  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---


---

---


---

---

---

 **Incident Management System**

- ✿ Provides orderly means for communication and decision making
- ✿ Interaction between agencies easier with unified command

DOT Directory  
  
Limmer et al., Emergency Care, 11th Edition  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---


---

---


---

---

---

 **Hazardous Materials Identification**

- ✿ Occupants/driver
- ✿ Containers
- ✿ Shipping papers
- ✿ Senses

DOT Directory  
  
Limmer et al., Emergency Care, 11th Edition  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---

---

---

---

---

---



### Identify Substance from a Distance



DOT  
Directory

Limmer et al., *Emergency Care, 11th Edition*  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---

---

---

---

---

---



### Hazardous Materials Placard



DOT  
Directory

Limmer et al., *Emergency Care, 11th Edition*  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---

---

---

---

---

---



### Vehicle with Placard



DOT  
Directory

Limmer et al., *Emergency Care, 11th Edition*  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---

---

---

---

---

---

**Fixed Facility Placard**

**HAZARDOUS MATERIALS CLASSIFICATION**

**HEALTH HAZARD**

- 4 - Death
- 3 - Corrosive
- 2 - Irritant
- 1 - Highly Irritant
- 0 - Non-hazardous

**SPECIFIC HAZARD**

- Oxidizer
- Acid
- Corrosive
- Flam. LIQ. WATER
- Flammable Hazard

**REACTIVITY**

- 4 - May detonate
- 3 - Shock and heat may detonate
- 2 - Excess chemical energy
- 1 - Unstable if heated
- 0 - Stable

DOT Directory

Limmer et al., *Emergency Care, 11th Edition*  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---

---

---

---

---

---

---

---

**Hazardous Materials Identification Resources**

Local hazmat resources:

- CHEMTREC (800-424-9300)
- CHEMTEL (800-255-3924)
- DOT Emergency Response Guidebook

DOT Directory

Limmer et al., *Emergency Care, 11th Edition*  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---

---

---

---

---

---

---

---

**Emergency Response Guidebook**

**2008 Emergency Response Guidebook**

A GUIDEBOOK FOR FIRST RESPONDERS DURING THE INITIAL PHASE OF A DANGEROUS GOODS TRANSPORTATION INCIDENT

DOT Directory

Limmer et al., *Emergency Care, 11th Edition*  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---

---

---

---

---

---

---

---

 **Establish Treatment Sector**

- ✿ To care for anyone injured
- ✿ Locate in the cold zone.
- ✿ Protect from weather.
- ✿ Large enough for incident
- ✿ Easy to access/egress

DOT Directory

Limmer et al., Emergency Care, 11th Edition  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---


---

---

---

---

---

 **Rehabilitation Operations**

- ✿ The hazmat team members must wear chemical-protective clothing and breathing apparatus that both slows heat loss and prevents heat stress.
- ✿ To address this need, a sector of operations called rehabilitation (rehab) should be established.

DOT Directory

Limmer et al., Emergency Care, 11th Edition  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---


---

---

---

---

---

 **Decontamination**

- ✿ Essential to protect against, or reduce the effects of, exposure to both victims and first responders
- ✿ A chemical and/or physical process that reduces or prevents the spread of contamination from persons or equipment

DOT Directory

(cont.)  
Limmer et al., Emergency Care, 11th Edition  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---


---

---

---

---

---

 **Decontamination**

✱ EMT may have patients who are:

- Uninjured and not contaminated
- Injured and not contaminated
- Uninjured and contaminated
- Injured and contaminated

DOT  
Directory

Limmer et al., *Emergency Care, 11th Edition*  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---


---

---

---

---

---

 **Treatment**

Follow guidelines and PPE listed in *Emergency Response Guidelines*:

- ✱ Treat ABCs.
- ✱ Remove clothing and irrigate as indicated.
- ✱ “Decon” yourself after treatment.

DOT  
Directory

Limmer et al., *Emergency Care, 11th Edition*  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---


---

---

---

---

---

 **Phases of Decontamination**

- ✱ Gross decontamination
  - Removes majority of substance
- ✱ Secondary decontamination
  - More-thorough removal

DOT  
Directory

Limmer et al., *Emergency Care, 11th Edition*  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---


---

---

---


---

---



**Multiple-Casualty Incidents**

DOT  
Directory



Limmer et al., *Emergency Care*, 11th Edition  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---


---

---

---

---


---



**Multiple-Casualty Incident (MCI)**

**An incident that places a great demand on EMS equipment and personnel**

DOT  
Directory



Limmer et al., *Emergency Care*, 11th Edition  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---


---

---

---


---

---



**Incident Management System**

DOT  
Directory



Limmer et al., *Emergency Care*, 11th Edition  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---

---

---

---

---

---

**Incident Management System**

- Provides orderly means for communication and decision making
- Interaction between agencies easier with unified command

DOT  
Directory

Limmer et al., Emergency Care, 11th Edition  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---

---

---

---

---

---

**Initial Role of EMT During an MCI**

- Size up the scene.
- Provide a calm radio report of situation & request resources.
- Organize resources into incident management system.

DOT  
Directory

Limmer et al., Emergency Care, 11th Edition  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---

---

---

---

---

---

**EMS Sectors in Incident Management**

```
graph TD; A[EMS Command] --> B[EMS Operations]; B --> C[Staging Officer]; B --> D[Safety Officer]; C --> E[Triage Supervisor]; C --> F[Treatment Supervisor]; D --> G[Transportation Supervisor]; D --> H[Rehabilitation Supervisor];
```

DOT  
Directory

Limmer et al., Emergency Care, 11th Edition  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---


---

---

---

---

---

 **Triage**

Sorting multiple casualties into priorities for care or transportation; priorities are established for three levels.

DOT  
Directory

EMT

Limmer et al., Emergency Care, 11th Edition  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---


---

---

---

---

---

 **Triage of Patients**

- ✦ Rapidly assess each patient into a treatment priority.
- ✦ Stop only to secure an airway and/or stop major bleeding.
- ✦ More-thorough treatment begins after all patients are triaged.

DOT  
Directory

EMT

Limmer et al., Emergency Care, 11th Edition  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---


---

---

---

---

---

 **Priority 1:  
Treatable Life Threats**

- ✦ Airway and breathing difficulties
- ✦ Uncontrolled or severe bleeding
- ✦ Decreased mental status

DOT  
Directory

(cont.)

EMT

Limmer et al., Emergency Care, 11th Edition  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---


---

---

---

---

---

 **Priority 1:  
Treatable Life Threats**

- ✿ Patients with severe medical problems
- ✿ Shock
- ✿ Severe burns

DOT  
Directory

EMT

Limmer et al., Emergency Care, 11th Edition  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---


---

---

---

---

---

 **Priority 2:  
Serious but Not Life-Threatening**

- ✿ Burns without airway problems
- ✿ Major or multiple bone or joint injuries
- ✿ Back injuries

DOT  
Directory

EMT

Limmer et al., Emergency Care, 11th Edition  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---


---

---

---

---

---

 **Priority 3:  
“Walking Wounded”**

- ✿ Minor injuries to extremities
- ✿ Minor soft-tissue injuries

DOT  
Directory

EMT

Limmer et al., Emergency Care, 11th Edition  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---


---

---

---

---

---

 **Priority 4:  
Dead or Fatally Injured**

☛ **Injuries incompatible with life, such as:**

- Cardiac arrest
- Decapitation
- Incineration

☛ **May also be called Priority 0**

DOT Directory

Limmer et al., Emergency Care, 11th Edition  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---


---

---

---

---

---

 **START: Simple Triage And Rapid Treatment**

☛ **30 seconds per patient**

☛ **Utilizes the parameters of:**

- Respiration
- Pulse
- Mental status

DOT Directory

Limmer et al., Emergency Care, 11th Edition  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---


---

---

---

---

---

 **START**

**Simple** → **Triage** → **And** → **Rapid** → **Treatment**

**Only three treatments during triage:**

- ☛ **Open an airway and insert an OPA.**
- ☛ **Apply pressure to bleeding.**
- ☛ **Elevate an extremity.**

DOT Directory

Limmer et al., Emergency Care, 11th Edition  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---


---

---

---

---

---

 **START:  
Before Beginning Assessment**

- ✿ Ask all patients who can walk (considered priority 3) to move to designated area.
- ✿ This leaves priority 1, 2, and 4.

DOT  
Directory

EMT

Limmer et al., Emergency Care, 11th Edition  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---


---

---

---

---

---

 **START:  
Step #1—Assess Respiration**

**If patient is not breathing, and opening airway does not cause patient to start, he is priority 4.**

DOT  
Directory

(cont.)

EMT

Limmer et al., Emergency Care, 11th Edition  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---


---

---

---

---

---

 **START:  
Step #1—Assess Respiration**

**If patient is breathing, and the rate is:**

- More than 30 per minute, he is priority 1**
- Less than 30 per minute, continue assessing**

DOT  
Directory

EMT

Limmer et al., Emergency Care, 11th Edition  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---

---

---

---

---

---

**START:**  
**Step #2—Assess Radial Pulse**

**If the patient has no pulse, is unresponsive, and is not breathing, he is priority 4.**

DOT Directory

(cont.)  
Limmer et al., *Emergency Care, 11th Edition*  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---

---

---

---

---

---

**START:**  
**Step #2—Assess Radial Pulse**

**If the patient has a pulse, and is not breathing, he is priority 1.**

**If the patient has a pulse, and is breathing, continue assessing.**

DOT Directory

Limmer et al., *Emergency Care, 11th Edition*  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---

---

---

---

---

---

**START:**  
**Step #3—Assess Mental Status**

**If the patient is alert, he is priority 2.**

**If the patient has an altered mental status, she is priority 1.**

DOT Directory

Limmer et al., *Emergency Care, 11th Edition*  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---

---

---

---

---

---

**START:**  
**Re-triage the Walking Wounded**

Assess all the patients who walked to the designated area using the same three steps.

DOT  
Directory

Limmer et al., *Emergency Care, 11th Edition*  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---

---

---

---

---

---

**START**

Limmer et al., *Emergency Care, 11th Edition*  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---

---

---

---

---

---

**Triage Tag**

DOT  
Directory

Limmer et al., *Emergency Care, 11th Edition*  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---


---

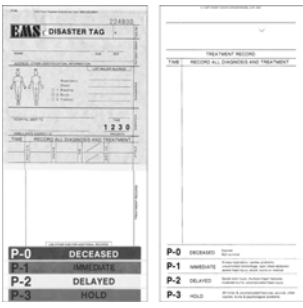
---

---

---

---

 **Disaster Tag**



**Legend:**

P-0	DECEASED
P-1	IMMEDIATE
P-2	DELAYED
P-3	HOLD

DOT Directory

Limmer et al., Emergency Care, 11th Edition  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---

---

---

---

---


---

---

---

---

---

 **MCI Procedures**

- ✿ Assign available personnel and equipment to priority 1 patients first.
- ✿ Transport decisions based on priority

DOT Directory

Limmer et al., Emergency Care, 11th Edition  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---

---

---

---

---


---

---

---

---

---

 **Review Questions**

1. List the information in an initial report of a hazardous material incident.
2. Explain how to identify a hazardous material and how to obtain information about that material.

DOT Directory

(cont.)  
Limmer et al., Emergency Care, 11th Edition  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---

---

---

---

---


---

---

---


---

---

 **Review Questions**

3. Describe the general assessment and emergency care of a patient with a hazardous material injury.

4. Describe the major components and benefits of an incident management system.

DOT  
Directory  (cont.)  
Limmer et al., Emergency Care, 11th Edition  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---


---

---

---

---


---

 **Review Questions**

5. Define the basic role of the EMT at a multiple-casualty incident.

6. Explain why patients are assigned priorities during triage.

7. Identify four priority categories of triage.

DOT  
Directory  (cont.)  
Limmer et al., Emergency Care, 11th Edition  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---


---


---

---


---

---

 *Street Scenes* **Street Scenes**



- ✱ As Incident Command, what are some of the things you need to do?
- ✱ What information do you expect first from the triage officer?

DOT  
Directory  (cont.)  
Limmer et al., Emergency Care, 11th Edition  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---

---


---

---

---

---

**Street Scenes**



**Street Scenes**

- ✿ How will you decide which patients go to which hospital?
- ✿ Is there a need for a safety officer on this scene?

DOT Directory

(cont.)

Limmer et al., Emergency Care, 11th Edition  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---

---


---

---

---

---

**Street Scenes**



**Street Scenes**

- ✿ How should patient information be transmitted to the hospitals?
- ✿ What information should you be sharing with Police Command and Fire Command?

DOT Directory

Limmer et al., Emergency Care, 11th Edition  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---

---

---

---

---

---

**Sample Documentation**

**SPECIAL INCIDENT REPORT** *On arrival during a heavy rainstorm, we noticed 3-car motor-vehicle crash with a total of 9 patients. We activated our agency's MCI plan. I assumed EMS command, and my partner became the triage officer. I maintained unified command with police and fire command. As requested by triage, additional units were requested and staged as needed. We transported a total of 3 priority-one patients, 5 priority-two patients, and 1 priority-three. Total scene time was 30 minutes. We returned to service after restocking.*

DOT Directory

Limmer et al., Emergency Care, 11th Edition  
© 2009 by Pearson Education, Inc., Upper Saddle River, NJ

---

---

---

---

---

---

---

---