

On-Field Emergency Care For Athletic Trainers

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Objective

- Review Emergency Action Plans (EAP)
- Discuss current trends in spinal immobilization
- Identify injuries with high risk of mortality and morbidity
 - Cardiac
 - Respiratory
 - Fractures and dislocations

And anything else you want!

NATA Position Statements

- Emergency Action Plans 2002
- Lightning Safety 2013
- Sudden Death 2012
- Type I Diabetes 2007
- Cervical Spine Injured Athletes 2009
 - Update due 2015
- Exertional Heat Illness 2002

NATA Position Statements

- These should be your "go to" resources
- Evidence based when there is literature
- Best practice when there is consensus

Emergency Action Plans Not like this!



Have a Family EAP Also



Emergency Action Plans

- Cover all venues
- Review and practice at least yearly
- Include local EMS in planning and practice
- Make sure school administration and legal are part of the process
- Review and debrief every activation
 - What went right or wrong?
 - What could we do better?

Emergency Action Plans Include a Time Out



We Do This in the OR



Time Out

- Should be a part of every pregame warm up
- Get the athletic training staffs and EMS together
 - If visitors don't have an AT, include a coach
 - If EMS not on site, how will they be called and access
- Introduce yourselves and describe capabilities and expectations
- Decide how EMS will be summoned to the field
 - Closest hospital

Get Control of the Scene



Scene Control

- Use the officials and coaches to move players away from the injured
- Keep extraneous people off the field
 - Good Samaritans are a problem
- Find the parents if they are on site and the player is a minor
- Make sure EMS has access and knows your location

Don't just assume you can do things



You want everything to go smoothly



How Do You Interact with EMS?

- This will be the difference between a good and bad outcome
- It starts with YOU
- Try to have the same crew at scheduled events
 - Establish a relationship with a "Go To" person at the EMS agency
 - It needs to be somebody that has some clout
- Emergencies by definition are unscheduled
 - It may be a crap shoot on who shows up

Levels of Evidence

- All of our interventions should be based upon scholarly work
- We must recognize the limitations involved
- There are different ways to measure the evidence
- We also must realize that there may be a lack of evidence

Evidence Based Practice

- Class I
 - Always good
- Class IIa
 - Probably good
- Class IIb
 - May be good
- Class III
 - You did what? You poor dumb b_____

Evidence Based Practice

- Level A
 - Significant amount of evidence
- Level B
 - Some evidence
- Level C
 - No real evidence but general consensus
 - Much of what we talk about today falls in this category

Spinal Immobilization

- Where have we been?
- Where are we now?
- Where are we going?

Immobilization Past

Athletic Training

- ◆ Leave all equipment on
- Little pre-planning
- Little interaction with EMS
- Focus was on the helmet
- Facemask removal
 - BOLT CUTTERS!

EMS

- ◆ Take the helmet off
- All helmets are the same
- No understanding of AT
- EMS was having its own growing pains

Immobilization Past

- Nobody thought about the helmet and shoulder pads as a whole
- Nobody thought about what happens once the player arrives at the hospital
- Nobody thought to work together and there were significant conflicts

Immobilization Present



Immobilization Present

Athletic Training

- NATA position statement
- Remove the facemask
- Remove all equipment in a few cases
 - Facemask stuck
 - Helmet broken or ill-fitting
- Work together with EMS

EMS

- Greater recognition of AT
- Helmets are different
- Mostly concerned with airway management and CPR
- Sports is not a high priority for many services

Immobilization Present



Immobilization Present

- We have made improvements based on evidence
- We have gone from never removing equipment to always removing the facemask
- We recognize there are some cases where all equipment should be removed
- We still haven't addressed the issue that the equipment must come off sooner or later
- Who is best equipped to remove everything?

Immobilization Present

- YOU ARE!



Immobilization Present A new conflict

- Position statement from National Assoc. of EMS Physicians and ACS Comm. on Trauma 2013
- LSB commonly used but efficacy unproven
- LSB's cause pain and pressure point injury
- Use of LSB should be judicious: Benefits must outweigh the risks

The New Conflict

- Appropriate patients for LSB immobilization
 - Blunt trauma and ALOC
 - Spine pain or tenderness
 - Neurologic complaints
 - Anatomic deformity of spine
 - High energy mechanism of injury with:
 - Intoxication
 - Inability to communicate
 - Distracting injury

The New Conflict

- Cervical collar and careful movement may be appropriate in other cases
- Call for improved education for medics
- Once in the DEM, get the patient off the LSB ASAP

So What's the Problem?

- EMS in the past has immobilized patients based upon mechanism of injury alone
- Medics receive little education on neurologic exams related to trauma
- EMS has long been frustrated with having to immobilize patients that just fell down
- Many agencies have now discarded their LSB's completely and will use a collar only
- This is not what the position statement said

Immobilization Future

- NATA has formed a new task force to update the spine injury position statement
- First meeting is in January 2015
- There is a growing sentiment that we should remove all equipment prior to transport
- This creates problems for the sole practitioner
- If you have concerns or input send me an e-mail
 - francis.feld@verizon.net

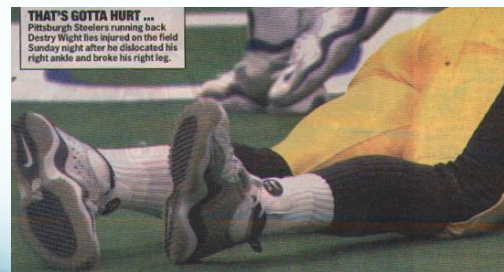
What was good and bad about that video?

- It was short: 2011
- It was done in conjunction with EMS
- The facemask was already removed
- Technology has surpassed this
 - Quick release facemask clips
 - Rip Kord shoulder pads.

So Where Are We?

- The decision to immobilize must be made based upon symptoms and examination
- You have to reach an understanding with local EMS how you will handle these injuries
- Get team physicians and EMS medical directors involved and talking to each other
- Think about what you will do about the equipment
- Plan ahead--Poor Planning = Piss Poor Performance

Fractures and Dislocations



Fractures and Dislocations

- These are much more common than spinal injuries
- Splinting fractures should be second nature to AT's
- Vacuum splints are probably the best method
- Make sure distal extremity is warm and has a pulse
- Pain management is very important
 - This means giving an opioid

Fractures and Dislocations

- Do we straighten angulated fractures or do we immobilize as found?
 - Anatomical position is always the best
 - Pain meds before reduction helps
- Do we reduce dislocations or splint and transport?
 - Early reduction reduces pain and loss of function
 - Requires approval of team physician
 - Never reduce an elbow or hip
 - Pain meds can help but if you are quick, it may not be necessary

Medical Conditions

- Diabetes
- Asthma
- Pre-existing cardiac conditions
- Absence of a paired organ
- Death due to trauma

Medical Conditions The Penguin's Perspective

- 1971 Player killed in an MVC
- 1983 GM killed in an MVC
- 1991 Coach died from brain cancer
- 1993 Player with Non-Hodgkin's Lymphoma
- 2011 Player missed most of season with concussion
- 2013 Player with thyroid cancer
- 2014 Player has a stroke
- 2014 Player out for the year with pulmonary embolus

Medical Conditions

- We don't think of these things on a regular basis
- Conditions that ruled out athletics previously are now considered routine
 - Exercise and athletics are now considered a plus
- Diabetes and asthma are probably the most common

Diabetes

- Type I Diabetes
 - Insulin dependent, body does not produce insulin
 - Diagnosed early
 - Management requires education
- Type II Diabetes
 - Later in life, most common
 - Body does not produce enough insulin or it doesn't react to the insulin produced
 - Often related to obesity

So You Have an Athlete with Diabetes?

- Work closely with the athlete, parents, and MD
- Biggest problem is getting the athlete to accept and adapt to the disease
 - Management is rocky early in the disease
 - Education and experience are needed
- You must be able to help check glucose levels
- Know what to do if glucose is too high or low

Asthma

- Narrowing of bronchial airways from inflammation
- Can be induced by outside allergens or exercise
- Produces wheezing sound upon auscultation
 - Listen to lung sounds and know how to recognize a problem
- Be educated on the athlete's meds and have them available
 - Be able to assist with inhalers

Oxygen

- Different size tanks
 - E and D are the most portable
- Different methods of administration
 - Nasal cannula
 - Simple face mask
 - Bag mask ventilation
- Clinical situation dictates availability
 - Dyspnea, cardiac, low saturations

Oxygen D Tank



Oxygen Tanks

- D tank
 - 360 liters at 2000 psi
 - 10 l/m will exhaust the tank in 36 minutes
 - If less than 2000, divide by 0.2
- E tank
 - 625 liters at 2000 psi
 - 10 l/m will exhaust the tank in 62.5 minutes
 - If less than 2000, divide by 0.3

Difficulty Breathing

- Respiratory effort is inadequate
 - Look at the chest
 - Good expansion versus rocking of the sternum
- These require a conduit to the lungs
 - Either a mask or airway device
- Pocket mask FiO₂ 16-40%
 - FiO₂ about 50% with oxygen
- Bag valve mask 8-15l/m FiO₂ 80-100%
- Endotracheal tube-- FiO₂ set on ventilator

Airway Adjuncts

- Needed when active airway devices are used
- Oropharyngeal airway
 - No gag reflex
 - Measure from ear to corner of mouth
- Nasopharyngeal airway
 - Measure from ear to nares
 - Diameter related to size of small finger
 - Use lubrication

Nasal Airway



BVM E and C Finger Placement



Airway Devices

- Endotracheal intubation
- Gold standard for securing an airway
- Needs extensive practice but not training
 - A monkey can be trained to intubate but will fail without practice
 - You can't teach the monkey WHEN to intubate

Airway Management

- Managing an airway means recognizing a problem exists and then fixing it
- It does not necessarily mean putting in an endotracheal tube
- There are many ways to manage an airway
 - ETI
 - Supraglottic airways
 - King and LMA
 - BVM

Endotracheal Intubation

- Gold standard in the hospital
- EMS has been under fire for poor results
 - Mostly related to frequency
- There are other ways to insure your patient is ventilated and oxygenated
- BVM and alternative airways are always the fall back methods

Airway Management

- Oxygenation (Saturation)
 - Measured by pulse oximetry
 - Measure of HGB that is saturated
- Ventilation
 - Measure of gas exchange in the lungs
 - Electronic wave form capnography
 - Beyond the scope of AT

Pulse Oximetry



Pulse Oximetry

- Gives you a measure of saturation
- Gives you a pulse rate
- Indirect measure of perfusion
 - Poor reading may indicate low BP
- Negative impact by cold fingers and perhaps nail polish
- If I can have only one monitor, it would be POX

Sudden Cardiac Arrest

- Usually related to unrecognized structural problem
 - Idiopathic cardiomyopathy
 - Idiopathic hypertrophic sub aortic stenosis
- Best means for prevention is a thorough physical exam and history
- Retrospective exam usually finds episodes of unreported near syncope or dizziness

Sudden Cardiac Arrest

- The best defense is good offense
 - Gen. Claire Chennault
- Quality CPR
 - Rate > 100 and sufficient depth
- Early Defibrillation
 - AED

Lightning



Lightning

- There are many apps for bad weather
- You must have procedures in place for sudden weather problems and rapid evacuation
- Remember to use reverse triage for lightning strikes
 - Start CPR

Heat Stroke

- Cold immersion for 20 minutes recommended
- This can delay EMS transport so make sure they know how important this is

Active Shooter

- We must recognize this even though we would probably rather ignore it
- Take an active role in the institutions plan and drills
- This is a problem we can not ignore
- Columbine, Sandy Hook, VA Tech, et. Al
- First reported shooting was in West Chester 1850

Active Shooter

- Escape
 - Run like hell
 - Have a rally point for your people
 - Come out with your hands up
- Evade
 - Lock the doors
 - Be quiet
- Engage
 - Fight
 - Last resort

Active Shooter



Active Shooter

- The police are not interested in helping the wounded
- They will make entry and find the shooter
 - The goal is elimination of the threat
 - Columbine was an awakening
- Tactical medics will only concern themselves with the police
- Care of the wounded will only occur when the scene is declared safe
- The AT is a first responder that could start triage

Police are Serious



Active Shooter

- No venue is safe
- Hospitals are also targets
 - Western Psych Hospital in Pittsburgh
 - Police response was text book
 - Shooter committed "suicide by cop"

Summary

- Review your EAP tomorrow
- Emergency care sets athletic trainers apart from other rehab professions
- Athletic trainers are skilled at multi-tasking
- This makes you very valuable
- Visualize your plan in action in order to find a weakness

Summary

- Always have a back up plan
 - Have a back up to the back up
- Failing to plan is the worst thing we can do
 - Emergencies can happen in front of many people
 - You have to perform well
- You don't want to be on the evening news

Questions?

