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Backpack Safety Awareness to Prevent Back Pain in School-Aged Children



Aaron Gelinne

Family Medicine Clerkship, September 2017

Mentor: Michael Corrigan, MD

Problem Identification and Description

- According to the Consumer Product Safety Commission, more than 6,300 children between the ages of 5 and 18 were treated in emergency rooms for backpack injuries in 2016
- Swanton Elementary School services over 500 children and is the only elementary school in Swanton, VT. Back pain is a bi-weekly complaint with the school nurse.
- Swanton Elementary School currently does not provide any information on proper backpack safety in regards to weight and pack adjustment.
- September 20, 2017 was National School Backpack Awareness Day – this was a perfect opportunity to coordinate with Swanton Elementary School to educate parents and children about backpack safety

Public Health and Community Costs

- The prevalence of adolescent back pain approaches 20% - similar to that documented in adults¹
 - 7% of children experiencing lower back pain will seek medical attention¹
 - 13.4% of children have reported lost time in school or activities due to backpack related pain⁴
- While not specific to children, the cost of back pain in the United States has been estimated to be approximately \$90.7 billion, not including indirect costs such as lost school time, disability, etc.⁷
- According to Northwestern Medical Center, 25% of the population in Franklin County (location of Swanton Elementary School) has chronic lower back pain – above the national average

Community Perspective

Wendy Culligan, RN
Swanton School Nurse: 1st – 3rd grade

“sometimes backpacks look bigger than the kids at this age and it is hard to tell how much weight they are really carrying”

“the school tries to do things to minimize carrying loads like having storage bins at school and getting rid of homework”

“I notice specifically in the winter that kids carry more and more things – and the winter is long in Vermont”

“I think that parents and children are not conscious at all about backpack safety”

Danielle Loiselle, RN
Swanton School Nurse: 4th – 6th grade

“kids have massive backpacks and are often carrying overfilled bags, especially ones who do a lot of after school activities”

“it is common to see kids who are hunched over with poor posture and their head down because of what they are carrying”

“parents should know more about backpack safety but nobody teaches this to our parents”

“I see many kids who come in with lower back pain. Sometimes as frequently as every couple weeks”

Intervention and Methodology

- **Intervention:** Educate parents and children on proper backpack safety and the risks of improper use
- **Methodology:** Design an educational infographic that focuses on backpack safety and notable backpack facts for dissemination at Swanton Elementary School on National School Backpack Awareness Day on September 20, 2017⁸
- The infographic focused on the most widely verified data for proper backpack usage including²⁻⁶:
 - **Style**
 - **Weight**
 - **Adjustment**
- Provided the infographic to parents and children in a way that reaches the most people
 - **School website and social media were identified by the school as being most widely viewed by parents**

Results

- The infographic was reviewed by the Swanton Elementary School staff and a Family Practice physician who commented that the infographic was simple, but effectively provided necessary information to parents
- The infographic was posted on the Swanton Elementary School webpage and multiple school social networking sites
- Each student was sent home with the infographic to give to their parents
- The infographic was provided to the Swanton School nursing staff to use for future events/needs

The screenshot shows the Swanton School website. The header includes the school logo and navigation links: School Board, PTO, Classrooms, Related Organizations, Useful Links, Calendars, Athletics, Community, and van Singh. The main content area features a news article titled "National School Backpack Awareness Day" by Mr. Gregory on September 15, 2017. The article includes an infographic with three simple steps for backpack safety: 1. STYLE (avoid overloading, use both straps), 2. WEIGHT (keep under 10% of child's weight), and 3. ADJUST (adjust straps to fit). The infographic also includes statistics: 85% of children use backpacks, 80% of parents have a child with a backpack, and the average backpack weight is 15 lbs. The sidebar contains a search bar, a "School List" section, a "Lunch Menu" section with "CURRENT MONTH" and "NEXT MONTH" buttons, and a "School Event Calendar" section listing events from Tuesday, September 20 to Monday, October 9.

Evaluation of Effectiveness and Limitations

- The effectiveness of this project could be measured following the educational intervention by:
 - Observing the backpack behavior of kids at Swanton Elementary School to determine before and after effects
 - Surveying the parents using a brief questionnaire that quantifies the quality of the infographic and whether the information was retained
- Limitations:
 - Despite using endorsed means of school-to-parent communication, the number of parents who read the infographic is uncertain
 - The infographic focused on a limited amount of information in regards to backpack safety

For the Future

- Annually recognize National School Backpack Awareness Day and implement additional interactive activities such as backpack weighing and fitting tutorials
- There are many other factors that contribute to back pain in the pediatric population that could be addressed
 - It would be beneficial to have backpack safety as only a small part of an entire education series on spinal health
- Factors specifically discussed with the school and validated by the literature that could be included in a spinal health series are:
 - Back injuries in athletes
 - Obesity related back pain

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Informed Consent

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Yes: X