AEDS IN NEBRASKA SCHOOLS: EVIDENCE OF AVAILABILITY AND EFFICACY

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Disclosures: None
Background

- ACC 2012 THINK TANK - Attendees representing over 35 organizations identified gaps in quality of American athlete CV care, and suggested ways to improve it.

- One proposed strategy- Optimize use of existing clinical tools

- Could best be accomplished at the state level (models NJ, TN, NC, WA)

- Sept 2013 to Jan 2014, a Nebraska state-wide task force was created to improve CV care for young athletes

- Goal:
  - Measure baseline quality
  - Devise interventions to improve quality
Nebraska Task force: Members/organizations

- Bryan Heart Athletic Cardiology
  - Drs. S. Krueger, D. Lawton, A. Merliss, C. Lawless
  - Ron Higdon
  - Dr. Dennis Connolly
- Nebraska State Activities Association (NSAA)
- American Academy of Pediatrics/Nebraska Chapter Representative
  - Dr. Christopher Erickson
- Nebraska Academy of Family Physicians/Representative
  - Dr Monty Matthews
- American Heart Association/ Nebraska Chapter Representative
  - Brian Krannawitter
  - Dr. Dale Hansen
- American College of Cardiology/ Nebraska Chapter Representative
  - Kim Nelson RN
  - Tamara Dolphens PA-C
- Nebraska State School Nurses
  - Julane Hill
  - Peg Ogea-Ginsburg
- Nebraska State Physician’s Assistant Association
  - Dr. Lonnie Albers
  - Rusty McKune ATC
- Nebraska Department of Education/Representative
  - Lisa Johns
  - Dr. David Marx
- Nebraska Department of Health and Human Services (DHHS)
- University of Nebraska-Lincoln Athletic Medicine
  - Dr. John Kugler
Background- Measures of quality

- What is level of emergency preparedness in Nebraska schools? (Ref: AHA, Hasinski, Circulation, 2004) How often is the AED used, and what are the outcomes?

- Who is clearing the athletes and what is their present knowledge base and training?

- Are recommended NSAA (Nebraska School Activities Association) PPE forms being used?
Purpose – Measure Emergency Preparedness and AED Outcomes in Nebraska’s high schools and middle schools

• Measures
  • Availability of AED
  • Location/Accessibility of AED
  • Presence of Emergency preparedness protocols, and rehearsals on a regular basis
  • School requires CPR-AED training of staff, coaches, and students

• AED outcomes
Methods

- List of all Nebraska schools was obtained from NSAA

- Request to complete an online survey:
  - Sent to the school nurse at all 320 Nebraska schools

- Survey returned by 307 schools, 96%

- Asked school nurse to recall
  - Was AED used at school in past 5 years?
  - If yes, follow-up phone call to those reporting AED events
Results - ≥ 1 AED in 298/307, 97.1%
Results - AED accessibility and location

- Just outside school gym: 63.4%
- Inside school gym: 22.2%
- School lobby/entrance: 25.9%
- Inside school nurse office: 8.1%
- Inside principal's office: 3.7%
- Outside principal's office: 17.1%
- Football stadium/playing field: 5.7%
- Travels with teams: 4.7%
- School hallway- not near gym/principal: 12.4%
- Athletic trainers office: 4.7%

% of schools
Results - AED Funding source

<table>
<thead>
<tr>
<th>Source</th>
<th>% of schools</th>
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<tbody>
<tr>
<td>Donations</td>
<td>42%</td>
</tr>
<tr>
<td>School purchase</td>
<td>42%</td>
</tr>
<tr>
<td>Funding campaign</td>
<td>2%</td>
</tr>
<tr>
<td>Other</td>
<td>24.8%</td>
</tr>
</tbody>
</table>
Results - Outcomes of AED use over past 5 years, n=17

AED opened in 17 cases in 16 Nebraska schools

Shock delivered (8)
No shock delivered (9)

Students (2, one athlete)
Staff/Referee/spectator (6)

5/6 survived to hospital D/C
1/6 did not survive

2/2 survived to hospital D/C
One athlete with unknown diagnosis;
One non-athlete with long QT

7/8 survived, 87.5% resuscitation rate

D/C = discharge
Results - Emergency action plan (EAP)

Have EAP

<table>
<thead>
<tr>
<th>% of schools</th>
<th>Yes</th>
<th>No</th>
<th>Do not know</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>84.7%</td>
<td></td>
<td></td>
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</tbody>
</table>

Frequency of rehearsal/drills

<table>
<thead>
<tr>
<th>% of schools</th>
<th>Annually</th>
<th>Monthly</th>
<th>Q 2 yrs</th>
<th>Do not know</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>81.9%</td>
<td></td>
<td></td>
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</table>
## Results - Required student and staff education

<table>
<thead>
<tr>
<th>Type of staff</th>
<th>% of responding schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>School nurse</td>
<td>68.4</td>
</tr>
<tr>
<td>Administrative staff</td>
<td>37.5</td>
</tr>
<tr>
<td>Athletic director</td>
<td>41.7</td>
</tr>
<tr>
<td>Athletic trainer</td>
<td>21.8</td>
</tr>
<tr>
<td>All coaching staff</td>
<td>49.9</td>
</tr>
<tr>
<td>Student- for HS graduation</td>
<td>5.2</td>
</tr>
<tr>
<td>Do not know</td>
<td>5.9</td>
</tr>
<tr>
<td>N/A</td>
<td>9.5</td>
</tr>
</tbody>
</table>
Conclusions

• AED availability in Nebraska schools is excellent, exceeding 97%.
• School administrators can anticipate about 6% AED use over 5 yrs, primarily in the older non-student population.
• Defibrillation rate is high, with the majority of patients surviving to hospital discharge.
Conclusions- Opportunities for improvement

• The greatest opportunities for improvement in the Nebraska schools AED emergency preparedness plan are:
  • Education of staff/students in the performance of CPR/AED
  • Having EAP in place
  • Enhanced AED accessibility- Remove from locked offices
  • Obtaining AEDs for the remaining 3% of schools
Going forward

• Work with NSAA on identified opportunities for improvement in AEDs
  • EAPs in 100% of schools
  • Obtain AEDS for remaining schools
  • Education in CPR-AED

• We have completed our measures of other suspected quality gaps
  • Use of 4th PPE less than ideal- NSAA Sports Med Advisory Committee (also task force members) working on enhanced use, and implementation of E-PPE
  • Provider knowledge gaps abundant- Plan an intensive Nebraska state provider education program in the spring
    • To include PEDS, Fam Practice, PAs, NPs, ATCs and chiropractors
    • Similar to DOT certification, but not an actual certification
Thank you
Limitations

- Outcomes:
  - Based on recall
  - Only asked about use of AEDs, not instances of SCA
  - May have skewed results towards high resuscitation rate overall