I. Objectives
   A. Epidemiological trends in football “emergency” situations
   B. Prevention of major trauma
   C. Evaluation of major trauma
   D. Treatment options in major trauma
   E. Strategies for collaborative evaluation and treatment

II. Epidemiology and Prevention
   A. Over the last 5 years sports related deaths have decreased (not trauma specific)
   B. During the same period there has been an increase in ER visits for sports injuries
   C. 62% of injuries occur at practice
   D. Only 42% of high schools have a dedicated ATC to their program

III. Emergency Action Planning
   A. NATA Position Statement on EAP
   B. Always prepare for worst case scenario
C. Be hyper vigilant at every practice and every game for life threatening trauma situations
D. High index of suspicion for life threatening injuries
E. Know the risks of your sport, know your athletes’ medical conditions, know what you don’t know, know when and where to call for help – **KNOW YOUR EAP!**

IV. On Field Protocol for Life Threatening Injuries
   A. ASLS – Advanced Sports Life Support
   B. The ABC’s of ASLS
   C. Airway
   D. Breathing
   E. Cardiac
   F. Circulation
   G. Conditions
   H. Diabetes
   I. Disability
   J. Disaster
   K. Destination

V. Airway
   A. Have an airway protocol for a respiratory arrest
   B. Etiology – c-spine injury, concussion, direct trauma
   C. Prevention – helmets, face mask, technique
   D. Evaluation – if the player is talking that is a great sign, pulse oximetry is easy, non-invasive, user friendly and accurate
   E. Treatment - mouth to mouth, oral or nasal airway, bag-valve-mask, laryngeal mask airway (LMA), endotracheal intubation, video laryngoscopy (GlideScope)
   F. Paramedic may be the airway expert in the absence of a physician with airway experience
G. NFL Airway Management Physician Policy
I. Collaboration with EMS is critical

VI. Breathing
A. Have a breathing protocol for thoracic injuries
B. Etiology – pneumothorax, hemothorax, pulmonary contusion, rib fracture, SC dislocation
C. Prevention – shoulder pads, rib protection
D. Evaluation – shortness of breath after a blow to the chest, decreased or absent breath sounds with stethoscope, pulse oximetry
E. Treatment of pneumothorax – tension pneumothorax (absent breath sounds, trachea shifted away from injury) is life threatening, easy to treat with a 12 gauge angiocath in 2nd intercostal space mid-clavicular line
F. Case - Tony Romo (NFL-2011)
G. Treatment of hemothorax – massive hemothorax can only be treated with chest tube and autotransfusion at hospital
H. Case - Drew Bledsoe (NFL-2001)
I. Pulmonary contusion – shortness of breath, hemoptysis, no treatment but can lead to missed games with pain and hypoxia
J. Rib fracture – pain may cause missed games but no treatment, can lead to pneumothorax
K. Sternoclavicular injury/dislocation – anterior more common, posterior more severe due to underlying structures
L. Cases – Brett Favre (NFL-2010), Danny Amendola (NFL-2012, Ben Roethlisberger (NFL-2012)
M. Pulse oximetry can be helpful for all injuries related to underlying lung and to access adequate oxygenation
N. All of these require early transport to a trauma center

VII. Cardiac
A. Have a cardiac protocol for cardiac arrest after trauma
B. Etiology – commotion cordis
C. Rare in football, more common in hockey, lacrosse and baseball
D. Prevention – correct fit of shoulder pads that cover anterior chest
E. Evaluation – collapse after a blow to the anterior chest, no pulse but may have agonal respirations
F. Treatment is the same regardless of etiology - AED
G. Time to shock is critical – 10% decrease in survival per minute delay in shock
H. Case – semi-pro football player with poor fitting shoulder pads
I. Access to the AED – always know where it is
J. CPR immediately while waiting for AED – don’t worry about airway
K. Train coaches and others to use AED
L. This tool is the simplest to use and most critical device to save a life – use it without hesitation on the field of play
M. Don’t forget you are also responsible for coaches and referees who are at high risk for CAD

VIII. Circulation/Abdominal Trauma
A. Have a circulation protocol for external and internal hemorrhage
B. Etiology – large laceration with arterial bleed, splenic injury, liver injury, pelvic fracture, inferior vena cava injury, kidney trauma
C. Prevention – pads can cover some structures but not all
D. Evaluation – good abdominal exam with LUQ (spleen) or RUQ (liver) tenderness, blood pressure, pulse
E. Treatment – rapid transport to trauma center, if awaiting EMS, consider 2 large bore IV’s
F. High index of suspicion, don’t assume dehydration
G. Splenic injury – tender LUQ, weakness, tachycardia, hypotension later in course
I. Inferior vena cava injury – general abdominal pain, weakness, hypotension
J. Case - DJ Hayden (NCAA-2012)
K. Bowel perforation from deceleration injury – generalized abdominal pain and tenderness
L. Case - Kade Weston (NFL-2010)
M. If you suspect any of these injuries – “Load and go”, time to the OR is critical

IX. Conditions
A. Have a protocol for lightning
B. Many states have guidelines on field evacuation and return to field after lightning
C. The ATC is often put in charge of handling this and has the responsibility of canceling practices or postponing games
D. Always be cautious and conservative in making these calls
E. With multiple casualties in a lightning strike, tend to the unconscious first. They need more electricity (AED)!
X. Diabetics (not trauma, but can be confused with trauma)
   A. Have a protocol to treat your diabetic players with either high or low glucose
   B. Don’t assume a concussion in a diabetic athlete with decreased level of consciousness
   C. Simple urine dipstick can help you with high vs. low
   D. Accucheck is obviously more exact
   E. If in doubt, assume low because it can hurt them more than high
   F. If player has a history of hypoglycemia, need to have a plan to treat that condition
   G. Pump management is critical especially since they can’t wear it during contact
   H. Case - Jay Cutler

XI. Disability
   A. Have a plan and protocol for concussion and c-spine injury
   B. These injuries are often related and standardization of the approach and process is critical
   C. They both require everyone on the medical team to be on the same page and knowledgeable of the plan
   D. At the high school level, coaches are invaluable members of the medical team
   E. Practice the plan with everyone involved including the EMS team (hopefully you can get some consistency in staffing
   F. Roles must be clearly defined with everyone knowing their role and who is in charge
   G. Practice does not make perfect, but it sure makes you better
XII. Disaster
A. Have a disaster plan and protocol
B. Your practice site and game site may be very different plans and will be unique to your setting and location
C. Significant Mass Casualty Incidents (MCI) will naturally include the activation of your local disaster plan in that particular jurisdiction
D. Two years ago, college football had a record number of stadium evacuations for one season
E. The Evacuation Plan can be enacted for natural disasters (lightning, tornado, earthquake), power outages, stadium collapse and/or terrorist event.
F. Just like a fire drill, practice the plan with your players so they know where to gather (Rally Point)
G. You should consider giving the plan to the opposing team and keeping a roster of their team so you can assist in accounting for players from both teams

XIII. Destination
A. Have a plan and protocol for EMS transport destinations which may be dependent upon the type of injury or medical condition
B. In bigger cities, there may be an orthopaedic hospital, a cardiac hospital, a trauma center, a neuro hospital and there is always the closest facility for true emergencies
C. Often the location is dictated by local jurisdictional protocols but if there is a specific expertise in spine or a trauma center and the patient’s recovery is dependent on time to the OR then you have to plan for that case. Kevin Everett - spine (NFL-2007), Chris Simms – trauma (NFL-2006)
D. Share the stadium EAP with the visiting team so they have to contact information for local hospitals especially if they are from out of town

XIV. Summary
A. EAP is the key to the most time efficient evaluation and treatment of life threatening injuries
B. Rehearse the plan repeatedly
C. Always assume that today is the day that you will be called upon to save a life
D. Your ability to execute the EAP comfortably and confidently is the most important treatment that you can ever administer to your athletes

XV. References


