

An Interactive, Hospital-based Injury Prevention Program for First-, Second-, and Third-grade Students

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Brain and spinal cord injuries are the most devastating and costly type of injury, resulting in physical and psychological damage and years of lost productivity, with more than 22,000 childhood deaths from such injuries and an additional 30,000 who suffer permanent disabilities.¹ Approximately 11,000 new spinal cord injuries occur each year in the United States. In addition, researchers estimate that an additional 4860 persons with such injuries die before reaching the hospital.² In the spring of 2001, the Injury Prevention Task Force of The Child and Adolescent Health and Wellness Council, a section of the Office of Community Health of the Conemaugh Health System in Johnstown, Pa, along with our level I trauma department, discovered that Cambria County, Pa, experienced pediatric head and spinal cord injuries at 5 times the state average.

Working on the problem

We set out to find an appropriate educational program for children to help combat the problem of pediatric head and spinal cord injuries. We found a comprehensive, evidence-based injury prevention program developed by the American Association of Neurological Surgeons, the Congress of Neurological Surgeons, and the ThinkFirst National Injury Prevention Foundation: ThinkFirst for Kids.³

The Program

The ThinkFirst for Kids program is a 6-week comprehensive brain and spinal cord injury prevention program. The first lesson introduces the video *Street Smart, A Think-First Adventure*. This video teaches children how to have fun and protect themselves from injury at the same time.

An informative lesson on brain and spinal cord injury is presented to the class following the video. During the next 5 weeks, the students concentrate on 1 of the 5 areas of injury prevention. Each 30-minute lesson is geared to the appropriate development level of the child and covers the following: vehicular and pedestrian safety; bicycle safety; safety around weapons and creative problem solving; playground, recreation, and sports safety; and water safety. Various teaching strategies are used such as videos, a gelatin brain mold, an egg drop (with and without a Styrofoam cup "helmet"), role playing, and age-appropriate handouts complete with a weekly "Parent Letter" to be read and signed by both the student and a parent or caregiver and returned to the school the following week.

Implementation of the Program

When we began the ThinkFirst for Kids Program, we needed to address various issues: obtaining a sponsoring physician, funding, and recruiting volunteer presenters for the program. The sponsoring physician was responsible for areas such as garnering support for the program from the medical center, other local physicians, health professionals, and the community; talking to the media; fund-raising; and coordinating with the national ThinkFirst office.⁴ Our sponsoring physician was a pediatrician in the community committed to injury prevention regarding the pediatric population. To begin a ThinkFirst for Kids program, \$500 was needed to start up a chapter, which included instruction and assistance with program development, implementation and evaluation for the program's key personnel, one ThinkFirst For Kids curriculum packet, including the "Street Smart" video, posters and comics, and one Think-First For Kids Coordinator's Guide. An additional \$150 was necessary for other props and videos used in the presentation of the program. Our funding came from a variety of sources: SAFE Kids of Pennsylvania, our hospital auxiliary, and the Pennsylvania Trauma Society. One volunteer presenter was needed for each classroom presentation, because the program works best in a classroom setting of 20 to 25 students. The program was presented for 30 minutes for 6 consecutive weeks. Initially we used our injury prevention coordinator and 2 other employees in our office when we pilot tested the program in the first school. Since then we have recruited volunteers such as emergency nurses,

technicians, and EMS personnel, other hospital department staff (floor nurses, administrators, physical and respiratory therapists), student nurses, school nurses and guidance counselors, parents of elementary school students, highway safety officers, and high school students. We also have developed our own instructor manuals specific for our community, based on the National ThinkFirst course curriculum. An Instructor's Course (approximately 60 minutes long) is given to each volunteer presenter before he or she goes into the classroom setting. The injury prevention coordinator and other experienced coordinators follow up with "spot checks" to ensure continuity of the materials taught.

Program history

In the spring of 2001, the Child and Adolescent Health and Wellness Council implemented the ThinkFirst for Kids program beginning with one pilot elementary school. We found that the program was easy to present, and the students enjoyed it; they wrote us thank-you notes and gave us hugs as we left on our last day. The following school year, the Council offered to present this program to any of the 28 public and private schools in Cambria County; the program was presented in 10 of the 28 schools that year. By the spring of 2004, the ThinkFirst program had been presented in all of the 28 public and private schools in Cambria County at least once, with many of the schools continuing the program each year. Every student who participated in the program was given a pretest before the program and a post-test approximately 6 weeks after the completion of the program to determine the retention of the material taught.

Results

Overall, for the 3 years of data collected, 6973 children completed the pretest and 6644 children completed the post-test. We used the evaluation tool that had been developed by the National ThinkFirst Office.

BASELINE DATA REGARDING DEFICIENCIES IN KNOWLEDGE

Figure 1 summarizes the pretest results, demonstrating the deficiencies in knowledge regarding safety issues in all 3 grades.

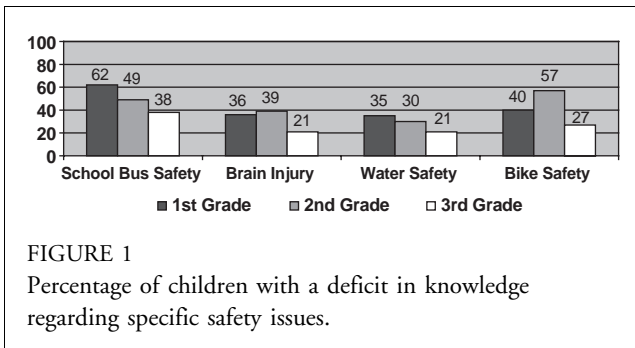


FIGURE 1
Percentage of children with a deficit in knowledge regarding specific safety issues.

BASELINE DATA REGARDING NEGATIVE BEHAVIOR

Questions asked about “risky behaviors” varied from grade to grade. Risky behavior questions ranged from running in the road to get a ball and looking before swinging a baseball bat to hanging upside down on the monkey bars. Children in all 3 grades (1 to 3) were asked whether they wear a helmet when riding a bike (see Figure 2).

When looking at negative behaviors, 30% of children in grades 1 to 3 noted on the pretest that they do not wear a helmet when riding a bike.

Thus, by these 2 measures, the first graders showed the highest scores for safer behavior following the program.

The ThinkFirst for Kids program resulted in an overall 21% increase in knowledge for safety issues for first graders; second graders showed an overall 15% increase in knowledge, and third graders showed an overall 11% increase in knowledge (see Figure 3). The ThinkFirst for Kids program had the biggest impact on children’s increase in knowledge about school bus safety issues, followed by brain injury knowledge, water safety knowledge, and bicycle safety knowledge (see Figure 4).

EFFECT OF THE THINKFIRST FOR KIDS INTERVENTION REGARDING NEGATIVE BEHAVIORS

The ThinkFirst for Kids program was followed by a reported 10% decrease in overall risky behaviors following program implementation for first graders. Second graders showed an 8% decrease in risky behaviors, and third graders

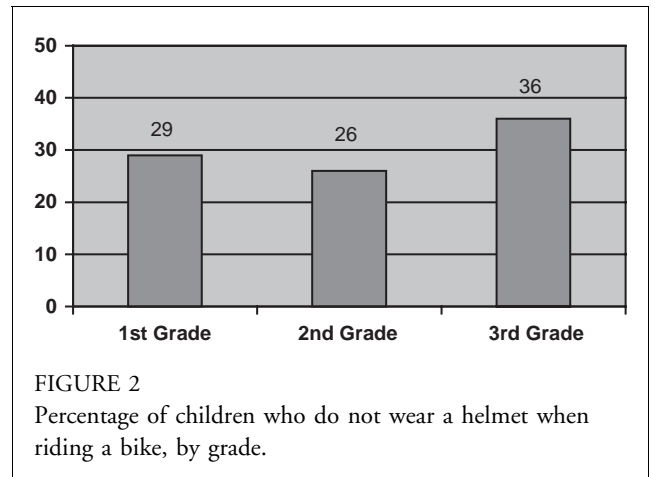


FIGURE 2
Percentage of children who do not wear a helmet when riding a bike, by grade.

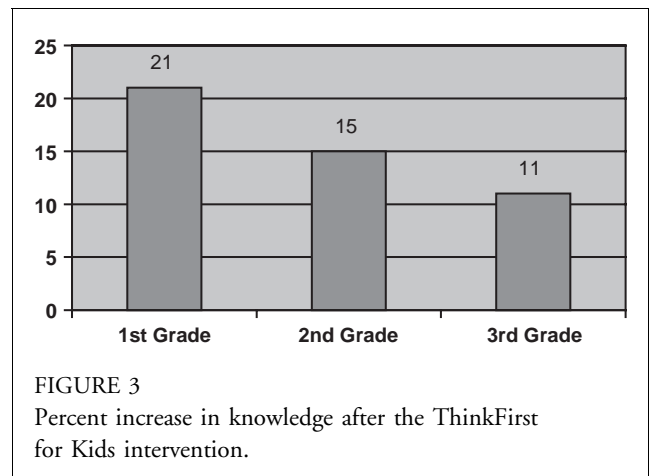


FIGURE 3
Percent increase in knowledge after the ThinkFirst for Kids intervention.

showed a 6% decrease in risky behaviors (see Figure 5). When asked whether they wear a helmet when riding a bike, first graders showed the greatest increase, at 8%. Second graders showed an increase of 4%, and third graders had an increase of 6% (see Figure 6). Thus, by these 2 measures, the first graders showed the highest scores for safer behavior following the program.

Discussion

The self-reporting surveys may or may not depict actual behavior. Also, the surveys for each grade level were distinctly different and contained different knowledge and behavioral questions. During the 2004-2005 school year, we rewrote the questionnaire so that each student would

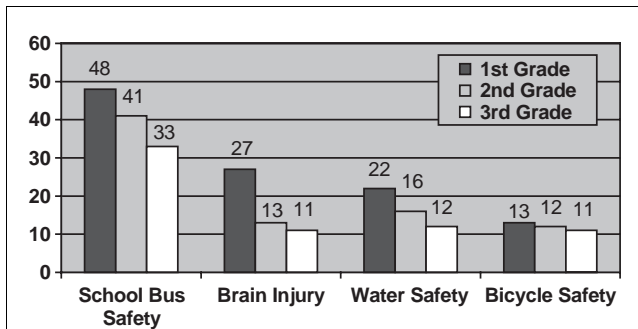


FIGURE 4
Percent increase in knowledge regarding specific safety issues.

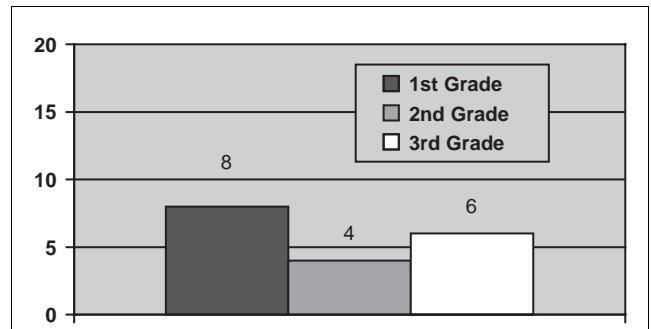


FIGURE 6
Percent increase in helmet usage.

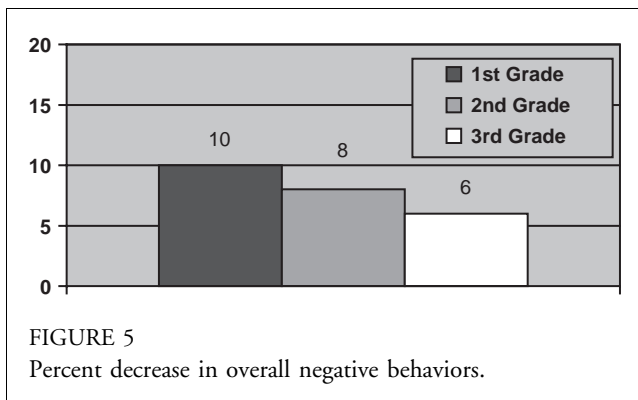


FIGURE 5
Percent decrease in overall negative behaviors.

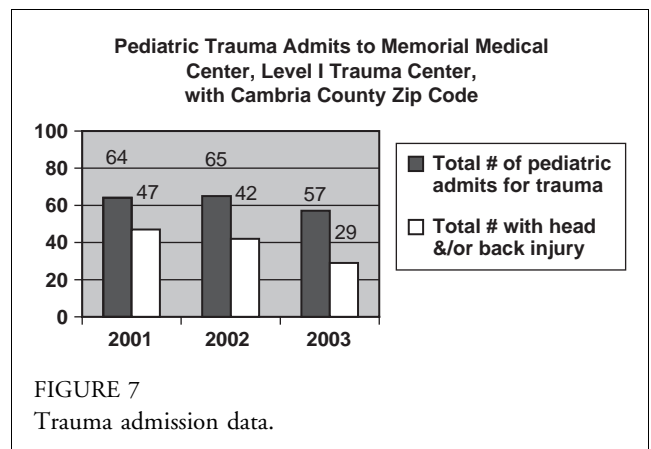


FIGURE 7
Trauma admission data.

receive the same age-appropriate questionnaire in all grade levels.

Preliminary data from our level I trauma center (Figure 7) revealed that our pediatric head and neck injuries have decreased. Specifically, 64 pediatric trauma patients with a Cambria County zip code were admitted in 2001; 47 (73%) had a head and/or back injury. In 2003, there were 57 total pediatric trauma admissions, with only 29 (51%) sustaining a head and/or back injury.

Comments

The ThinkFirst program is easy for a variety of personnel to present, and we have found that it has a positive impact on the young student population. It could work well in conjunction with other programs from ENA's Injury

Prevention Institute, ENCARE. For more information about injury prevention programs, visit the following Web sites: www.thinkfirst.org and www.ena.org.

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