EMS Subspecialty Certification Review Course

1.2.1 Trauma
1.2.1.1 Care of the Trapped Patient

2025

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Learning Objectives

Upon the completion of this program participants will be able to:

- List common types of entrapment encountered in EMS
- Be aware of safety issues in rescue and develop familiarity with the various rescue safety equipment and tools
- List the 7 stages of rescue

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Entrapment

- EMS providers must be ready for patient extrication from numerous forms of entrapment.
- Extrication is associated with risks for both patients and providers.
- Extrication requires:
  - Proper safety equipment (mechanical and biologic).
  - Adequate training.
  - Adequate resources (e.g., personnel, specialized equipment).

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Phases of Management

1. Arrival and size-up
2. Hazard control
3. Patient access
4. Medical treatment
5. Disentanglement
6. Patient packaging
7. Removal/transport

From: Bledsoe et al. *Paramedic Care Principles & Practices, 4th Edition.* Brady: Upper Saddle River, NJ, 2013

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Priorities of Care

- Patient access often limited
- Medical care often affected by extrication
- Medical care and Extrication Operations must work collaboratively
- Critical patients may require less than ideal extrication techniques

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Equipment - Rescuer

Rescuer protection

- Helmets
- Eye protection
- Hearing protection
- Respiratory protection
- Gloves
- Foot protection
- Flash/frame protection
- Personal flotation devices
- Lighting
- Hazmat suits
- SCBAs
- Extended, remote, or wilderness protection.

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Equipment - Patient

Patient protection

- Helmets
- Eye protection
- Hearing and respiratory protection
- Protective blankets
- Protective shielding

From: Bledsoe et al. *Paramedic Care Principles & Practices, 4th Edition.* Brady: Upper Saddle River, NJ, 2013

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Training

- **Rescue/extrication should only be attempted by those with adequate training in the procedure.**
- Each rescue requires:
  - Pre-existing SOPs
  - Crew assignments
  - Pre-planning

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Entrapment

- **Types of rescue:**
  - Surface water rescues
  - Moving water
  - Flat water
  - Hazardous atmospheres
  - Confined spaces
  - Trenches, cave-ins and structural collapse

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Entrapment

- **Highway operations and vehicle rescues:**
  - Traffic hazards:
    - Staging
    - Positioning of apparatus
    - Emergency lighting
    - Redirection of traffic
    - High-visibility

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Entrapment

- **Highway operations and vehicle rescues:**
  - Other hazards:
    - Fire and fuel
    - Alternative fuel systems (e.g., propane, natural gas)
    - Hybrid and electrical vehicles
    - Sharp objects
    - Electric power
    - Energy absorbing bumpers
    - Supplemental restraint systems
    - Hazardous cargoes
    - Rolling vehicles
    - Unstable vehicles

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Entrapment

- Automobile anatomy:
  - Unibody or frame construction
  - Roof supports
  - Firewall and engine compartment
  - Glass
  - Doors
- Automobile rescue:
  - Always try to open doors first
  - Gain access through window farthest from patient
  - Try simple hand tools first

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Entrapment

- **Hazardous terrain rescue:**
  - Steep slope (low-angle)
  - Vertical (high-angle)
  - Flat terrain with obstructions.
- **Patient removal:**
  - Basket stretcher
  - Backboard

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Take-Home Points

- Extrication is an important prehospital skill that requires adequate training, practice, and experience
- The use of safety and other protective equipment is essential
- The EMS physician should have familiarity with all types of rescue
- Patient care strategies must be modified during many extrication scenarios

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