

# SAFE Home Project

In August 2006, five siblings, ages 1-7, died in a house fire in Missouri.<sup>1</sup> Although the cause of the fire was unknown, the house had no smoke detectors and the family was unaware of any danger until it was too late.

## Home injuries are preventable

There are many causes of injuries that can be found in any person's home. Children, particularly those less than 1 year old, are considered a high-risk group when it comes to injuries within the home. Younger children are curious and tend to explore, not knowing where dangers may lie. In fact, each year, an average of 2,096 children (15 and younger) die from injuries sustained in the home.<sup>2</sup> The leading causes of childhood home injury deaths are fire, burns, choking, drowning, and suffocation.<sup>2</sup>

Deaths from home injuries are not the only worry. Children between 1 and 4 years old have the highest rate of nonfatal home injuries, particularly from falls.<sup>2</sup>

What is important to remember is that many of these injuries are *preventable*.

According to the Home Safety Council's State of the Home Safety in America, **fire and burns** are the leading causes of unintentional home injury death for 1 to 14 year olds, and the second leading cause of death for children less than 1.<sup>2</sup>

**Falls** are among the top 5 causes of unintentional home injury death for children younger than 10 years old.<sup>2</sup>

Falls also account for nearly half of all nonfatal home injuries for children ages 0-4.<sup>2</sup>

## The Evolution of Home Safety Practices

Over the past few decades, there have been many accomplishments in injury prevention research to increase the safety of homes in order to reduce injury and death.

- ♦ Tap water is a source of burn injuries for small children. In 1983, the state of Washington passed a law requiring that new water heaters be preset by the manufacturer to 120 degrees.<sup>3</sup> In one Washington county, the burn injury admission rates for children younger than 15 dropped from 5.5 per year from 1969-1976 to 2.3 per year from 1984-1988.<sup>3</sup> Today water heaters are still preset to 120 degrees.
- ♦ Smoke detectors reduce the risk of residential fire death by an estimated 50%.<sup>4</sup> Lowering the cost of smoke detectors, neighborhood canvassing and installation programs, smoke detector legislation and building code modifications have all contributed to the increase in smoke detector usage.<sup>4</sup>
- ♦ After the Poison Prevention Packaging Act of 1970 was passed, child-resistant safety caps on baby aspirin reduced the number of accidental overdoses in young children by 70%.<sup>5</sup>
- ♦ In 1981, it was determined that installing a fence around a home swimming pool is effective in preventing unintentional drowning of children.<sup>6</sup>

## The SAFE Home Project

While research has identified effective ways to prevent injuries, other research has demonstrated that many families, particularly those that are low-income and living in urban areas, do not utilize home safety practices. Barriers include limited access to both information and reasonably priced safety products.

Dr. Andrea Gielen and researchers at the Johns Hopkins Bloomberg School of Public Health Center for Injury Research and Policy wanted to increase the knowledge, beliefs, and use of home safety practices among families. The SAFE Home Project involved professionals from various disciplines, including pediatrics, behavioral science, injury prevention, biostatistics, health education, and communication sciences,<sup>7</sup> who all worked together to develop and implement a theory-based intervention to increase parents' home safety practices.

Based on assessments completed prior to the start of the intervention, they decided to concentrate on "child-proofing" practices, such as:<sup>7</sup>

- ♦ Reducing hot-water temperatures to reduce scalding;
- ♦ Storing poisons in locked places;
- ♦ Using safety gates on stairways; and
- ♦ Having working smoke alarms.

187 families were enrolled into the study and randomly assigned to two groups: one with parents receiving counseling from their pediatrician as well as a referral to a new onsite Children's Safety Center; the other group with parents receiving the same counseling and referral AND a follow up home visit from a community health worker. Follow up observations of safety practices in participants' homes were completed 12-18 months later.<sup>7</sup> When comparing the two intervention groups, there was little difference between the rates of safety practices, indicating that the home visits did not add more protection.<sup>7</sup> But, visiting the safety center was associated with more safety practices.

### Three components of the SAFE Home Project:<sup>7</sup>

- ♦ **Counseling-** Pediatric residents received training on childhood injuries and the role of pediatric counseling. They then counseled parents as part of well child care and referred them to the Children's Safety Center located near the pediatric clinic.
- ♦ **Children's Safety Center-**
  - Accessible and affordable home-safety products
  - Personalized education with demonstrations in a home-like environment
  - Increased visibility of the importance of injury prevention in a medical care setting
- ♦ **Home visits-** Trained community health workers visited homes to assess hazards, make recommendations, and refer families to the Children's Safety Center

### SUCCESS!

Safety practices **doubled** when comparing the families who visited the Children's Safety Center (CSC) to those that did not.<sup>7</sup>

- ♦ 34% of CSC visitors were observed to use 3 or more recommended home safety practices compared to 17% of non-visitors.<sup>7</sup> Additionally, 42% of CSC visitors were observed to use 2 safety practices, compared to 29% of non-visitors.<sup>7</sup>
- ♦ Almost 10 years since its opening, the CSC is still operating, working closely with pediatricians to help families adopt home safety practices and correctly utilize the recommended safety practices.

Families, particularly low-income families, receive needed support from the CSC.<sup>8</sup> In follow up interviews with visitors to the CSC conducted by researcher and CSC program director, Eileen McDonald, more than 90% rated the staff and materials as very helpful.<sup>8</sup>

*“The staff seemed to know what I needed.... They take their time to explain about safety.... The thing I liked most was that they take time.”*

*“It was convenient and a lot less expensive than going to the store.”*

*“When they gave demonstrations they broke it down so it was easy to understand.”*



The CSC now includes a child passenger safety seat program making seats available to any family, but with a special focus on meeting the needs of low-income or medically needy parents. Certified child passenger safety seat technicians demonstrate how to install and use the seats.

In the near future, the CSC will be expanding to a second location in the new Children's Center of Johns Hopkins Hospital, so that more families can be reached.<sup>9</sup>

Since the Johns Hopkins Children's Safety Center has been found to be an effective means of distributing safety materials and increasing parental safety practices in the Baltimore, MD area, it expanded and is gaining more attention. Other hospitals are developing similar “pharmacies for safety” to help prevent the number one killer of children.<sup>9</sup>



Following the positive response to the CSC, the Hopkins researchers and community partners introduced the Johns Hopkins CARES Mobile Safety Center in 2004. As the name implies, this version of the CSC travels to communities throughout Baltimore. It is a partnership project with the Baltimore City Fire Department and other organizations, supported by donations and grants, and staffed by fire safety and injury prevention experts. New, interactive educational exhibits and low cost safety product are on board.<sup>10</sup> Research is underway to determine the effectiveness of this dissemination strategy for home safety products.

## **Child Home Injuries and Economic Costs**

According to the Home Safety Council, unintentional home injuries cost society at least **\$222 billion per year** in medical costs.<sup>11</sup> Falls alone incur total lifetime costs (sum of medical spending and lost productivity due to morbidity and mortality) of \$5.4 billion just for children ages 0-4.<sup>12</sup> For children ages 5-14, fall injuries contribute \$10.3 billion in total lifetime costs. \$12.9 billion of total lifetime costs occur for non-hospitalized fall injuries for all children age 14 and younger.<sup>12</sup>

By preventing injuries, society will benefit economically by saving on medical costs, resource costs (police, fire services, property damage), work loss and quality of life costs. The Children's Safety Network Economics and Data Analysis Resource Center determined that purchasing and using a smoke alarm provides a total benefit to society of \$940 for the cost of \$33 per smoke alarm.<sup>13</sup> Pediatrician injury prevention counseling for children ages 0-4 yields a total benefit to society of \$86 for a cost of \$10 per child.<sup>13</sup>

Home injuries to children are devastating both economically and in human tragedy. Many home injury prevention methods are not expensive, and are worth every penny for the lives they save, the disabilities they prevent, and the economic costs that society is spared.

## **Summary**

Many proven effective home injury prevention techniques have been developed over the past few decades- smoke alarms, car safety seats, child resistant safety caps for baby aspirin, pool fencing to prevent drowning, to name a few. Ensuring that people actually *use* these safety products properly and consistently is as important as developing the product.

Dr. Gielen and her team of researchers implemented a program to determine if safety practices among parents increased when they received counseling from their pediatrician, visited the Children's Safety Center, and received home visits by community health workers. They discovered that families who received pediatrician counseling and visited the Children's Safety Center benefited greatly and that the home visits did not provide any added benefit.

By providing access to affordable safety products, along with one-on-one personalized demonstrations and counseling on how to use the products by trained injury professionals, the Children's Safety Center proved to be the resource many families needed.

As this important outlet for home injury prevention among children is now available, disseminating this program to other cities and hospitals may prove to be beneficial to families across the country. The Johns Hopkins Children's Safety Center has produced a replication guide and video to help institute Children's Safety Centers in hospitals and communities everywhere.

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