


CDE #31816

CAUSES,  
PROTOCOLS  
& QUESTIONS  
TO ASK

# BLUNT TRAUMA

BY TOM MAUREAU





**F**or experienced emergency medical dispatchers (EMDs), the following are common responses when a 9-1-1 caller is asked what the emergency is:

- “A car slammed into another car in the intersection. Hurry. It looks like they’re hurt bad.”
- “My husband fell off the ladder and needs an ambulance.”
- “Help! My mom fell down the stairs.”
- “There was a fight. One guy got hit in the head, and he is knocked out on the ground.”
- “My friends were playing football and collided with each other.”

Although the mechanism for injury is different for each of the above scenarios, the end result can be the same—an injury sustained from some form of blunt trauma.

Blunt trauma is “a usually serious injury caused by a blunt object or collision with a blunt surface (as in a vehicle accident or fall from a building)—called also blunt force trauma.”<sup>1</sup> Additional definitions identify both the type of injury (e.g., physical trauma) and the cause of the injury (e.g., impact or physical attack). Other types of specific trauma injuries, such as contusions, abrasions, lacerations and bone fractures, can be present as a result of the blunt trauma event. Blunt trauma differs from penetrating trauma, which results from an object entering the body, as in a gunshot wound or knife stabbing.

Depending upon the type of blunt trauma event, injuries can range from specific (e.g., head, chest, abdominal, extremity or facial) to polytrauma, in which there are multiple traumatic injuries.

### **MOTOR VEHICLE TRAFFIC CRASH**

Unfortunately, responding to motor vehicle crashes continues to be a significant workload for law enforcement, fire and EMS. Numerous studies show that a majority of serious blunt trauma injuries are a result of a motor vehicle crash in which a driver and/or passenger collides with the steering wheel, dashboard, seatbelt and other areas of the vehicle. One study indicates that 75% of blunt trauma events result in blunt abdominal trauma

(BAT) of which motor vehicle crashes are the primary cause.<sup>2</sup>

Numerous vehicle safety improvements have been made, such as passenger restraints, front and side air bags, child safety seats, crash avoidance systems, driver assistance systems, telematics and other technologies. EMDs know they must be well prepared to receive motor-vehicle-crash-related 9-1-1 calls 24/7/365.

### **RESIDENTIAL ACCIDENTS**

Second to motor vehicle crashes, home accidents are the leading cause of fatal injuries, accounting for 18,000 deaths and nearly 13 million injuries a year. *Living with My Home* reports the five leading causes of death from home accidents are 1) falls, 2) poisonings, 3) fires, 4) suffocation and choking and 5) drowning, with “falls accounting for more than one-third of all injury deaths.” Falls are also the leading cause of injuries in the home.<sup>3</sup>

Factors that can influence the number of home accidents include:

- Demographic reasons—an increase in the number of falls due to an aging population; and
- Economic reasons—an increase in people attempting home repairs themselves versus employing a professional with the appropriate experience and equipment.

As with motor vehicle crashes, experienced EMDs understand the need to be prepared for a wide array of emergency medical events that occur in residences.

### **SPORTS-RELATED INJURY**

The nationwide involvement in sporting activities is good for our overall health, but the same involvement has a direct impact on sports-related injuries. The U.S. Centers for Disease Control and Prevention (CDC) reports that participation in organized sports is increasing.<sup>4</sup> This is especially true for youth activity. As reported on the Stop Sports Injuries website, “Nearly 30 million children and adolescents participate in youth sports in the U.S.”<sup>5</sup> This increase in play has led to some other startling statistics about injuries among America’s young athletes:

- High school athletes account for an estimated 2 million injuries

and 500,000 doctor visits and 30,000 hospitalizations each year;

- More than 3.5 million kids under age 14 receive medical treatment for sports injuries each year;
- Among athletes age 5 to 14, 28% of percent of football players, 25% of baseball players, 22% of soccer players, 15% of basketball players, and 12% of softball players have been injured while playing their respective sports; and
- Since 2000, there has been a fivefold increase in the number of serious shoulder and elbow injuries among youth baseball and softball players.

The combination of increased involvement in sporting activities and the proliferation of cell phones has a direct impact on the number of 9-1-1 phone calls EMDs will receive concerning sports-related injuries.

### **MECHANISM OF INJURY**

Common sense tells us mechanism of injury may have a direct impact on the life-threatening vs. non-life-threatening seriousness of an injury. For example:

- A high-speed traffic crash or head-on collision will create more force for injury than a very low speed traffic crash. It’s noteworthy that many PSAPs and fire/EMS have initiatives to leverage vehicle telematics information to identify crash information as fast as possible to improve their deployment of public safety resources to a crash scene. The speed and type of crash, number of passengers and other factors may initiate an enhanced response plan to ensure the correct resources are dispatched to the scene in a timely manner.
- The employment of seatbelts, air bags, child safety seats and other safety devices could have a mitigating effect on the level and type of injury sustained in a vehicle crash. At the same time, seatbelts can be the cause of a specific type of blunt trauma injury related to a motor vehicle crash. One study found that patients with the seatbelt sign (bruising on the abdomen along the site of

PHOTO MICHAEL COPPOLA

## BLUNT TRAUMA

the lap portion of the belt) from motor vehicle crashes are prone to specific regional injury patterns.<sup>3</sup> Another study of blunt abdominal injuries in children under 5 years of age found that “motor vehicle trauma caused most of the injuries (72%).”<sup>6</sup>

- Numerous factors, including speed of impact, angle of impact, the size of the players involved in the collision and whether or not they were wearing protective equipment, may influence sport collision injuries.
- A fall from the top of a 30' ladder will most likely cause a more serious injury than a fall from a step-stool, depending on the patient's age, health and other factors.
- A physical attack to the head may result in a more traumatic injury if completed with a weapon, such as a bat or any hard object, than with an open-hand slap—again depending upon the patient's age, health and other factors.

Although it's important to identify the mechanism of injury, even low-speed or what would appear to be a non-high-impact blunt trauma event can cause a life-threatening situation. EMDs should make no assumptions during the call-taking process and always follow their local guide cards and protocols.

### THE CALL TO 9-1-1

Even though the cause of injury (e.g., motor vehicle crash, fall from a ladder, or sport-related collision) is often known at the very beginning of the 9-1-1 call-taking process, EMDs should follow their PSAP's all callers interrogation questions before obtaining more specific information about the injury, for example:

- Is the patient conscious (able to talk)?
  - > Yes—Determine age, sex, chief complaint and proceed to appropriate guide card
  - > No—Continue
- Is the patient breathing normally?
  - > Uncertain—Verify through direct observation.
  - > No—Dispatch Advanced Life Support (ALS) response. Go directly to CPR instructions.

> Yes—Continue

EMDs should be alert for any factors that elevate the event to an ALS response. For example, factors for a trauma event may include:

### ALS PRIORITY RESPONSE—TRAUMA CHIEF COMPLAINT CARD

- Unconscious/not breathing normally
- Decreased level of consciousness
- Penetrating/crushing injury to the head, neck, chest, abdomen or thigh
- Penetrating injury to the upper arm
- Open femur fracture
- Jaw complaint/injury with critical symptoms
- Uncontrolled bleeding

Vital points questions the EMD should ask for a *trauma* event may include:

- Where is the patient injured?
- Describe what happened.
- How did the injury occur?
- Is the patient bleeding?
  - > How much?
  - > How long?
  - > Can the bleeding be controlled with direct pressure?

Upon identifying the relevant chief complaint, EMDs should follow their local guide card protocols for that type of injury.

Some of the same ALS response priority factors for a fall will be the same as for a trauma; however, new factors should be identified:

### ALS PRIORITY RESPONSE—FALLS CHIEF COMPLAINT CARD

- Unconscious/not breathing normally (same as trauma)
- Decreased level of consciousness (same as trauma)
- Falls greater than 10 feet
- Falls associated with or preceded by pain, discomfort in the chest, dizziness, headache and/or diabetes
- Accident with crushing or penetrating injury to head, neck, chest, abdomen or thigh or upper arm (same as trauma)
- Open femur fracture (same as trauma)

- Patient paralyzed
- Uncontrolled bleeding (same as trauma)

Vital points questions EMDs should ask concerning a fall event may include:

- How far did the patient fall?
- What happened? Describe it.
- What type of surface did the patient land on?
- Are there any obvious injuries?
  - > If yes—What are they?
- Did the patient complain of pain or illness just prior to the fall?
- Is the patient bleeding? (Same as Trauma)
  - > How much?
  - > How long?
  - > Can the bleeding be controlled with direct pressure?

Pre-arrival instructions for a blunt trauma (e.g., fall) may include:

- If unconscious, go to Airway Control instructions.
- Maintain a clear airway.
- Do not move the patient if there are no hazards.
- Tell the patient not to move.
- Cover the patient with a blanket and try to keep them calm.
- Nothing to eat or drink.
- If bleeding, use a clean cloth and apply pressure directly over the wound and add more cloth to what is there already if needed.
- Gather patient's medications, if possible.
- If anything changes or the patient's condition worsens call back immediately.

### BLUNT TRAUMA EVENTS—LAW ENFORCEMENT INVOLVEMENT

Some blunt trauma events can be emergency medical incidents that are a result of a criminal act, such as a physical attack or fight. Upon completion of all EMD protocols, additional information may be obtained, depending upon local PSAP procedures. For crime-related events calltakers may obtain law enforcement-relevant information, such as:

- Is law enforcement on scene or has law enforcement been notified?
- What was the patient assaulted with?
- Is the suspect on scene?



- Does the suspect have a weapon?

It's imperative that PSAPs, fire/EMS and law enforcement agencies have the appropriate policies, procedures and training protocols to ensure there is coordination and teamwork for those emergency medical events that require a multi-agency response. This is especially true to ensure the safety of fire/EMS personnel from armed suspects who may still be on scene. This coordination requires an effective communication process among calltakers, dispatchers and field personnel for all of the agencies involved.

## SUMMARY

Blunt trauma injuries are a common call for all PSAPs. They result from motor vehicle crashes, residential accidents, sporting collisions, criminal acts and other types of events. Blunt trauma injuries can range from mild to life threatening. Since many types of emergency medical events can cause some form of blunt trauma

injury, it's imperative that EMDs follow their local guide card instructions to identify life-threatening factors (if any) and ascertain the mechanism of injury, which will enhance pre-arrival instructions and ensure an appropriate response of public safety resources.

For those types of events that require a multi-agency response, such as a crime-related injury, PSAPs and public safety departments must have clear and effective communication and business processes to ensure patients receive appropriate care and all personnel remain safe from harm.

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## REFERENCES

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## ► CDE EXAM #31816: BLUNT TRAUMA

1. Blunt trauma is defined as “a usually serious injury caused by a blunt object or collision with a blunt surface.”
  - a. True
  - b. False
2. Blunt trauma differs from penetrating trauma.
  - a. True
  - b. False
3. Depending upon the type of blunt trauma event, injuries can range from specific to polytrauma, in which there are multiple traumatic injuries.
  - a. True
  - b. False
4. Second to motor vehicle crashes, home accidents are the leading cause of fatal injuries, accounting for 18,000 deaths and nearly 13 million injuries a year.
  - a. True
  - b. False
5. Numerous factors may influence sport collision injuries, including:
  - a. Speed of impact
  - b. Angle of impact
  - c. Size of the players involved in the collision
  - d. Whether or not they were wearing protective equipment
  - e. All of the above
6. Although it's important to identify the mechanism of injury, even low-speed or what would appear to be a non-high-impact blunt trauma event can cause a life-threatening situation.
  - a. True
  - b. False
7. Emergency medical dispatchers do not have to be alert for any factors that elevate the event to an Advanced Life Support response.
  - a. True
  - b. False
8. Vital points questions the emergency medical dispatcher should ask for a trauma event may include:
  - a. Where is the patient injured?
  - b. How did the injury occur?
  - c. Is the patient bleeding?
  - d. All of the above
9. It's not imperative that PSAPs, fire/EMS and law enforcement agencies have the appropriate policies, procedures and training protocols to ensure there is coordination and team work for those emergency medical events that require a multi-agency response.
  - a. True
  - b. False
10. Because many types of emergency medical events can cause some form of blunt trauma injury, it's imperative that EMDs follow their local guide card instructions to identify life-threatening factors (if any) and ascertain the mechanism of injury
  - a. True
  - b. False

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