From the Clinic to the Athletic Training Room to the Field: Bridging the Gap to Successful Integration & Outcomes

Professional Football Chiropractors Society Seminar
Friday, March 3, 2017
Indianapolis, IN

Darryl Conway, MA, AT, ATC
Senior Associate Athletic Director- SA Health & Welfare
University of Michigan

Disclosures

- No financial or other commercial interests to disclose.
- No commercial support for this presentation.
- No conflicts of interest to disclose
- The views expressed in this presentation are mine. My views may not be the same as the views of my employer or my colleagues.
- Participants should use discretion when using the information contained in this presentation.

Objective

- Discuss practical integration of various healthcare professionals into a comprehensive & holistic healthcare team approach to ensure successful outcomes.

Discussion Points

- Pillars of Success
- Inter-Professional Practice (IPP)
- “Pit Crew” Concepts
- Risk Management
- Emergency / Crisis Planning
- Concussions
- Pre-Hospital Cervical Spine Injury Management
- Exertional Heat Illnesses
- Mental Health
- Rest, Recovery, & Regeneration

Learning Outcomes

At the conclusion of the program, participants will be able to:
- Explain how an inter-professional health care team works collaboratively to improve patient outcomes.
- Describe “pit crew” concepts for effective management of emergent situations.
- Describe effective management techniques for the acute management of concussions.
- Describe and apply effective management techniques for the cervical spine injured athlete.
- Describe effective risk management, emergency action planning, and crisis management principles and techniques.
- Describe effective management techniques for environmental emergencies.
- Describe techniques to assist student-athletes dealing with mental health issues.
- Describe techniques to enhance rest, recovery, and regeneration.
- Assist practitioners with “bridging the gap” between recommendations, current evidence, and current practice.
Disney Institute

OVERMANAGE
- Different than micro-managing
  - Positive intent
- Be intentional where others are unintentional
- Pay extraordinary attention to details
- View what is “typical” or “best practices” as a baseline as opposed to an acceptable standard
- Think about things to a greater degree so as not to waste time & resources
  - Systems
  - Standards
  - Processes
- Pay attention to details to a greater degree that others ignore or undermanage

Be Intentional
- How you think
- How you prepare
- How you communicate
- What you do
- What you say
- How you train
- What / How you document
- Equipment

Overmanage
- Risk Management
- Policies & Procedures
- Emergency Action Planning
- Catastrophic Planning
- Crisis Planning
- Personnel
- Equipment
- Communication
- Documentation
- Relationships / Teamwork

PILLARS OF SUCCESS

CORE VALUES
- OPEN-MIND / INNOVATIVE
- PREPARATION
- COMMUNICATION
- TRUST / LOYALTY
- TEAM
- INNOVATIVE

SA First Mentality
- “The WHY”
  - Customer Service
  - “Lifetime Customers”
  - “Without athletes, there would be no ATCs”
  - Holistic healthcare & lifetime wellness
- Do the right thing for the SA

Athlete Centered Care
- Delivery of healthcare services that are focused on the individual’s needs & concerns
- Uncompromised Care

Core Values

Uncompromised Care
Trust / Loyalty

“When we are debating an issue, loyalty means giving me your honest opinion whether you think I’ll like it or not. Disagreement, at this stage, stimulates me. But once a decision has been made, the debate ends. From that point on, loyalty means executing the decision as if it were your own.”

Ret. General Colin Powell

Communication

• High-Quality Communication -
  - Quantity
  - Timing
  - Consistent
  - Clear, Concise
  - Reinforces, not undermines desired Organizational Culture
  - Intentional
  - Engaging
  - Proofread

• No Surprises!
  - Follow each test or email with a phone call and/or in-person communication
  - Daily Interactions / Relationships

• Listen
  - "Listen to understand, not just respond"

• Conflict Resolution
  - "Is it what you said or what they heard?"
  - "Take it at the top"

Preparation

“Fire Marshall Bill

Hey! Lemme show ya something!

If it is predictable ... It is manageable!

TEAMWORK

As iron sharpens iron, so one man sharpens another. Proverbs 27:17

Across the Spectrum ...

- Primary Care Physician(s)
- Orthopedic Physician(s)
- Athletic Trainers
- Mental Health Professionals
- Dietitian
- Strength & Conditioning
- Performance Science
- PT / OT
- Chiropractor
- EMS
- Neurologist / Neurosurgeon
- Neuropsychologist
- Cardiologist
- Dental / Oral Surgeon
- Optometry / Ophthalmology
- Massage Therapy
- Acupuncture
- Alternative Medicine
- ENT
- Dermatology
- Podiatry / Orthotist
- Exercise Scientist / Biomechanist
- Engineer
- Other
- Patient
- Significant Other / Family
- Friends / Teammates
- Coach
- Equipment Manager
Inter-Professional Practice (IPP)

"The best interest of the patient is the only interest to be considered, and in order that the sick may have the benefit of advancing knowledge, union of forces is necessary."
- Dr. William Mayo (1910)

**Definition**
- The provision of healthcare by providers from different professions, provided in a coordinated manner by health care professionals who share mutual goals, resources, and responsibility for patient care.
  - (Breitbach, et. al. 2015)

**Why is this Important?**
- Facilitate & optimize collaborative patient-centered care that is current, competent, compassionate, efficient, effective, and safe!
- Reduce service duplication and minimize unnecessary interventions while enhancing clinical effectiveness!
- Increased engagement!

**Barriers**
- Role confusion
- Medical dominance among the professions
- Tension
- Conflict
- Lack of respect
- Lack of communication
- Professional stereotyping

**Overcoming Barriers**
- COMMUNICATE!
- Work as a Team!
- Mutual respect
- Recognize & respect the unique cultures, values, roles/responsibilities, and expertise of other health professions
- “Keep the main thing, the main thing”

**Overcoming Barriers**
- Recognize limitations and engage a diverse team of health care professionals who complement your professional expertise to develop strategies to meet specific patient care needs
  - “know what you know & know what you don’t know”
- Forge interdependent relationships to improve care and advance learning
- Multi-disciplinary / Inter-disciplinary health care team
- Integrate knowledge and experience in patient care and decision-making
- Use process improvement strategies to increase effectiveness of teamwork and team-based care
**Leadership**  
**Followship**  
**Relationships**

- Not mutually exclusive, can be leader one moment & follower next  
- If appropriate relationships are built, can go from one to other seamlessly & w/o conflict

**“Pit Crew Concepts”**

- Systems based approach  
- Each person has a specific pre-assigned duty  
- Each person is strategically placed to maximize effectiveness  
- Each duty is coordinated for efficiency  
- As personnel integrate into the system → add interventions

**Highly Functioning Pit Crew Team**

- Preparation  
- Equipment Organized to be Efficient

**Highly Functioning Pit Crew Team**

- Team member roles pre-assigned

**Highly Functioning Pit Crew Team**

- Frequent practice / simulation
Highly Functioning Pit Crew Team

"TURF BATTLES"

- "No one gains unless we all gain!"
- "Leave your ego at the door!"
- Inter-Professional Relationships:
  - Communication
  - Who is in charge? Roles?
  - Equipment & Protocols
  - Communicate with & train with all involved personnel

Risk Mitigation / Management

- United Educators -
  - 9% of claims are athletically related
  - 24% of value ($$) of claims are athletically related

Risk Mitigation / Management

- Policies & Procedures
- Chain of Command
- Potential or Perceived Conflicts of Interest:
  - They Exist!
  - Must be eliminated or managed
  - Recognize & disclose
  - Develop policies to manage
Risk Mitigation / Management

- **Communication**
  - Efficient
  - Timely
  - Comprehensive
  - Consistent

- **Documentation**
  - EMR
  - Dashboards
  - Training / Pro Dev

Risk Mitigation / Management

- **PPEs**
  - Comprehensive
  - Not a 1-hour or 1-day process
  - Education component
  - Communication post PPE

- **History**
  - Education
  - Systems-based exams
  - Mental Health screen
  - Nutrition screen
  - Functional assessment
  - Metabolic analysis
  - Biomechanical analysis
  - S & C assessment
  - Other
  - Data analytics → Predictive Modeling

Risk Mitigation / Management

- **Education**
  - Who?
  - When?
  - How?
  - Waivers
  - Informed Consent
  - Medical Team
  - FA / CPR / AED
  - EAP / Crisis Management
  - Environmental
  - Concussions
  - Heat / Hydration
  - SCT
  - Mental Health
  - Asthma
  - Pregnancy
  - Supplements / PEDs / AOD
  - Nutrition
  - Lifetime Wellness / Transition

Are you prepared for the ULTIMATE EMERGENCY?

Critical 15

- The first 15% / 15 minutes of any emergency determines the effectiveness of the remaining 85%

- First 15% = planning
- 85% = implementation

- "There is no such thing as ALWAYS and NEVER"
  - Dr. James Andrews, MD
  - Birmingham, AL

- Black & White vs. Gray?
  - Every emergency situation & every patient is different
  - Individual circumstances must dictate appropriate actions
“It’s possible, but not probable”

- Do you plan/prepare for the possible or the probable situation?
- Prepare for all of the possibilities ... you will be prepared for all of the probabilities

Emergency Planning

- Written document
  - Blueprint for handling emergencies

- Failure to have an EAP can WILL be considered negligence

Emergency Planning

- Comprehensive
- Practical
- Flexible
- Rehearsed
- Communicated

“Time Outs”

- “Time Out” system for athletic health care
- Convene the health care professionals who comprise the emergency response team

- Pre-event checklist
  - EAP
  - Roles & responsibilities
  - Communication
  - Equipment & resources
  - Transportation plan
  - Other / Miscellaneous

EAP- PERSONNEL

- Who is going to be involved in carrying out the EAP at all different times?
  - Qualifications
  - Roles
- Who travels with injured athlete?
- Communication

EAP- EQUIPMENT

- Questions-
  - What equipment is necessary & available? Is it enough?
  - Where is the equipment located?
  - Is everyone trained to use the available equipment?
    - ALS
    - Protocols?
  - Is your equipment compatible with EMS? Does it fit?
  - How often is the equipment checked?
    - Documentation?
  - Is there sport-specific equipment for all situations?
AEDs

- "Drop to Shock Time"  
  - < two (2) minutes

- "Radius of Care"

- What is the ideal number of AEDs for your facility?

- Where are AEDs located?  
  - Practices  
  - Games  
  - Multi-event considerations  
  - Public Access Units

COMMUNICATION

- Questions-  
  - Where to call from?  
  - Who calls?  
  - Who do you call?  
  - What do you say? Request?  
  - Back-up communication devices  
  - Where does the 911 call go to in your area?  
  - Synchronization of cell phone contacts / phonebook

"Athletic teams excel because they practice! It is not conceivable that sports medicine personnel cannot practice and expect to excel at the time of an emergency"

Ron Courson, ATC, PT, NREMT-I, CSCS
University of Georgia

"You are not studying or practicing to pass the exam ...  

You are studying / practicing for the day when you are the only thing between the athlete and the grave!"

"In times of stress, you will always fall to the level of your training, not rise to the level of your expectations"

"Shooting accuracy is affected by stress, but the effects of stress can be reduced through experience (& practice)."

"Stress is a matter of perception & perceptions can be changed through the training process. By training to deal with more stressful situations, and not training until you get it right but training so you don't get it wrong, you have a much better chance of accurate hits under stressful conditions."

(Bruce Siddle - "Sharpening the Warriors Edge")
**TRAINING**

- Questions-
  - Who gets trained in what?
  - Frequency of training?
  - Table-Top and/or Full-Scale Exercises
  - Stressful Training??
  - Do you train outside in all weather conditions?
  - Documentation of training activities?

**WHEN DOES THE CHANGE OCCUR FROM A “ROUTINE EMERGENCY” TO A “CATASTROPHIC INCIDENT”**?

**Catastrophic Incident Guidelines**

- **Definition of a Catastrophic incident**-
  - Sudden death of a SA, coach, and/or ICA staff member
  - Disability / Quality of Life Altering injury / Illness including, but not limited to:
    - Spinal cord injury resulting in partial or complete paralysis
    - Severe head injury
    - Injuries / Illnesses resulting in severely diminished mental capacity or other neurological injury that results in an inability to perform daily functions;
    - Irrecoverable loss of speech, hearing (both ears), sight (both eyes), or one or both arms and/or legs); and
  - Other incident as deemed appropriate.

**Catastrophic Incident Guidelines**

- **Chain of Command / Notification**-
  - Who gets notified?
  - By whom?
  - When?
  - Alternate plans?
  - What happens if they can't be notified right away? Do you leave a message?
  - What are you going to say?
  - Notification of family / next of kin?
  - Team Notification? When? Where?

**Catastrophic Incident Guidelines**

- **Catastrophic Algorithm**-
  - Role of Legal Counsel
  - Communication Plan
  - Who goes to the emergency facility?
  - Media?
  - Counseling Services and/or Clergy?
  - Away Game?
  - Weekend / Holiday?
  - Involvement of other student-athletes?
  - Law Enforcement involvement
  - Can you / Will you assist family with travel?
  - Redundancy?? // Personnel Back-Ups
CRISIS MANAGEMENT

Why Is This Important?

Threat Matrix-
- Fire
- Terrorism
- Active shooter
- Power Failure
- Lightning
- Smoke
- Air quality
- Heat
- Hazardous Materials
- Civil Disorder
- Utility Failure
- Pandemic
- Bomb
- Tornado
- Flooding
- Wind
- Snow
- Hurricane
- Icing
- Earthquake
- Air Crash
- Public Assembly
- Collapse
- Disease
- Mudslide
- Nuclear

THREAT MATRIX

Active Threat

- Run
- Escape Plan
- Hide
- If evacuation is not possible
- Cover vs Concealment
- Fight
- Act w/aggression
- Improvise weapons
- Disarm the threat

Key Points

- Symptoms can occur immediately, or can occur hours or days after the initial injury
- Symptoms can worsen or reappear with physical activity or mental activities
- Symptoms can last longer and be more severe with repetitive concussions
- No two student-athletes are the same / No two concussions are the same
NCAA - DOD

- 71% of SAs become asymptomatic w/in 14 days
- 49% of SAs return to practice w/in 14 days
- Predictors of differential recovery:
  - Sport category
  - Gender
  - Sport related
  - Practice vs Game
  - Concussion hx
  - Delayed reporting

Concussion Management

- Baseline Testing:
  - Education
  - Detailed injury history & comprehensive pre-participation physical examination, including a neurologic assessment
  - Michigan Standardized Assessment of Concussion (MSAC)
  - Computerized neurocognitive assessment
- Individualized, step-wise concussion management & return-to-play progression
  - Every SA has the same access to care:
    - Athletic Trainer ➔ Primary Care Sports Medicine Physician ➔ Team Neurologist (if necessary)

Concussion Management

- Any student-athlete that exhibits signs, symptoms, or behaviors consistent with a concussive injury must be evaluated by sports medicine personnel
- If the student-athlete is diagnosed with a concussion, he/she will be withheld from participation for the remainder of the day.

Return-To-Learn

- An U-M Athletic Trainer will notify ASP personnel upon diagnosis of a concussion.
- The student-athlete should not be involved in classroom activity on the same day as the concussion diagnosis.
- An individualized and stepwise progression for returning to academic participation, including any appropriate academic modifications and/or accommodations, will be developed in collaboration with the U-M Team Physician and other appropriate personnel

Return-to-Play

Student-athletes diagnosed with a concussion will be removed from participation for the remainder of the day of injury and will not be considered for return to participation until the student-athlete has been evaluated by a University of Michigan Team Physician and has successfully progressed through an individualize graded exercise & head injury progression.

“When you hear hoof beats ... look for horses, but keep an eye out for zebras!”
Zebras

- Cervicogenic issues
- Vestibular
- Oculo-motor dysfunctions
- Depression / Anxiety

Other’s Role

- Support for the SA-
  - Consistent message regarding seriousness of injury & recovery process
  - Support rest / sleep
  - Encourage hydration & good nutrition practices
- Support for the medical team-
  - Consistent message to the SA
  - Another pair of “eyes & ears”

What do we know?

- Emergency / CSI Management & preparation is a component of who we are as ATCs!
- Both Lucky? & Unlucky?
- Overmanage / Be Intentional about practice

Practice vs Games

- Practices-
  - Less ATCs
  - Usually no physician or EMS
  - More SAs participating
  - College- 162 (91%)  
- Games-
  - May have physician(s) and/or more ATCs
  - May have standby EMS
  - Higher visibility
  - Less SAs participating simultaneously
  - College- 13 – 16 (9%)

National Athletic Trainers’ Association Inter-Association Task Force

- February, 2015- Summit
- June, 2015- Executive Summary
- Publication- TBD
- Training Video- TBD
National Athletic Trainers’ Association Inter-Association Task Force

“Paradigm Shift”
- Equipment removal
- Use of spine boards
- Advanced airways

Recommendation #1 -
- Each athletic program should have an Emergency Action Plan (EAP) developed in conjunction with local EMS

Recommendation #2 -
- Sports Medicine teams should conduct a “Time Out” before athletic events to ensure that EAPs are reviewed and to plan the options with the personnel and equipment available for that event

Recommendation #10 -
- Transportation plan should be developed prior to the start of any athletic practice or competition

Recommendation #11 -
- Spine injured athletes should be transported to a hospital that can deliver immediate, definitive care

Recommendation #3 -
- Proper assessment and management of the spine-injured patient will result in activation of the EAP in accordance with the level or severity of the injury
- Organized process (“Over Manage” / “Be Intentional”)
- Scene size-up / Crowd Control
- Primary survey / ABCs / Resuscitation (“Pit Crew CPR”)
- EMS Activation
- Secondary Survey

Cervical Spine Injuries

Guiding Principles -
1. Exposure & access to vital life functions must be established or easily achieved in a reasonable & acceptable manner
2. Neutral alignment of c-spine & maximal SAC should be maintained while allowing as little motion as possible at the head & neck
General Management

- **NATA Recommendations**:
  - Persons responsible for the emergency care of athletes should be familiar with pertinent protective equipment, manufacturers' recommendations & specifications relative to fit & maintenance, as well as the tools & techniques required for equipment removal.
  - Individuals responsible should educate coaches & SAs.
  - Rescuers should ensure that c-spine is in a neutral position & should apply manual c-spine stabilization.
    - If the spine is not in a neutral position, rescuers should re-align the c-spine to minimize secondary injury, allow for maximal SAC, & optimal airway.
  - Rescuers should immediately attempt to expose & open the airway causing as little motion as possible.

Inline Cervical Stabilization

- **Head Squeeze**:
  - Occiput in palms
  - Ulnar fingers on mastoid
  - 2nd & 3rd fingers available for jaw thrust
  - Match pt head movement to ATC body movement.

- **Inline Cervical Stabilization**
  - **Head Squeeze** vs **Trap Squeeze**:
    - Shrier, I et.al. (Cervical Spine 2015) - ↓ total motion w/trap squeeze method vs. head squeeze w/log roll transfer methods.
    - May be difficult for some due to ATC anatomy, physiological considerations, & agility.
  - Boissy, P et. al. (Clin J Sport Med 2011) - little overall difference between HS & TS in a cooperative pt; TS is better than HS at minimizing c-spine motion with a confused and/or combative pt.

National Athletic Trainers’ Association Inter-Association Task Force

- **Recommendation #6**:
  - Sports Medicine team must be familiar with the various types of protective equipment specific to the sport and associated techniques for removal of the equipment.
    - Football
    - Lacrosse
    - Ice Hockey
    - Field Hockey
    - Baseball / Softball
    - Extreme Sports
    - Foam Pit / Unstable Surfaces

- **Recommendation #4**:
  - Protective athletic equipment can be removed PRIOR TO transport to an emergency facility for an athlete-patient with suspected cervical spine instability.

- **Recommendation #5**:
  - Equipment removal should be performed by at least three (3) rescuers trained and experienced with equipment removal at the earliest possible time.
National Athletic Trainers’ Association Inter-Association Task Force

**Rationale-**
- Equipment removal is performed by those with the highest level of training / greater knowledge of equipment & removal procedures
- Facilitates packaging by Sports Medicine Team & EMS
- Improves access to the airway & chest

**Equipment Removal**

**Risks-**
- ↑ c-spine motion during equipment removal if done incorrectly
- ER personnel do not generally have formal training in equipment removal

**Benefits-**
- Full medical access to airway & chest for CPR
- Immediate use of AED
- Ability to seal BVM & provide adequate ventilation
- Ability to manage shock & body temp
- Ability to utilize c-collar
- Immediate ability to perform x-ray and/or MRI
- ER personnel do not generally have formal training in equipment removal

**“Bridging the Gap”**

**“Pit Crew Equipment Removal”**

**Head-**
- Midline stabilization
- Commands
- Helmet & S’ Pad removal

**Position #1-**
- Evaluation
- Midline S’ pads cut
- I ll line stabilization transfer

**Position #2 (L)-**
- Midline jersey cut
- Shoulder / axilla cuts
- Chinstrap / Jaw pads
- 45 deg tilt / lift

**Position #3 (R)-**
- Midline jersey cut
- Shoulder / axilla cuts
- Chinstrap / Jaw Pads
- 45 deg tilt / lift

“... achieved in a reasonable & acceptable manner”
“... reasonable amount of time”
“... educate coaches & SAs”
“... appropriately trained professionals”

“Pit Crew Equipment Removal”

“Bridging the Gap”

“Pit Crew Equipment Removal”

“... achieved in a reasonable & acceptable manner”
“... reasonable amount of time”
“... educate coaches & SAs”
“... appropriately trained professionals”
**Equipment Removal**

- **Communication ("Be Intentional")**
  - Commands (Head)
  - Evaluation
  - "I have c-spine; you can release"
  - "helmet clear"
  - "pads clear"
  - "ready to lift / roll / lower / slide ... lift / roll / lower / slide" vs. "1, 2, 3 lift"

- **Helmet 1st Technique**
  - Land-based
  - Remove helmet & resume control of c-spine
  - "Pack & Fill" possibilities

- **Simultaneous Removal Techniques**
  - Flat Torso
  - Elevated Torso
  - 4-person
  - 3-person / "straddle"
  - Bi-valve Pads ("Rip Kord")
  - Log Roll

- **S' Pad Removal only**
  - 8-person lift
  - Flat Torso ("Shimmy")

**Spinal Motion Restriction w/ Helmet Removal**

- **Collar Method**
  - Side position
  - One hand around occiput
  - Other hand under the jaw

- **Bilateral Mastoid Cupping Method**
  - Side position or straddle position
  - Can use forearms against chest as counterforce
  - 1 hand around each mastoid process

**Helmet Removal**

- "Pack & Fill" possibilities
- Bi-valve Pads ("Rip Kord")
- Log Roll
- 8-person lift
- Flat Torso ("Shimmy")
**Equipment Removal**

- **Elevated Torso** - Contraindicated if suspected thoracic or lumbar injury
  - Side lift / 4-person technique
  - Straddle / 3-person technique

**National Athletic Trainers’ Association Inter-Association Task Force**

- **Recommendation #8** - Spine-injured athletes should be transported using a rigid immobilization device
  - Spinal Motion Restriction (SMR)

- **Recommendation #9** - Techniques employed to move the spine-injured athlete from the field to the transportation vehicle should minimize spinal motion
  - Patient should be transferred to long spine board or vacuum mattress utilizing a technique that limits spinal motion
  - Prone Log roll vs. Supine Log Roll
  - Scoop stretcher
  - Prone Log roll push technique vs. Prone log roll pull technique

**National EMS Spine Injury Standards**

- **“Paradigm Shift”** - American College of Emergency Physicians believes that the current out-of-hospital management practices of patients with potential spinal injury lack evidence-based support
  - No patient outcome studies to indicate that spine boards provide better immobilization than a c-collar & stretcher alone
  - Spinal immobilization can create problems (multiple studies)

**National EMS Spine Injury Standards**

- **Pros** - Spinal column injuries will not be aggravated to the point that additional injury to the spinal cord results
  - Public perception

- **Cons** - Airway compromise
  - Aspiration risk
  - ↑ intercranial pressure
  - Pressure ulcers
  - Pain
  - ↑ difficulty in patient handling
  - Combativeness / resistance
  - ↑ cost

**EMS Protocols**

- Progressive, evidence-based approach to lessen unnecessary spinal immobilization
- Use appropriate spine injury assessment guidelines & algorithms
- “Selective Spinal Assessment”
- Certain cases w/ suspected c-spine injury, side L
- EMS may not fully immobilize and/or transport on a spine board
- Pt may be transported w/ a cervical collar only & placed directly on the stretcher
- Contact / work with local EMS regarding protocols
EMS Protocols

- **Spinal Immobilization Indicated**
  - Motor and/or sensory deficits
  - Spine pain and/or tenderness
  - Altered Mental Status
  - Use of intoxicants
  - Significant distracting painful injury
  - Anatomic deformity of the spine
  - High energy MOI

- **Spinal Precautions Procedure**
  - Cervical collar
  - Extrication device is used to move the patient to the ambulance cot
  - Patients may remain on the extrication device if the EMS crew deems it safer for the patient considering stability, time, & patient comfort considerations

“Pit Crew CSI Management”

- **Head**
  - Inline stabilization
  - Jaw thrust
  - Board positioning
  - Commands

- **Position #1**
  - Evaluation
  - Airway / BVM
  - Shoulders lift

- **Position #2**
  - Airway / BVM
  - Shoulders lift

“Pit Crew CSI Management”

- **Position #3**
  - Compressions
  - Torso / Hips lift

- **Position #4**
  - Compressions / AED
  - Torso / Hips lift

- **Position #5**
  - ALS
  - Compressions
  - Legs lift

- **Position #6**
  - ALS
  - Compressions
  - Legs lift

- **Position #7**
  - If necessary
  - Assist where needed
  - Legs / Feet lift

- **Position #8**
  - If necessary
  - Assist where needed
  - Legs / Feet lift

- **Board**
  - Prepares spineboard
  - Places straps
  - Slide

- **Commander**
  - Transportation
  - Facility

EXERTIONAL HEAT ILLNESSES

“Why someone has a heat illness is different than why someone dies from a heat illness!”

“We can never totally eliminate heat illnesses but we can minimize the risks with quick and accurate diagnosis and management.”

“Death from EHS with supervision can be completely prevented!”

Dr. Doug Casa
University of Connecticut / Korey Stringer Institute
NATA Position Statement: Exertional Heat Illnesses

Recommendations (Prevention)
- Thorough PPE
  - Questionnaire regarding recent activity level?
  - Questionnaire regarding previous hx of heat issues
  - SCT testing?
  - Who gets information from PPE?
- Acclimatization over 7 – 14 days
  - Conditioning test? Who decides what it is?
  - Do you train freshman / transfers differently than upperclassmen?
  - What do you do with SAs that join the team after everyone else has been practicing for a while?

Recommendations (Prevention)
- Education
  - Who gets educated? What topics?
- Documentation
- Hydration / Nutrition
  - Availability
  - Measurement / Monitoring
  - Rest, Recovery, Regeneration
  - Supplements?

Recommendations (Prevention)
- Planning / Preparation
  - Communication
  - Staffing
  - Facilities
  - Equipment
  - Heat Emergency Plan
  - Recognition
  - Emergency Planning
  - Training

Rectal Thermometry

Assessment of rectal temperature is the gold standard for obtaining core body temperature & the medical standard of practice & accepted protocol

Reasons to do rectal temperature
1. Confirms EHS diagnosis since it's a mimic of other conditions
2. Gives you guideline for when to remove from CWI to prevent hypothermia
3. Assists in developing RTP criteria
**Concerns**

- **Privacy**
  - Privacy should NEVER trump patient care!
  - Exposure lasts < 30 seconds
  - Minimize exposure with towels / sheets
  - EAP development

- Would you ever say:
  - *Don't use the AED! You will expose the chest!!*

- \[“There is no such thing as ALWAYS and NEVER”\]
  - Dr. James Andrews, MD
  - Birmingham, AL

- **Black & White vs. Gray?**
  - Every emergency situation & every patient is different
  - Individual circumstances must dictate appropriate actions

**Rectal Temperature**

- If rectal temperature is not available, do not waste time by substituting an invalid method of temperature assessment
  - Rely on other key diagnostic indicators (e.g. CNS dysfunction, circumstances of collapse, etc.)
  - Initiate CWI or other rapid cooling immediately

**NATA Position Statement: Exertional Heat Illnesses**

- **Recommendations (Treatment)**
  - **Exertional Heat Stroke**
    - Lower core body temp < 102°F / 38.9°C within 30 minutes
      - Length of time > 105°F dictates morbidity
      - Cold water immersion (30° - 59°F) is best
      - Remove excess clothing & equipment - but don’t waste time doing so
      - Monitor vitals & rectal temp every 5 minutes
      - Remove from water @ 102°F / 38.9°C
      - “Cool First / Transport Second”

**Exertional Heat Illness**

- Three principal tenets to assuring a favorable outcome:
  1. Rapid assessment via rectal temperature
  2. Immediate on-site cooling until 102°F
  3. Use of cold water immersion for cooling

- Mortality & mortality increase the longer the SA’s body temperature is > critical threshold of 105°F (40.5°C)

- **Cold Water Immersion**
  - **Equipment**
    - Traditional Cold Tubs
    - Emergency Cold Tub
  - **Patient Movement to Tub**
  - **Clothing / Equipment Removal**
  - **Vitals**
Cold Water Immersion

**Principles / Guidelines**
- Pre-fill
- Keep ice close by
- Keep water temp < 60°F
- Ice should cover surface of water at all times
- Total-body immersion
- Vigorously circulate water
- Fluid administration
- Cool until 102°F / 38.9°C

**Rate of cooling**
- 1°F / every 3 min
- 1°C / every 5 min

**CWI Emergency Kit**
- Towels
- Sheet
- BP Cuff / Stethoscope
- Rectal thermometer
- Scissors
- IV kit(s) / IV push
- Cold fluids

Concerns

**Personnel**
- What personnel are involved in your management of emergency situations?
  - Before EMS arrives?
  - Unstable patient?
  - After EMS arrives?
  - Visiting Team
- Are your coaches, strength coaches, & other staff prepared to participate?

**Pit Crew Concepts**
- Preparation
- Pre-Assigned Roles
- Practice
- Teamwork

Mental Health

**NCAA Data**
- 1 in 4 SAs reported that fairly often in the past month they felt like difficulties were piling up so high that they could not overcome them.
- 2004 NCAA Managing Student Athletes Mental Health Issues Follow-Up Questionnaire
- Suicide: 3rd leading cause of sudden death in NCAA SAs - 2004 - 2008
- 63% of SAs reported that emotional or mental health issues affected their athletic performance in the last 4 weeks

**Mental Health**

- 1 in 4 SAs reported that fairly often in the past month they felt like difficulties were piling up so high that they could not overcome them.
- 2004 NCAA Managing Student Athletes Mental Health Issues Follow-Up Questionnaire
- Suicide: 3rd leading cause of sudden death in NCAA SAs - 2004 - 2008
- 63% of SAs reported that emotional or mental health issues affected their athletic performance in the last 4 weeks

**Warning Signs**

- Do not try to diagnose or solve the problem, just recognize & refer!
  - Inconsistent performance
  - Impaired judgment / confusion
  - Difficulty concentrating
  - Lack of interest / participation
  - Loss of motivation
  - Deterioration in appearance / hygiene
  - Withdrawal / isolating
  - Irritable, edgy, impulsive, argumentative, overly sensitive / reactive
  - Unhealthy weight control practices
  - Secretive eating
  - Preoccupation w/weight, food, mealtime rituals, & body image
  - Self-harming behaviors
  - Suicidal ideation and/or talk

**Concerns**

- What personnel are involved in your management of emergency situations?
  - Before EMS arrives?
  - Unstable patient?
  - After EMS arrives?
  - Visiting Team
- Are your coaches, strength coaches, & other staff prepared to participate?

**Pit Crew Concepts**
- Preparation
- Pre-Assigned Roles
- Practice
- Teamwork

Mental Health

- I think the biggest thing is student-athlete mental health. We have a task force coming that is going to address that at multiple levels ranging from depression and anxiety to how student-athletes identify themselves to violence, suicide, and sexual abuse.

Dr. Brian Hainline, Chief Medical Officer, NCAA
How to Help

- Emphasize confidential aspect of counseling
- Express concern for the SA & the desire to help
- Be a good listener; don’t judge
- Explain the behaviors creating concern
- Explain that help is available & how to access it
- Make a referral; follow-up with SA
- Affirm that the SA’s role on the team will not be jeopardized by seeking help
- Avoid making rules or promises that cannot/will not be upheld
- Private vs Confidential
- Know your limits; Be aware of your own biases

Assessing Situations

<table>
<thead>
<tr>
<th></th>
<th>EMERGENCY</th>
<th>CRISIS</th>
<th>PROBLEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time</td>
<td>Minutes or Hours</td>
<td>1 or 2 Days</td>
<td>Days - weeks</td>
</tr>
<tr>
<td>Physical Safety</td>
<td>High Risk</td>
<td>Moderate to High</td>
<td>Low to Moderate</td>
</tr>
<tr>
<td>Behavior Change</td>
<td>Dramatic or Sudden</td>
<td>Noticeable Change</td>
<td>Gradual Change</td>
</tr>
<tr>
<td>Coping Options &amp; Hope</td>
<td>Very Limited or None</td>
<td>Limited</td>
<td>Some Coping &amp; Options</td>
</tr>
</tbody>
</table>

MENTAL HEALTH CRISIS

- Plan
- Practice
- Collaborate

- What is your plan?
- Is it practiced as often as your EAP?
- “Red Call” system
- Who do you collaborate with on campus & in community
- Documentation
- Communication w/ parents, coaches, ATCs, administration, etc.

Q P R

- Emergency Mental Health Intervention for suicidal persons
- Similar to CPR
- Systems designed to increase chance of survival

- “Chain of Survival”
- Early Recognition of Suicide
- Early QPR
- Early Intervention & Referral
- Early ALS

Q P R

- Question-
  - Recognize warning signs
  - Ask about the presence of suicidal thoughts & feelings
- Persuade-
  - Listen then persuade to get help
- Refer-
  - Police / EMS
  - 1-800-suicide
  - 2-1-1
  - 1-800-273-TALK
  - Local resources

R³ - Rest

- Time Demands-
  - NCAA Div. I SAs - #1 thing that they would change about their experience
  - Needs vs Reality
- Barriers-
  - Technology
  - Social
  - Environment
- Recommendations-
  - Travel-
    - Time zones
    - Game times
    - Circadian optimization / advantage
  - Medical-
  - Tracking-
**R³ - Recovery**

- Nutrition
  - Pre-Event
  - During Event
  - Post-Event
  - Hydration
- Schedule-
- Periodization

- Modalities-
  - Cold Tub
  - Recovery Pool
  - Contrast Bath
  - Cryotherapy Tank
  - Normatec / Recovery Pump
  - GameReady
  - Massage
  - Yoga
  - Other

**R³ - Regeneration**

- Environment
  - Seasonal Affective Disorder
  - Daylight spectrum lights
- Vitamin D
- Mental influence
  - Burnout
  - “Personal Days”
- Other-
  - Alternative workouts
  - Enrichment / Community Service

“*When you hear hoof beats … look for horses, but keep an eye out for zebras!*”

**R³ -**

- Depression or Under Recovery?

**Bridging the Gap**

- Multi-Disciplinary / Inter-Disciplinary team approach
- Inter-Professional Practice
- Communication
- Trust

Bridging the Gap
Bottom Line

- When confronted with an emergency, catastrophic, and/or crisis situation, personnel have options with regards to the overall management of the athlete & the situation.
  - “There is no such thing as ALWAYS & NEVER”
  - Every emergency situation & every patient is unique
  - Individual circumstances must dictate appropriate actions
- “The TEAM ... The TEAM ... The TEAM”
- DO THE RIGHT THING!

- Regardless of the situation, relentless preparation & planning, consistent & stressful training, and an understanding of the benefits & drawbacks of each option is imperative.

Take Home Messages

- TEAM Approach
  - Leadership / Fellowship / Relationships
  - “Leave Your Ego At The Door”
  - “Train Often & Train Together”
- Mental Rehearsal
  - “Expect the Unexpected”
  - “If it is predictable ... It is Manageable”
- TEAM must carefully weigh all factors & make educated decisions on what best fits into their individual situations

Thank You!

GO BLUE!!

Darryl Conway, MA, AT, ATC
(734) 763-2958
dcatc@umich.edu

QUESTIONS