

INSTRUCTOR GUIDE

Title: Helmet Removal

Time Required: 3 Hours

Teaching/Learning Materials: Easel pad and markers or board and chalk, optional LCD and laptop for PowerPoint slides; various helmets, shoulder pads, collars, padding, spine boards, blankets

References: Brady Emergency Care, 12th ed. (pp. 785-788), Maryland Protocols for Emergency Services

Motivation: There is a helmet for almost every kind of sport—horseback riding and polo, hockey, football, and baseball, bicycling, skating, and skateboarding, snowboarding and skiing. And of course, there are helmets for riding motorcycles that include a variety of styles. The questions that arise about helmets are: Do EMS responders remove them or leave them on after a trauma incident? And if a helmet should be removed, how?

Student Performance Objective: Given information, resources, and opportunity for discussion and practice, at the completion of this session EMTs will be able to list types of helmets, their features and their purpose, and the standards they meet. Also be able to state whether a helmet types should be removed or left on and demonstrate patient assessment and care procedures for leaving a helmet in place or removing it. EMTs will follow acceptable Maryland medical practice and Maryland Medical Protocols for Emergency Medical Providers.

Enabling Objectives

- List helmet types, features, and purpose.
- List the standards that cover helmets.
- Explain what types of helmets are removed or left in place after a trauma incident and why.
- Demonstrate assessment steps and emergency care for patients wearing a helmet who are involved in a trauma incident.

Overview:

- Helmets: Types, Features, and Purpose
- Helmet standards
- Helmets: Remove or Leave in Place?
- Assessment and Care Procedures (discussion and practice)

I. Helmets: Types, Features, and Purpose

A. Types

1. Non-motor sports helmets: typically open in the front; some may have chin guards; have easy access to ABCs
 - a. Horseback riding, polo
 - b. Bicycle riding, mountain biking
 - c. Inline skating, skateboarding
 - d. Skiing, snowboarding
 - e. Hockey, football, lacrosse (high impact contact sports)
 - f. Baseball

2. Motor sports helmets: helmets have different protection (see Features below)
 - a. Motorcycle riding
 - b. Motocross racing
- B. Features and purpose
 1. Outer shell: Hard plastic (polystyrene) shell protects the wearer from head injury during the impact of a fall, crash, collision
 2. Padding: A Styrofoam-type padding lines the inside of the shell to cushion and absorb impact
 3. Other lining: Football helmets may include an inflatable lining for fit and comfort; other types of helmets may include a “comfort” lining for fit and snugness
 4. Face shield, chin guard: Depending on the sport, helmet may or may not have a face shield and/or chin bar; varies with sport and/or position played, e.g., football; varies with rider preference (e.g., motorcycle)
 5. Chin strap: A chin-strap retention system keeps the helmet on the head
 6. Other safety features: Motocross racing requires the Eject Helmet Removal System (an inflatable air bladder that helps remove the helmet but requires special training and removal tools); helmets must have a chin bar
 7. Label: Helmets should show DOT, Snell, ANSI, ASTM, or other standard label (see Standards below)
 8. Size and types: Sized for children in some sports (bicycling, skateboarding, skating); motorcycle helmets have three types
 - a. Full size: Offers the most protection with full face shield and face coverage; room under chin bar to check for ABCs
 - b. Three-quarter size: Similar to full-face helmet with face shield but does not have chin bar
 - c. Half size: Offers the least protection; no face shield

- II. **Standards**—All helmets must meet rigid standards, usually one or more of the following, some of which are specific to a particular helmet’s use; all helmets meet standards for impact, penetration, retention, surface contour, lining, and may have requirements for peripheral vision (motorcycles specifically) and for labeling (e.g., DOT, Snell, Eject equipped)
- A. US Consumer Product Safety Commission (CPSC)—the benchmark for bicycle helmets
 - B. American Standard for Testing Materials (ASTM)
 - C. Snell helmet testing standards
 - D. American National Standards Institute (ANSI)
 - E. Central European Norm (CEN)—the easiest standard to meet for skiing and snowboarding; better helmets meet Snell and/or ASTM standards
 - F. National Operating Committee Standards (NOCS) for Athletic Equipment—an industry accepted standard (football)
 - G. Safety Equipment Institute (football)
 - H. Department of Transportation (DOT) standards: Required for all motorcycle helmets
 - I. American Motorcyclist Association (AMA) requires Eject Helmet Removal System (motocross racing)

III. **Helmets: Remove or Leave in Place?**

- A. Leave the helmet on
 - 1. If the patient is conscious
 - 2. If it does not interfere with assessing or reassessing ABCs
 - 3. If there are no airway or breathing problems
 - 4. If the helmet fits snugly and does not move around on the patient's head
 - 5. If the patient is wearing shoulder pads
 - 6. If removal will cause further injury
 - 7. If the patient's head can remain in a neutral, in-line position during transport on a spine board
- B. Remove the helmet
 - 1. Generally: If it is easy to remove, e.g., it has a removable chin bar and/or face shield or just a chin strap, but remove with one person maintaining head stabilization until immobilization is complete
 - 2. Specifically
 - a. If you cannot assess ABCs
 - b. If it interferes with providing oxygen or if removing the face shield still interferes with providing oxygen
 - c. If the patient is in respiratory or cardiac arrest
 - d. If the helmet does not fit snugly and allows head movement inside the helmet
 - e. If you cannot immobilize the patient on a spine board in a neutral, in-line position
 - f. If you remove the helmet, remove shoulder pads if the patient is wearing them

IV. **Assessment and Care Procedures** (discussion and practice)

- A. Assessment: Perform General Patient Care (Refer to Maryland Protocols, pp25-34, 124, 126, 128, 132)
 - 1. Size up the scene and gather information on approach
 - 2. Stabilize the head with helmet on; perform initial assessment: airway, breathing, circulation; provide oxygen as necessary
 - 3. Determine disability and whether to remove or leave on helmet
 - a. Check distal pulses and sensory and motor function
 - b. Provide cervical spine immobilization
 - 1) If patient *was* or *is* unconscious
 - 2) If patient is disoriented or shows an altered or changing mental status (what is patient's orientation to person, place, time)
 - 3) If you suspect the patient of substance abuse or use
 - 4) If patient has midline cervical pain or tenderness
 - 5) If patient shows decrease of or no function in a part of the body (focal neurological deficit, e.g., one-sided paralysis, inability to feel or move lower limbs)
 - 6) If patient has other major painful trauma
 - 7) If the patient is less than 8 years of age
 - 4. Expose patient to assess injuries
 - 5. Perform focused history and physical exam
 - 6. Follow treatment protocols
 - 7. Communicate with hospital or other response personnel
 - 8. Determine priority and mode of transport and where (trauma center?)

- B. Emergency care: Helmet removed (refer to Brady *Emergency Care* 12th ed., pp 785-788)
1. First rescuer stabilizes the helmet and head; second rescuer cuts chin strap
 2. Second rescuer grasps and stabilizes mandible with one hand and occipital area with the other hand
 3. First rescuer grasps lower edges of helmet, pulls helmet sides away from ears, and slowly slides helmet upward over patient's head
 4. First rescuer resumes head stabilization until immobilization is complete
 5. Second rescuer measures and applies collar and with assistance moves patient onto spine board and secures patient
 - a. If you remove the helmet, remember to remove shoulder pads **OR**
 - b. If you do not remove shoulder pads, place enough padding behind patient's head to maintain neutral, in-line position of spine
 6. Rescuers reassess patient: retake vital signs; recheck injury treatments and medical status
 7. Rescuers transport/transfer/transition patient and information
- C. Emergency care: Helmet left in place
1. First rescuer stabilizes the helmet and head
 2. Second rescuer measures and applies collar and with assistance moves patient onto spine board and secures patient
 3. Rescuers reassess patient: retake vital signs; recheck injury treatments and medical status
 4. Rescuers transport/transfer/transition patient and information

Summary:

Student Performance Objective: Given information, resources, and opportunity for discussion and practice, at the completion of this session EMTs will be able to list types of helmets, their features and purpose, and the standards they meet. Also be able to state whether a helmet types should be removed or left on and demonstrate patient assessment and care procedures for leaving a helmet in place or removing it. EMTs will follow acceptable Maryland medical practice and Maryland Medical Protocols for Emergency Medical Providers.

Review:

Helmets: Types, Features, and Purpose

- List several types of helmets
- Name several features of helmets in general
- State the purpose of helmets

Helmet Standards

- List several of the well-known standards for helmets
- Explain why you think standards were developed for the variety of activities for which helmets should be worn

Helmets: Remove or Leave in Place

- Explain when helmets should be left in place
- Explain when helmets should be removed

Assessment and Care Procedures

- Describe the steps of assessment
- Describe the steps for care when the helmet is removed
- Describe the steps for care when the helmet is left in place