LACROSSE SPORTS MEDICINE
Taking Care of America’s Fastest Growing Game

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Executive Member, US Lacrosse Sports Science and Safety Committee
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DISCLOSURES

• Financial disclosures
  • I have no financial disclosures pertinent to this talk

• Membership disclosures
  • Member, US Lacrosse Sports Science and Safety Committee

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  • DJO Global
  • Depuy

DETROIT REGIONAL SPORTS MEDICINE SYMPOSIUM

THANK YOU

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LACROSSE SPORTS MEDICINE

- Growing body of sport specific knowledge
- Multidisciplinary
- Real world impact
- Your involvement

MEDSTAR HEALTH / SPORTS MEDICINE

- Major Health Care Provider in Mid Atlantic Region
- Graduate Medical Education
- AOSSM Traveling Fellows
- Teams and Organizational Partnerships
MEDSTAR: LACROSSE SPORTS MEDICINE

LACROSSE SPORTS MEDICINE: A PARTNERSHIP

• US LACROSSE: The national governing body for men’s, women’s, and youth lacrosse
• Full Circle of Activity
• Public Health Approach to Health and Safety

US LACROSSE NATIONAL HEADQUARTERS 2016

• Unified administrative body established in 1998
  • Baltimore based, but national scope
  • 65 national chapters
  • 450,000 members
  • Exponential growth
  • Twenty million campaign for new national headquarters
  • $1 million toward health and safety programs
  • MedStar Performance enhancement and outpatient/research center
  • Model US Ski and Snowboard
SPORTING SUCCESS IN AMERICA
The Entertainment Sports Complex

- Overused Entertainers and Overweigh Spectators
- Focus on the Top
  - Professional Model
  - Club vs. Scholastic Play
- Multiple Secondary Gain Issues
  - The “It” Factor
  - College Admission and Scholarships
  - Club vs. Scholastic Play
  - Learning Life’s Lessons and having Fun?
- Pose / Drop Off Mentality
- Increased Injury Exposure

US LACROSSE: SPORTING SUCCESS

- Positive Games Experience for the Base of the Pyramid
- Honoring the Game
- Playing the Sport to Learn Life’s Lessons
- Health and Safety a Priority
- Can this Model Succeed?

BACKGROUND

- Oldest and fastest growing team sport in America
- Unique men’s, women’s and youth games
- Played by all age groups
- Combination of speed, stick, ball, and contact make for a unique set of injury mechanisms, types, and preventive efforts
THE CREATOR’S GAME

EARLY GAME

- 1800's: French Pioneers
- 1856: Montreal Lacrosse Club
- 1867: George Beers: Rules Standardization
- 1877: New York University First U.S. College Team
- 1930s: 12 > 10 Players, Reduced Field Size, Protective Equipment, 60 minute games 4 quarters
EARLY GAME

- 1904 – First Olympic play in St. Louis Games (’08, ’28, ’32 & ’48)

EARLY MODERN GAME

- Protective head gear first required in men’s lacrosse in 1948
- NOCSAE manufacturing standard for men’s lacrosse helmets 1986

MODERN GAME
EARLY GAME

• 1890s: St. Leonard’s School in Scotland
• 1926: Bryn Mawr School in Baltimore
• 1931: U.S. Women’s Lacrosse Association
• Rules: Maintained Lower Contact, Less Structure than Men’s Game

MODERN GAME
GOALS AND OBJECTIVES:

- Role of US Lacrosse and its SSSC
- Overview Lacrosse Injury Epidemiology and the Public Health Process
- Discuss Priority Health and Safety Issues Facing the Game
- Model for Health Systems Partnering with Sport NGOs

US LACROSSE
Sports Science and Safety Committee

- 16 Member Multidisciplinary Committee
- Formed 1999: A priority for US Lacrosse
  - Primary Care
  - Surgical Subspecialties
  - Epidemiologists
  - Health Policy
  - Allied Health
- Committee Liaisons
  - NCAA
  - NFHS
  - NATA
  - Rules Committees
  - Insurance and Risk Management
  - Other Affiliations
  - MedStar Research
  - AOSSM / STOP
US LACROSSE
Sports Science and Safety Committee

- "To utilize and grow the body of lacrosse health and safety knowledge to objectively advise US Lacrosse and the lacrosse community on factors to enhance the safety and quality of experience in the sport at all levels of play"
- Review available Lacrosse specific literature
- Survey of stakeholders
- Initial assessment of priority health and safety issues
- Build research foundation and develop appropriate partnerships
- Conduit and facilitate research
- Comprehensive, Public Health Approach with Real World Applications

TRY BEING INFORMED INSTEAD OF JUST OPINIONATED

PUBLIC HEALTH APPROACH IN LACROSSE

Step 1: Injury & Illness Surveillance
- Potential Methodology
- Relative Incidence & Severity
- Data Collection

Step 2: Problem Identification
- Establish Extent of Injury Problem
- (Data Collection)

Step 3: Risk Factor Identification
- Establish Etiology and Mechanisms of Sports Injury

Step 4: Developing Effective Interventions
- Develop, Introduce & Revise Preventive Measures
- Assess Effectiveness in controlled environment

Step 5: Implementation, Feedback and Assessment
- Full Scale Implementation & Effectiveness Feedback
### Sports Injury Surveillance Systems

<table>
<thead>
<tr>
<th>System</th>
<th>Administrator</th>
<th>Notes</th>
<th>Other notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Injury Treatment &amp; Tracking System (ITTS)</td>
<td>Fairfax County Public Schools</td>
<td>Daily electronic capture of 29 high schools &amp; 27 sports</td>
<td>Includes time-loss and no time loss injuries</td>
</tr>
<tr>
<td>National Center for Catastrophic Sport Injury Research</td>
<td>University of North Carolina at Chapel Hill</td>
<td>Web-based</td>
<td>Includes time-loss and no time loss injuries</td>
</tr>
</tbody>
</table>

**INJURY RATES: NCAA MENS AND WOMENS LACROSSE**

- **Men’s:** Upper 1/3
  - < ½ Football
  - 2 x Women
  - Game 3.5 x Greater than Practice
- **Women’s:** Lower 1/2
  - < ½ Soccer
  - Game 2.5 x Greater than Practice

**NCAA CONCUSSION RATES**

![Concussion Rates Chart](chart.png)
• Fairfax Co. Virginia: 2 ATCs in Each Public High School
• Data Entry Part of Job Description: High Quality, Real Time
• SIMS Injury System: Prospective, Computerized Injury Tracking System, 1997 – 99 (On Going)
• 23 High School Boys and Girls Lacrosse
• Boys (combined seasons)
  • 2476 Athletes
  • 136,180 Athletic Exposures
• Girls (combined seasons)
  • 1711 Athletes
  • 85,335 Athletic Exposures

---

**SCHOLASTIC LACROSSE INJURIES: BOYS**

<table>
<thead>
<tr>
<th>Rank</th>
<th>Body Part</th>
<th>Nature of Injury</th>
<th>Number of Cases</th>
<th>Incidence Rate/1000</th>
<th>Median Days Lost</th>
<th>Total Days Lost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ankle</td>
<td>Ligament sprain</td>
<td>82</td>
<td>0.38</td>
<td>4.0</td>
<td>557</td>
</tr>
<tr>
<td>2</td>
<td>Head/face</td>
<td>Contusion</td>
<td>61</td>
<td>0.29</td>
<td>6.0</td>
<td>520</td>
</tr>
<tr>
<td>3</td>
<td>Knee</td>
<td>Ligament sprain</td>
<td>54</td>
<td>0.16</td>
<td>28.0</td>
<td>1,880</td>
</tr>
<tr>
<td>4</td>
<td>Upper leg</td>
<td>Muscle-tendon strain</td>
<td>36</td>
<td>0.12</td>
<td>7.0</td>
<td>357</td>
</tr>
<tr>
<td>5</td>
<td>Head/face</td>
<td>Contusion</td>
<td>21</td>
<td>0.10</td>
<td>1.0</td>
<td>52</td>
</tr>
<tr>
<td>6</td>
<td>Wrist/hand</td>
<td>Contusion</td>
<td>21</td>
<td>0.10</td>
<td>10.0</td>
<td>199</td>
</tr>
<tr>
<td>7</td>
<td>Wrist/hand</td>
<td>Ligament sprain</td>
<td>20</td>
<td>0.09</td>
<td>3.0</td>
<td>127</td>
</tr>
<tr>
<td>8</td>
<td>Upper leg</td>
<td>Contusion</td>
<td>18</td>
<td>0.08</td>
<td>3.0</td>
<td>72</td>
</tr>
<tr>
<td>9</td>
<td>Back</td>
<td>Muscle-tendon strain</td>
<td>18</td>
<td>0.08</td>
<td>5.0</td>
<td>120</td>
</tr>
<tr>
<td>10</td>
<td>Knee</td>
<td>Inflammation</td>
<td>18</td>
<td>0.08</td>
<td>6.5</td>
<td>116</td>
</tr>
</tbody>
</table>

---

**SCHOLASTIC LACROSSE INJURIES: GIRLS**

<table>
<thead>
<tr>
<th>Rank</th>
<th>Body Part</th>
<th>Nature of Injury</th>
<th>Number of Cases</th>
<th>Incidence Rate/1000</th>
<th>Median Days Lost</th>
<th>Total Days Lost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ankle</td>
<td>Ligament sprain</td>
<td>79</td>
<td>0.54</td>
<td>7.0</td>
<td>972</td>
</tr>
<tr>
<td>2</td>
<td>Knee</td>
<td>Inflammation</td>
<td>30</td>
<td>0.21</td>
<td>2.5</td>
<td>610</td>
</tr>
<tr>
<td>3</td>
<td>Head/face</td>
<td>Contusion</td>
<td>23</td>
<td>0.16</td>
<td>1.0</td>
<td>23</td>
</tr>
<tr>
<td>4</td>
<td>Knee</td>
<td>Ligament sprain</td>
<td>21</td>
<td>0.14</td>
<td>16.0</td>
<td>348</td>
</tr>
<tr>
<td>5</td>
<td>Head/face</td>
<td>Contusion</td>
<td>14</td>
<td>0.10</td>
<td>4.0</td>
<td>56</td>
</tr>
<tr>
<td>6</td>
<td>Wrist/hand</td>
<td>Contusion</td>
<td>13</td>
<td>0.09</td>
<td>2.0</td>
<td>26</td>
</tr>
<tr>
<td>7</td>
<td>Hips</td>
<td>Muscle-tendon strain</td>
<td>12</td>
<td>0.09</td>
<td>7.0</td>
<td>107</td>
</tr>
<tr>
<td>8</td>
<td>Upper leg</td>
<td>Muscle-tendon strain</td>
<td>12</td>
<td>0.08</td>
<td>2.0</td>
<td>24</td>
</tr>
<tr>
<td>9</td>
<td>Wrist/hand</td>
<td>Fracture</td>
<td>11</td>
<td>0.08</td>
<td>31.0</td>
<td>419</td>
</tr>
<tr>
<td>10</td>
<td>Back</td>
<td>Muscle-tendon strain</td>
<td>9</td>
<td>0.06</td>
<td>2.0</td>
<td>56</td>
</tr>
</tbody>
</table>
FAIRFAX COUNTY SCHOOLS
LACROSSE STUDY: INITIAL DATA

• Position Relative Injury Rate
  • Boys: Attack > Midfield > Defense > Goalie
  • Girls: Attack > Goalie > Defense

• Team Activity During Injury
  • Boys: 65% Unsettled, 35% Settled
  • Girls: 50% Unsettled, 50% Settled

• Injury Type
  • Boys: 79% Acute, 21% Overuse, Chronic
  • Girls: 71% Acute, 29% Overuse, Chronic

PUBLIC HEALTH APPROACH: STEP 2


• AOSSM Keystone, CO July 16, 2005: NCAA Research Award
• Most Comprehensive View of Head, Face, and Eye Injuries in Lacrosse Injuries
• Prospective, Multiyear, Well Defined, Quality Data Entry
• Information on Injury Type, Location, Severity, Mechanism and Risk Factors based on Gender, Player Activity, Game Activity, Position Specific to Head, Face, and Eye Injuries
• Scholastic and Collegiate Players: Fairfax Co., Va and NCAA Data
GENDER SPECIFIC INJURY

Injury Type and Percentage

- Men: Scholastic
  - Concussion 73%
  - Contusion 12%
- Men: Collegiate
  - Concussion 84%
  - Contusion 12%

- Women: Scholastic
  - Concussion 40%
  - Contusion 33%
- Women: Collegiate
  - Concussion 31%
  - Contusion 23%

CONCUSSION

Mechanism, Number, Incidence Rate

- Men, Scholastic
  - Body to Body: 33, 0.11
  - Stick to Body: 14, 0.05
  - Body to Ground: 6, 0.02
- Men, Collegiate
  - Body to Body: 101, 0.27
  - Ball to Body: 11, 0.03
  - Stick to Body: 8, 0.02

- Women, Scholastic
  - Stick to Body: 22, 0.11
  - Body to Body: 6, 0.03
  - Body to Ground: 5, 0.02
- Women, Collegiate
  - Stick to Body: 55, 0.12
  - Ball to Body: 45, 0.10
  - Body to Body: 20, 0.04

Video Incident Analysis of Head Injuries in High School Girls’ Lacrosse

American Journal of Sports Medicine, 2012 40: 756 - 62
### Injury Characteristics: Boys vs Girls

<table>
<thead>
<tr>
<th>Level of play</th>
<th>Boys</th>
<th>Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Varsity</td>
<td>22 (65%)</td>
<td>14 (100%)</td>
</tr>
<tr>
<td>Junior varsity</td>
<td>12 (35%)</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Concussion mechanism</th>
<th>Boys</th>
<th>Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Body check</td>
<td>32 (94%)</td>
<td>1 (7%)</td>
</tr>
<tr>
<td>Stick (unintentional)</td>
<td>0</td>
<td>5 (36%)</td>
</tr>
<tr>
<td>Stick (intentional)</td>
<td>0</td>
<td>3 (21%)</td>
</tr>
<tr>
<td>Collision (unintentional)</td>
<td>2 (6%)</td>
<td>3 (21%)</td>
</tr>
<tr>
<td>Ball</td>
<td>0</td>
<td>1 (7%)</td>
</tr>
<tr>
<td>Undetermined</td>
<td>0</td>
<td>1 (7%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Penalty called</th>
<th>Boys</th>
<th>Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>8 (24%)</td>
<td>2 (14%)</td>
</tr>
<tr>
<td>No</td>
<td>25 (73%)</td>
<td>10 (71%)</td>
</tr>
<tr>
<td>Unknown</td>
<td>1 (3%)</td>
<td>2 (14%)</td>
</tr>
</tbody>
</table>

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### Public Health Approach: Step 3 / 4

- **Develop Intervention/Potential Solutions**
  - Develop, introduce & revise preventive measures

- **Assess Effectiveness**
  - In controlled environment

<table>
<thead>
<tr>
<th>Treatment Protocols</th>
<th>Policy Changes</th>
<th>Rule Changes</th>
<th>Coaching Techniques</th>
<th>Training Techniques</th>
<th>Safety Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did the intervention achieve the intended objective?</td>
<td>Were there unintended consequences?</td>
<td>What is the overall effect on health &amp; safety?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Effectiveness of the Women’s Lacrosse Protective Eyewear Mandate in the Reduction of Eye Injuries

Andrew E. Lincoln,†‡ ScD, Shane V. Ousley,† PhD, ATC, Jon L. Almeida,‡ VATA, ATC, Reapnash E. Dunn,‡ BA, Mark V. Olough,‡ MD, Randall W. Dick,§ and Richard Y. Jensen, MD, MPH, PT
Institution performed at MedStar Sports Medicine Research Center, Baltimore, Maryland

AJSM 2012, 40: 611 - 14

Table 1: Rates of Injury Before (2000-03) and After (2004-06) Introduction of Protective Eyewear in Women’s Lacrosse

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye</td>
<td>22</td>
<td>5</td>
</tr>
<tr>
<td>Maxillary</td>
<td>33</td>
<td>26</td>
</tr>
<tr>
<td>Occipital</td>
<td>33</td>
<td>29</td>
</tr>
<tr>
<td>All injuries</td>
<td>98</td>
<td>120</td>
</tr>
</tbody>
</table>


PUBLIC HEALTH APPROACH: Step 5

- Implementation Strategy
  - Governing Body Policy
  - Player, Coach and Governing Body Education
  - Feedback and Assessment
  - Measure Rates of Adoption
  - Measure Rates of Injury – Step 1 methodology

Figure 3: Head/face injuries by area of head and face, before and after introduction of mandated eyewear. Values inside the graph bars indicate number of injuries.
REAL WORLD IMPACT

- Recent safety related rules changes
- Equipment changes and research
- AED access
- Youth specific rules changes
- Condition specific white papers
- National and regional educational events
- Inclusion of health and safety education as part of national standardized coaching and officials certification
- Health and safety requirements for US Lacrosse sanctioned events

HEALTH AND SAFETY PRIORITIES FOR THE GAME

PRIORITY ISSUES

- Education and Games Integrity
  - Lacrosse specific certification
    - Coaches
    - Officials
  - Public Education
    - Individuals
    - Organizations
    - Mass Media
  - Effectively growing the game
    - Participation Priorities
    - Honoring the game
    - Regulating growth
    - Secondary gain issues

Parents' Guide
To the Sport of Lacrosse - 13th Edition

US LACROSSE COACHING EDUCATION PROGRAM
PRIORITY ISSUES

• Appreciation of Differences in Men’s and Women’s Lacrosse

• One Sport: Two Games

• History and Culture

• Rapid Expansion: Filling the Needs for Appropriate Coaching and Officiating

Differences in Men’s and Women’s Lacrosse

• Games share
  • Full field, free flowing play
  • Speed, quick change of direction
  • Passing, shooting, stick work
• Men’s game
  • Purposeful collision sport
• Women’s game
  • Incidental contact
• Changes
  • Men’s game currently more specialized and questionably “over coached”
  • Women’s game more athletic and subtly becoming more aggressiveness

EQUIPMENT

<table>
<thead>
<tr>
<th>Shallow pocket rule allows for easier ball dribblement</th>
<th>Deeper pocket rule requires more aggressive checking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protective eye wear and mouth guards required</td>
<td>Mouth guards required</td>
</tr>
<tr>
<td>Soft head gear and nose guards optional</td>
<td>Helmet meeting NOCSAE standard required</td>
</tr>
<tr>
<td>Lightly-relaxed, close-fitting gloves optional</td>
<td>Arm pads, shoulder pads and protective gloves required</td>
</tr>
<tr>
<td>Goalie; helmet meeting NOCSAE standard, chest protectors, mouth guards, gloves required; shin guards optional</td>
<td>Goalie, helmet meeting NOCSAE standard, chest protectors, mouth guards, gloves required; shin guards optional</td>
</tr>
</tbody>
</table>
YOUTH ATHLETIC DEVELOPMENT MODEL

- Holistic Approach
- Game specific
- Culture
- Science Based
  - Growth and Development
  - Physical
  - Mental
- Real World Changes
  - Funding
  - Research
  - Education
  - Best Practices

LACROSSE YOUTH DEVELOPMENT MODEL

- US Lacrosse Recommendations
  - National Board Unanimous Decision Baltimore Convention 2016
- Youth Play
  - By Age not Grade
  - Single Age Groupings
  - Age Specific Rules
  - US Lacrosse Sanctioning

YOUTH LACROSSE

- US Lacrosse Recommendations
  - National Board Unanimous Decision Baltimore Convention 2016
- Youth Play
  - By Age not Grade
  - Single Age Groupings
  - Age Specific Rules
  - US Lacrosse Sanctioning
PRIORITY ISSUES

Youth Specific Rules and Safety Information

- National, standardized rules for boys and girls
- Games administration incorporating developmental stages
- Youth athlete development model
- Avoiding burnout and enhancing lacrosse experience
- Respect for game and others

Youth Specific Rules

Boys Rules Changes
- Graduated checking in the boys game
- No long sticks in boys U-11 and under
- Decrease from 5 to 3 yards distance allowed to advance before contact

Girls Rules Changes
- Any check to the head mandatory card
- Team plays short handed from first card received
- Field player no longer can step into goal if goalie out of goal area

ONGOING YOUTH SPECIFIC RESEARCH

- Youth Tournament Injury Surveillance
  - Multi Site
  - Standardized
  - ATCs
  - Boys Overall Injury Rates Significantly Higher than Girls
  - Boys 31% Concussion
  - Loose Ball 3 x Greater than settled Play

- Youth Play Time Survey
  - Survey, Web Based
  - Boston Mass Area
  - 45% of 9 year olds playing on travel teams
  - 50% of 15 year olds playing on two or more teams at once
  - 30% of 9-15 did not have at least one month out of lacrosse
  - Good new: 82% did play other organized sport
PRIORITY ISSUES

- Head / Face / Eye Protection and Concussions
  - Make up ~ 1/3 of all injuries
  - Priority for men’s and women’s games
  - Current focus on sport related concussion
  - Multiple interventions possible
  - Multifactorial problem

“Why are hard helmets and mounted face masks not required in women’s lacrosse?”

WHY NO HELMETS IN WOMEN’S LACROSSE

- The nature of women’s lacrosse is an incidental contact sport
- The risk of head/face injury is on par with other non helmeted sports
- Administrative controls (rules) and educational programs have been created for players, coaches, and officials to teach the nature of the game and reduce exposures
- Unique history and culture of the women’s game
ASTM STANDARDS FOR GAME SPECIFIC WOMEN'S LACROSSE HEAD PROTECTION

- ASTM – Consensus Based
  Includes NGB, Manufacturers, Consumers, Interested Parties...
- Balloted for 2015
  - Testing to include
    - Drop test (duplicate stick checking)
    - Cannon ball test
    - Flexibility (safety for other players) testing
- Relatively soft head protection (game specific)
  - Two piece
  - Single piece with goggles mounted

HELMET SENSOR DATA IN MEN'S LACROSSE

- G Force Tracker
  - Linear Acceleration and Rotational Velocity
  - Div I Male Lacrosse Players
  - Total Impacts, Threshold Impacts
  - Video Pairing

HELMET SENSOR DATA

- Avg. # Impacts
  - 23 games
  - 8.7 per practice
  - Vast majority low impact 10 – 30 g
  - 3% >70 g
- ~ 80% related to body to body contact
- > 70 g impacts are in loose ball situations
- > left side hits for right handed players
- Position specific
PRIORITY ISSUES

- ACL Injuries and other Lower Extremity Injuries
  - ACL injury most common cause of lost game and practice time
  - Greatest insurance payouts through US Lacrosse membership insurance plan
  - Lacrosse specific return to play
  - Nature of lacrosse play
  - Ankle injuries highest frequency

Comparing the Incidence of ACL Injury in Collegiate Lacrosse, Soccer, and Basketball

Mihata, et al. AJSIM 2006, 3, 27, 1 - 6

- No gender differences in Male and Female Lacrosse Players
- Female Lax < Soccer and Basketball
- Male Lax > than Soccer and Basketball
- Soccer Male: .12
- Basketball Male: .08
- Lacrosse Male: .17
- Soccer Female: .32
- Basketball Female: .28
- Lacrosse Female: .18
- Is this Real?
  - Reflective of Active Duty Military

PRIORITY ISSUES

- Commotio Cordis
  - Mechanism
    - Blunt trauma upstroke T wave
  - Lacrosse specific cases
    - Adolescent males
    - ~ half goalies wearing chest protectors
  - Preventive efforts
    - Education
    - AED access and utilization
    - Equipment changes
      - Chest protection
      - RIP type balls
      - Rules changes
      - Body blocking ball
      - Crowding in front of goal
PRORITY ISSUES

• Lacrosse specific issues

• Men’s shoulder injuries
  • Shoulder pads
  • Body to body and stick to body contact
  • Contusions, Clavicle fractures, A/C

• Hand and Wrist Fractures
  • Different patterns based on allowed checking and ball speed
  • Thumb IP Joint Fractures
  • Glove tip protection

PRIORITY ISSUES

• Dental protection
  • Mandatory
  • Types

• Conditioning
  • Sport specific

• Men’s Collegiate Game
  • NCAA drug use
  • survey data

THANK YOU
Richard Hinton, MD, MPH
MedStar Sports Medicine
U.S. Lacrosse
Sports Science and Safety