
EMERGENCY MEDICAL SERVICES (EMS)

FOR
FLAT TRACK RACING



**FLAT TRACK
SAFETY GROUP**

AN OVERVIEW

Preventing Injury: The best medical outcome possible is a race where no one is injured. While this seems achingly apparent, Flat Track Safety Group's research has shown that there is much work to be done to improve safety. There is widespread disregard by racers for wearing proper safety gear and by promoters for not developing higher levels of safety through personnel training and improving facility safety. The best safety plan is one that emphasizes decreasing injuries as well as dealing with them appropriately when they do occur.

When discussing the topic of safety, we've frequently heard people tell us "motorcycle racing is dangerous, and injuries occur – you know that when you chose to race". This cowboy attitude needs to be banished and replaced by serious work on improving the safety of our sport, at all levels.

This document contains the following sections:

Emergency Medical Personnel: Learn the various levels of emergency medical personnel.

Emergency Medical Services Ambulance: Learn the essential differences of Basic Life Support (BLS) and Advanced Life Support (ALS).

Severe Flat Track Injuries: How to handle these dangerous injuries at the track.

Trauma Center Levels: The five different levels of hospital trauma centers.

Air Medical Services: Learn when they're needed.

Flat Track Emergency Medical Service Choices: Promoters have choices when it comes to emergency service providers.

Emergency Medical Personnel Debriefing: Confirm all of the details of providing emergency medical services for a given event.

Recommended Flat Track Promoter Safety Plan: This section is a guide to creating a safety plan for your events.

Summary: So now you have the necessary information, it's up to you to make flat track racing safer.

Glossary: Definitions of words and phrases commonly used in flat track emergency medical services.

EMERGENCY MEDICAL PERSONNEL



Emergency Medical Responder (EMR): EMRs, many of whom are volunteers, provide basic, immediate care including bleeding control, CPR, AED, and emergency childbirth. An EMR, with the help of an EMT, can assume care for a patient while that patient is being transported.

Emergency Medical Technician (EMT): EMT includes all EMR skills, advanced oxygen and ventilation skills, pulse oximetry, noninvasive blood pressure monitoring, and administration of certain medications.

Advanced Emergency Medical Technician (AEMT): AEMT includes all EMT skills, advanced airway devices, intravenous and intraosseous access, blood glucose monitoring, and administration of additional medications.

Paramedic: Paramedic includes all AEMT skills, advanced assessment and management skills, various invasive skills, and extensive pharmacology interventions.

Critical Care Paramedic (CCP): A CCP specializes in the management of critical trauma and medical patients during aeromedical transports. Skills performed by CCPs include ventilator management, IV pump infusion maintenance, aortic balloon pump monitoring, and specialized hemodynamic monitoring, although in some states some of these skills are performed by Paramedic level providers due to a lack of a separate level of licensure or classification as “Critical Care”.

Flight Paramedic: This level builds on the CCP curriculum by incorporating flight-specific knowledge and treatment. Often require board certification as a flight paramedic in addition to credentials under a Critical Care Emergency Medical Transport Program (CCEMTP). In some states, these paramedics have exemptions allowing them to operate entirely under offline medical control.

EMERGENCY MEDICAL SERVICES AMBULANCE



Ambulances in the United States must be staffed with a minimum of two personnel. The level of crew certification varies depending on the jurisdiction the ambulance is operating in. In most areas, the bare minimum is an EMT to provide patient care and an Emergency Medical Responder (EMR) to assist and drive the unit. This set-up is classified as a Basic Life Support Unit (BLS) because the highest-ranking provider cannot perform Advanced Life Support (ALS) interventions.

If patient condition warrants, an ALS provider may be summoned to assist and meet the ambulance en route to the hospital. Other staffing combinations include one EMT and one paramedic (the most common arrangement), or two Paramedics, which are classified in most areas as an Advanced Life Support Unit (ALS).

BASIC LIFE SUPPORT (BLS)

Training: 114 hours total with 104 hours of classroom/skills and 10 hours of either field ride-along or hospital clinical.

Basic life support promotes adequate blood circulation in addition to breathing through a clear airway:

- Circulation: providing a proper blood supply to tissues, especially critical organs, to deliver oxygen to all cells and remove metabolic waste, via the perfusion of blood throughout the body.
- Airway: the protection and maintenance of an unobstructed passageway for gases (principally oxygen and carbon dioxide) to pass between the lungs and the atmosphere.
- Breathing: inflation and deflation of the lungs (respiration) via the airway.

BLS does not include the use of drugs or invasive skills and can be contrasted with the provision of Advanced Life Support (ALS). Firefighters, lifeguards, and police officers are often required to be BLS certified.

EMERGENCY MEDICAL SERVICES AMBULANCE

ADVANCED LIFE SUPPORT (ALS)

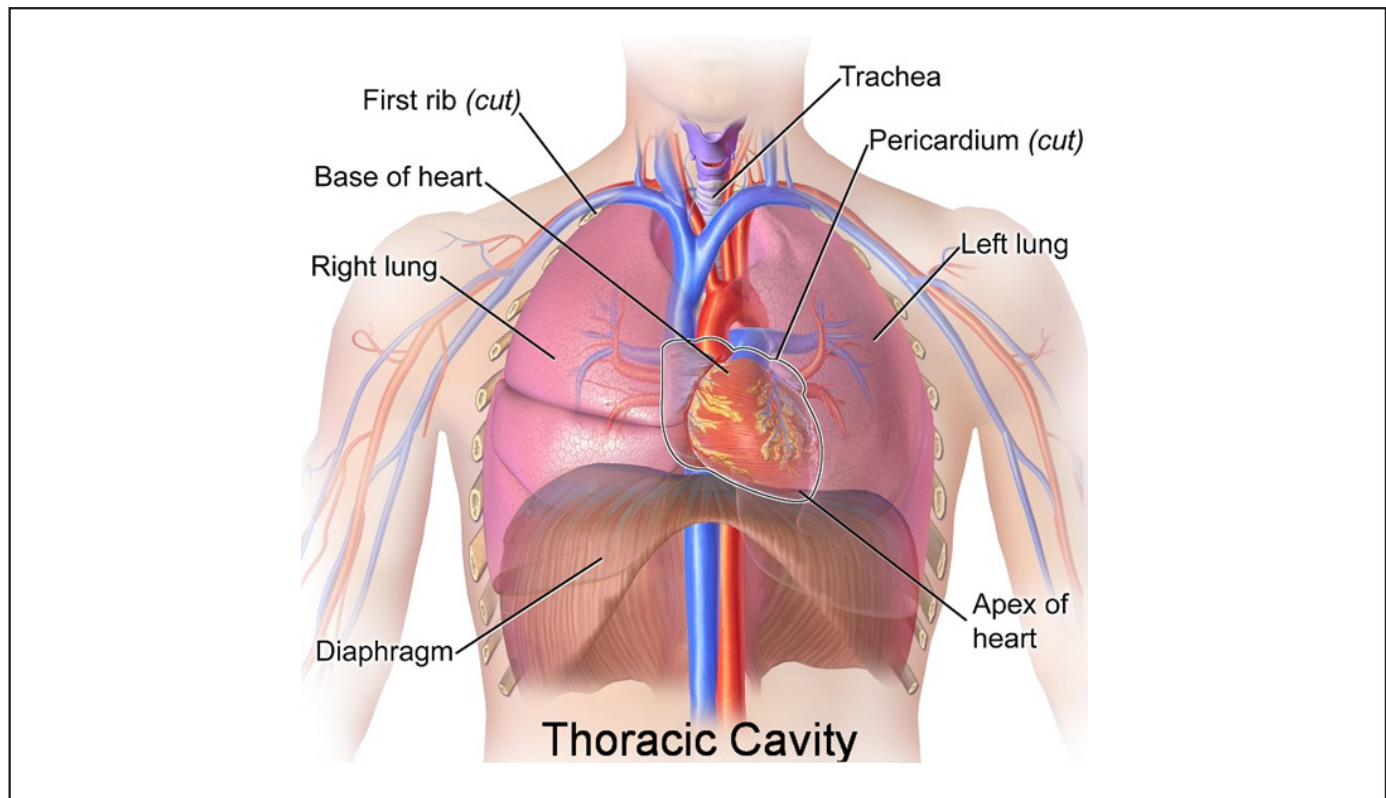
Training: 1,032 hours total with 320 hours of classroom/skills, 480 hours of field ride-along and 160 hours of hospital clinical.

A set of life-saving protocols and skills that extend far beyond Basic Life Support. These include:

- Tracheal intubation.
- Rapid sequence induction.
- Cardiac monitoring.
- Cardiac defibrillation.
- Transcutaneous pacing.
- Intravenous cannulation (IV).
- Intraosseous (IO) access and intraosseous infusion.
- Surgical cricothyrotomy.
- Needle cricothyrotomy.
- Needle decompression of tension pneumothorax.
- Advanced medication administration through parenteral and enteral routes (IV, IO, PO, PR, ET, SL, topical, and transdermal).
- Advanced Cardiac Life Support (ACLS).
- Pre-Hospital Trauma Life Support (PHTLS), Basic Trauma Life Support (BTLS) or International Trauma Life Support (ITLS).

BLS & ALS Ambulance Comparison: There is a big difference in the tools, devices, and medicines found in the two different types of ambulances. This video does an excellent job of explaining these differences: <https://www.youtube.com/watch?v=Yn0PmGn8y-Y>

SEVERE FLAT TRACK INJURIES



Thoracic Injuries: The Flat Track Safety Group has determined that this is the most common acute injury in flat track. It is our opinion that all racers should be required to wear 360-degree chest protection.

Symptoms of chest trauma can be roughly the same, regardless of whether the injury was blunt force or penetrating. These symptoms include:

- Difficulty breathing.
- Hypotension from blood loss.
- Failure of the lungs to expand properly.
- Crunching sounds when palpating the rib cage.
- Bruising of the chest wall.
- Coughing up blood.
- Flail chest - when a segment of the rib cage breaks and becomes detached from the rest of the chest wall.
- Puncture wound to the chest that sucks air.

Immediate ALS care is required to treat this injury to prevent death.

SEVERE FLAT TRACK INJURIES

Concussion: Concussion is a common injury in flat track racing. A concussion is a type of traumatic brain injury that is caused by a blow to the head or body, that jars or shakes the brain inside the skull. You don't have to pass out (lose consciousness) to have a concussion. Some people will have visible symptoms of a concussion, such as passing out or forgetting what happened right before the injury while others won't exhibit symptoms.

Signs and symptoms of a concussion may include:

- A headache or a feeling of pressure in the head
- Temporary loss of consciousness
- Confusion
- Amnesia surrounding the traumatic event
- Dizziness or "seeing stars"
- Ringing in the ears
- Nausea
- Vomiting
- Slurred speech
- Delayed response to questions
- Fatigue

A racer who exhibits any of these symptoms should not be allowed to race, no matter the insistence of the rider or parent. A recently concussed person is very vulnerable to lasting traumatic brain injury (TBI). Most people recover fully from a concussion, but it can take some time. Rest is essential after a concussion because it helps the brain to heal.

Spine Injury & Helmet Removal: If a rider is not breathing, a helmet that prevents access to the racer's airway must be removed immediately for CPR to commence. It is "life over limb" so the emergency personnel must act fast. All ALS personnel are trained on helmet removal, but it is optional training for BLS personnel. If you don't know how to remove a helmet correctly, then get training. If you are not confident in removing the helmet, just do chest compressions continuously – hard and fast.

In all other circumstances the helmet should remain in place (with the chin strap undone) as it provides excellent support for the delicate cervical vertebrae, so ask the rider to leave it in place until medical aid arrives. Emergency personnel will monitor the injured rider's breathing carefully and will be ready to remove if airway or breathing is compromised.

SEVERE FLAT TRACK INJURIES

Here are two videos on the proper way to remove a helmet of an injured rider:

<https://www.youtube.com/watch?v=geKGLez5ga4>

<https://www.youtube.com/watch?v=gGQXUS4FI0o>



Helmet Emergency Quick Release System (EQRS): A helmet EQRS is a system to allow the removal of cheek pads while the helmet is still on the rider's head. Removing the cheek pads allows for easier helmet removal thus minimizing head movement. You can check if a helmet has EQRS by looking for a couple of red tabs at the bottom of the lining. These tabs are how you pull the cheek pads out of the helmet. Some helmets have labels to notify medical personnel that the helmet has EQRS. Here is a video that shows helmet removal using EQRS:

<https://www.youtube.com/watch?v=YhTzEg1fYsY>

HOSPITAL TRAUMA CENTERS



LEVEL I

A Level I Trauma Center is a comprehensive regional resource that is a tertiary care facility central to the trauma system. A Level I Trauma Center is capable of providing total care for every aspect of injury – from prevention through rehabilitation.

Elements of Level I Trauma Centers Include:

- 24-hour in-house coverage by general surgeons, and prompt availability of care in specialties such as orthopedic surgery, neurosurgery, anesthesiology, emergency medicine radiology, internal medicine, plastic surgery, oral and maxillofacial, pediatric and critical care.
- Referral resource for communities in nearby regions.
- Provides leadership in prevention, and public education to surrounding communities.
- Provides continuing education of the trauma team members.
- Incorporates a comprehensive quality assessment program.
- Operates an organized teaching and research effort to help direct new innovations in trauma care.
- Meets minimum requirement for annual volume of severely injured patients.

LEVEL II

A Level II Trauma Center is able to initiate definitive care for all injured patients.

Elements of Level II Trauma Centers Include:

- 24-hour immediate coverage by general surgeons, as well as coverage by the specialties of orthopedic surgery, neurosurgery, anesthesiology, emergency medicine, radiology and critical care.

HOSPITAL TRAUMA CENTERS

- Tertiary care needs such as cardiac surgery, hemodialysis, and microvascular surgery may be referred to a Level I Trauma Center.
- Provides trauma prevention and continuing education programs for staff.
- Incorporates a comprehensive quality assessment program.

LEVEL III

A Level III Trauma Center has demonstrated an ability to provide prompt assessment, resuscitation, surgery, intensive care and stabilization of injured patients and emergency operations.

Elements of Level III Trauma Centers Include:

- 24-hour immediate coverage by emergency medicine physicians and the prompt availability of general surgeons and anesthesiologists.
- Incorporates a comprehensive quality assessment program.
- Has developed transfer agreements for patients requiring more comprehensive care at a Level I or Level II Trauma Center.
- Provides backup care for rural and community hospitals.
- Offers continued education of the nursing and allied health personnel or the trauma team.
- Involved with prevention efforts and must have an active outreach program for its referring communities.

LEVEL IV

A Level IV Trauma Center has demonstrated an ability to provide advanced trauma life support (ATLS) before the transfer of patients to a higher level trauma center. It provides evaluation, stabilization, and diagnostic capabilities for injured patients.

Elements of Level IV Trauma Centers Include:

- Basic emergency department facilities to implement ATLS protocols and 24-hour laboratory coverage. Available trauma nurse(s) and physicians available upon patient arrival.
- May provide surgery and critical-care services if available.
- Has developed transfer agreements for patients requiring more comprehensive care at a Level I or Level II Trauma Center.
- Incorporates a comprehensive quality assessment program.
- Involved with prevention efforts and must have an active outreach program for its referring communities.

HOSPITAL TRAUMA CENTERS

LEVEL V

A Level V Trauma Center provides initial evaluation, stabilization and diagnostic capabilities and prepares patients for transfer to higher levels of care.

Elements of Level V Trauma Centers Include:

- Basic emergency department facilities to implement ATLS protocols.
- Available trauma nurse(s) and physicians available upon patient arrival.
- After-hours activation protocols if facility is not open 24-hours a day.
- May provide surgery and critical-care services if available.
- Has developed transfer agreements for patients requiring more comprehensive care at a Level I through III Trauma Centers.

TRAUMA CENTER FINDER

<http://www.amtrauma.org/?page=findtraumacenter>

AIR MEDICAL SERVICES



Air medical services in the context of racing are the use of a helicopter, to move patients from accident scenes to medical trauma centers. Helicopter personnel provide comprehensive pre-hospital and emergency and critical care to patients during aeromedical evacuation.

Air ambulance (also known as Medivac)

An air ambulance is a specially outfitted helicopter that transports injured or sick people in a medical emergency faster than a conventional ground ambulance.

Air ambulances are equipped with medical equipment vital to monitoring and treating injured or ill patients. Common equipment for air ambulances includes medications, ventilators, ECGs and monitoring units, CPR equipment, and stretchers. A medically staffed and equipped air ambulance provides medical care in flight.

Advantages

The advantages of medical transport by helicopter may include providing a higher level of care at the scene of trauma and speeding access to a distant trauma center.

Indications for air transport

Efficient use of helicopter services for trauma depends on the ground responder's ability to determine whether the patient's condition warrants air medical transport. Protocols and training must be developed to ensure appropriate triage criteria are applied. Excessively stringent standards can

AIR MEDICAL SERVICES

prevent rapid care and transport of trauma victims; relaxed criteria can result in the costly situation of transporting a patient by helicopter only to have the patient discharged in good condition from the emergency department.

Crew and patient safety is the most critical factor to be considered when deciding whether to transport a patient by helicopter. The general rule of safety is upon the crew when there is one pilot, and two medical crew is: 3 to go, 1 to say "NO". If one Flight Member is not comfortable with the flight for whatever reason, the flight is canceled.

Flat Track Safety Group's recommended criteria for requiring an air ambulance helicopter (medivac):

- Anyone severely concussed.
- Any long bone fractures such as a femur. Femur fractures can be deadly due to the potential for a significant loss of blood in a short period of time.
- A penetrating injury to the head, neck, back, thoracic or abdomen.
- Blunt force trauma such as a fall, high side or impact from a bike or immovable object causing substantial thoracic injury.
- Injuries to the face where the airway is compromised. Broken teeth, broken jaw, etc.
- Multiple riders down with significant injuries.

Emergency Landing Zone (ELZ): This is an area that needs to be marked out by the local fire department personnel for an air medical helicopter to land. The size should be at least 100 ft x 100 ft or 100 ft in diameter, with no hazards and debris. The surface should be as firm and level as possible. Sand or loose dirt is acceptable but could cause visibility problems (brown out) during landing. The practice of wetting down a dusty ELZ may be required. Medical personnel and the promoter should know the area of the landing zone in advance of the event.

PRE-PAID AIR AMBULANCE POLICIES

Air ambulance rides are costly, but there are some pre-paid services that cost under \$100 per year that deserve a serious look. We cover that subject in another FTSG document that you can find on our website soon: www.flattracksafetygroup.org

FLAT TRACK EMERGENCY MEDICAL SERVICE CHOICES

Our research has shown that there are three levels of medical services presently used at flat track races:

Volunteer EMT: The promoter employs a first responder or local Volunteer Fire Department personnel with basic life support skills but without an ambulance on premise. Volunteer fire departments are in thinly populated areas where the volume of emergency work does not support a paid full-time crew. Volunteers are not paid, and many have only basic medical training and not many opportunities to hone their emergency medical skills. However there are some departments that are very active in training, so you need to learn more about the department in the area.

Basic Life Support Ambulance: Many promoters utilize a Basic Life Support (BLS) Ambulance staffed with two Emergency Medical Technicians (EMT's) on premise at the start of practice through the conclusion of racing. BLS personnel have basic medical training and typically cannot transport a patient. Their role is to stabilize the patient until an Advanced Life Support (ALS) Ambulance arrives.

Advanced Life Support Ambulance: A smaller set of promoters insist on an Advanced Life Support (ALS) Ambulance staffed with two Emergency Medical Technicians (EMT's), with a minimum of one being a paramedic (EMT-P). Paramedics have specialized training in trauma, cardiac and respiratory care. This is the vital care level needed for a motorcycle race event. Immediate care is crucial in the setting of head, neck, thoracic and abdominal injuries and a delay in treatment or transport could be fatal.

Emergency Medical Services Recommendation: FTSG highly recommends that promoters use ALS ambulance services for flat track races. It's potentially a life and death decision.

EMERGENCY MEDICAL PERSONNEL DEBRIEFING

The promoter's Safety Coordinator should greet the ambulance personnel upon arrival and have a thorough debriefing meeting before the event. In the case of a BLS ambulance, it will confirm that the both the promoter and ambulance personnel know all of the answers. They may not have the answers if they do not transport. You can address any shortcomings, hesitation or questions in advance, rather than discovering problems while in the middle of handling a traumatic injury.

ALS personnel will know all this information in which case, the questions are asked to educate the promoter with the answers.

Here are the questions:

- Have you notified the local fire department of this event? If not, will you do so, please?
- If your company the county provider? If so, can you transport?
- Where is the unit that usually transports from the scene?
- Is the transport unit staffed by ALS personnel?
- How long does it take for the transport unit to arrive?
- Where is the nearest hospital?
- What medical helicopter service covers the area?
- Where is the 2nd closest ambulance during the event in case of multiple injuries?
- How close is the fire department?
- Are you trained on helmet removal? Are you familiar with Emergency Quick Release System?
- What is your policy regarding helmet removal?
- Where is the emergency landing zone for this event?

I'm providing you with the longitude and latitude coordinates and address for the largest open landing space at this facility:

(sample)
Santa Maria Raceway
1900 Hutton Rd
Nipomo, CA 93444
Latitude: Longitude: -120.440956

RECOMMENDED FLAT TRACK PROMOTER SAFETY PLAN

SAFETY

P L A N

Safety Plan: There should be a written safety plan. FTSG is presently working on a template that can be used as a starting place. Every facility and event is unique, and the plan should reflect that.

Safety Coordinator: The promoter should assign a capable person and have them trained on all aspects of safety for the event. That individual is the responsible party for all safety-related matters. This document will assist in the proper training of that person. The Safety Coordinator should have the powers to stop an event until the safety of the racers is assured.

No Assumptions: A common error is to assume that the attending ambulance personnel knows everything and will do all the right things in the event of an emergency. The promoter and their Safety Coordinator must be knowledgeable in emergency medical services and actively involved in incidents. Do not stand by and assume everything will go just fine. Your skilled involvement can help save a life.

Local Fire Department: The local fire department needs be notified of the event in advance and given the address, latitude and longitude of the event. Here's a tool to quickly find the latitude and longitude of a given location: <https://www.latlong.net/>

During the event, should be an injury that might be traumatic, the fire department should be involved. First, the personnel are extra sets of hands, who at minimum are trained in BLS. Secondly, if air transport is required, it's the responsibility of the local fire department to establish a landing zone for the helicopter. Without a proper landing zone, the helicopter will not land.

RECOMMENDED FLAT TRACK PROMOTER SAFETY PLAN

Call 911: In the event of a traumatic injury, don't leave this task to BLS or ALS personnel, as they are busy attending to the injured rider(s). 911 dispatches are monitored by the local fire department, ambulance companies, police, hospital and medical air transport companies. Everyone knows what's going on. The promoter's safety representative should call 911. It's better that the PSAP (public safety answering point) receive two calls about the same incident rather than none or a delayed call.

Ground Transport: There should be an ALS unit able to transport immediately if needed and not wait for another ground unit to transport the critically injured. The goal is to have a critical patient at the appropriate Level 1 Trauma Center operating room within 60 minutes. This is called the Golden Hour.

Air Transport: Helicopters should be used for transporting critically-injured patients.

Ambulance Company Policy: The promoters must educate themselves on the ambulance company that will be providing service. Not all ambulance companies operate the same.

Rider Safety Representative(s): It is recommended that a racer or group of racers be designated racer safety representatives. It is highly encouraged to do a safety inspection before events, and have all racer safety concerns addressed.

Practice Day Safety Plan: Any time a racer enters a race track, a qualified safety representative should be observing the event. At a minimum, that individual should be trained in first aid and CPR (first responder training) and has read and understands this safety document.

SUMMARY

Using the knowledge contained in this guide, flat track promoters will create a safer racing environment. Safety has to be planned and implemented – it requires awareness, understanding, hard work, and training to make it happen. In the medical world, just as it should be in the promoter's world, there should be redundant safety systems in place. When something goes unexpectedly, there needs to be an automatic plan B that takes effect.

Thank you for your time reading this document and your care in making flat track safer for everyone.

REGIONAL DIFFERENCES

This document is written generically. There may be differences in emergency medical protocols and rules depending upon the State or County in which the event resides. The U.S. is relatively consistent with emergency medical services (EMS) throughout the country, but understand there may be some regional differences.

GLOSSARY

Abdominal injuries: Liver, splenic injury, bowel, kidney, and bladder.

Advanced Life Support (ALS): A higher level of emergency medical care than Basic Life Support, usually provided by paramedics. ALS includes invasive techniques such as IV therapy, intubation and drug administration.

Basic Life Support (BLS): Basic life support (BLS) is defined as a variety of noninvasive emergency procedures performed to assist in the immediate survival of a patient, including cardiopulmonary resuscitation, hemorrhage control, stabilization of fractures, spinal immobilization, and basic first aid.

Blunt Trauma: Internal injuries that do not penetrate the skin.

Cervical injury: The cervical spine is made up of the top 7 vertebrae, also referred to as C1 through C7.

Emergency Medical Technician (EMT): Individual has more training in trauma and other emergency events than a first responder.

First Responder: An individual trained in CPR and first aid. Mostly volunteer fire department personnel has first responder training in trauma.

Golden Hour Principle: In emergency medicine, the golden hour refers to a time period lasting for one hour or less, following traumatic injury. The patient's chances of survival are highest if they receive care within a short period of time after a severe injury. Cases of severe trauma, especially internal bleeding, require surgical intervention. Complications such as shock may occur if the patient is not managed appropriately and expeditiously. It, therefore, becomes a priority to transport patients suffering from severe trauma as fast as possible to a trauma center.

Emergency Landing Zone (ELZ): This is an area that needs to be marked out by the local fire department personnel for an air medical helicopter to land. The size should be at least 100' X 100' or 100' foot in diameter, free from hazards and debris. The surface should be as firm and level as possible. Sand, loose dirt or snow is acceptable but could cause visibility problems (brown out or white out) during landing. The practice of wetting down a dusty ELZ may be required. The promoter should know the area of the landing zone in advance of the event.

Moaning or grunting after a thoracic injury: Patients will grunt to help keep a lung from collapsing if injured. Grunting is not a good sign, and the person needs immediate care.

Paramedic: Specializes in Trauma, cardiac, respiratory emergencies and much more.

GLOSSARY

Penetrating Trauma: Injury that occurs when an object pierces the skin and enters a tissue of the body, creating an open wound.

Shortness of breath (SOB): Anyone complaining of SOB is considered critical until proven otherwise.

Snoring respirations: A patient may snore when knocked unconscious; this could be a critical situation and required immediate transport. The attending personnel must protect the airway from objects and vomit.

Splinting: To stabilize a fracture to prevent further tissue injury or bleeding.

Thoracic injury: Common thoracic injuries are fractured ribs, punctured lung, bruised lung or pulmonary contusion, and rupture of the aorta or other great vessels. In racing, these injuries are the most common serious injuries and usually the most critical.

Unequal Pupils: Unequal pupils is a bad sign and indicates cerebral edema (swelling of the brain).

FLAT TRACK SAFETY GROUP

In recent history there has been a dramatic increase in the number of catastrophic injuries and deaths during flat track racing events, but nothing has been done to comprehensively address the safety of our sport. Hence the need for this organization.

MISSION STATEMENT

The Flat Track Safety Group's sole purpose is to improve the safety and lower the risk of injury to motorcycle flat track participants.

www.flattracksafetygroup.com

<https://www.facebook.com/flattracksafety/>

This document was made possible by the donations we receive.