Social Determinants of Health Policy Implementation in Virginia Public Schools

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BACKGROUND

- Estimated 1.1-1.9M sport-related concussions in US youth ≤18 years old
- Incidence rate increased 4.2-fold between 1998-2008 in all 12 scholastic sports (approximately 15.5% annual increase)
- Since 2010, all 50 states and DC enacted legislation for concussion management in schools
  - Virginia Board of Education guidelines mandate division-level policy implementation for public schools, but no fiscal support provided
  - No implementation studies to understand division-level policy compliance or school-level practice compliance
- Virginia public high schools:
  - 8 VDOE regions
  - 131 public school divisions
  - 316 public schools
  - 42 sport district leagues
- Purpose of the Virginia Concussion Initiative is to better understand barriers to policy implementation and empower schools to deliver best-practices for concussion management

SCHOOL HEALTH POLICY LOGIC MODEL

CLUSTER ANALYSIS

- K-means Clustering method used to identify division clusters based on composite index score (CIS; 0.39±0.16) and free/reduced lunch percentage (F/R%; 44±18%)
- Pearson’s product-moment correlation coefficient between CIS and F/R% lunches was r = 0.266 (p = 0.002)
- Three clusters emerged from exploratory analysis:
  - Higher-resource divisions tended to have higher daily membership, schools per division ratio (S:D Ratio), and CIS
  - F/R% increased from high- to low-resource to suggest community low ability-to-pay due to SES

<table>
<thead>
<tr>
<th>Division</th>
<th>Cluster Count</th>
<th>School Count</th>
<th>S:D Ratio</th>
<th>Avg CIS</th>
<th>Avg F/R% Lunches</th>
<th>Avg Daily Membership</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>22</td>
<td>68</td>
<td>3.09</td>
<td>0.69</td>
<td>35.0%</td>
<td>1000</td>
</tr>
<tr>
<td>Moderate</td>
<td>72</td>
<td>176</td>
<td>2.44</td>
<td>0.34</td>
<td>35.7%</td>
<td>953</td>
</tr>
<tr>
<td>Low</td>
<td>37</td>
<td>69</td>
<td>1.86</td>
<td>0.31</td>
<td>65.5%</td>
<td>768</td>
</tr>
</tbody>
</table>

STAKEHOLDER ROLES

- Stakeholder groups defined based on role(s) in concussion management (i.e. in-school or community-based)

STAKEHOLDER INTERVIEWS

- One-hour interviews (n=67) conducted with various school and community stakeholders from all defined role groups
- Randomly sampled across cluster strata and VDOE region
- Interviews audio recorded, transcribed, and analyzed by three trained coders

SOCIAL DETERMINANTS

- Stakeholders have different skills and knowledge, but not all schools have access to the same professionals
- Varying levels of:
  - Motivation – cultural buy-in, empathy, compassion
  - Means – resources, infrastructure, capacity
  - Medium – intermediary providers or community support
- Either individual- or division-level limitations influence the socioecological framework

IMPACT ON HEALTH POLICY

- Policy propagation primarily driven by necessity to meet requirements rather than best practices
- Proximity to community health services seems to be more influential than local ability-to-pay
- Disparities in access and concussion health literacy may decrease compliance with implementing guidelines
- Diverse barriers require culturally responsive recommendations—different for unique conditions
- Recommendations:
  - Reevaluate fiscal impact to support/sustain implementation
  - Revise VA School Board Association model policy annually
  - Develop culturally responsive resources and support to schools and communities via concussion management toolkit
- Explore telehealth options for rural areas in Virginia

CONTACT INFORMATION

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