

EMBARGOED:  
MAY 3, 2001

spring

winter

fall

# summer

**TRAUMA SEASON:**  
A National Study of the  
Seasonality of Unintentional  
Childhood Injury

May 2001

FULL REPORT



## INTRODUCTION

This study is the first-ever look at seasonal trends in national injury mortality among children, confirming that a “trauma season” does exist. Public health and medical professionals have long assumed that childhood unintentional injuries follow a seasonal pattern. During the summer months, when children are out of school, lack adequate supervision and spend more time outdoors, the risks are heightened.

Current research indicates that unintentional injury remains the number one killer of children ages 14 and under and that motor vehicle occupant injury, drowning, falls, pedestrian injury and bike-related injury are among the leading risks to children. To determine the seasonality of injury, SAFE KIDS researched the following questions: How much more dangerous are these risks during warm weather months – May through August? Which risks are more prevalent during specific months? Are children of certain ages more at risk than others? Are particular summer months or particular regions of the country inherently more dangerous for children than others?

Since 1988, the Campaign has recognized the increased risks of summer by organizing National SAFE KIDS Week with the support of Johnson & Johnson each May. Using a multifaceted approach that includes research, public awareness, safety device distribution, public policy initiatives and grassroots events, thousands of community volunteers mobilize every year for this effort. Our goal in studying seasonal trends is to create a more effective solution by focusing on these heightened risks during National SAFE KIDS Week and throughout the summer months.

## METHODOLOGY

SAFE KIDS studied national data on mortality among children ages 14 and under between 1991 and 1996. This data, obtained from the National Center for Health Statistics, was based on death certificates documenting external causes of injury (e-codes). SAFE KIDS specifically analyzed e-codes for drowning, fall-related injury, pedestrian-related injury, bicycle-related injury and motor vehicle occupant injury.

Data were examined by month, and the number of injuries that occurred between May and August was compared with the number of injuries that would be expected to occur during that four-month period if the injury rate was constant throughout the year. Data were also examined by age group (under 1 year, 1-4 years, 5-9 years and 10-14 years old) and geographic location based on the state where the injury occurred. A total of 40,240 death records of children who died from unintentional injury were analyzed from the six-year period.

SAFE KIDS also analyzed national morbidity data obtained from the National Center for Health Statistics. This data included estimates of U.S. hospital emergency department visits by children ages 14 and under who suffered from an unintentional injury between 1993 and 1998. To examine variations in injury trends around the country, local morbidity data were gathered from seven different cities (Hartford, Conn.; Anderson, S.C.; Wichita, Kan.; Twin Falls, Idaho; Phoenix, Ariz.; Sacramento, Calif.; and Washington, D.C.). SAFE KIDS analyzed data from multiple years of pediatric unintentional injuries treated in hospital emergency rooms to see if there were peaks in the occurrence of injury between May and August.

*Are the  
summer  
months more  
dangerous  
for kids?*



## FATAL UNINTENTIONAL INJURY AMONG CHILDREN AGES 14 AND UNDER DURING SUMMER MONTHS

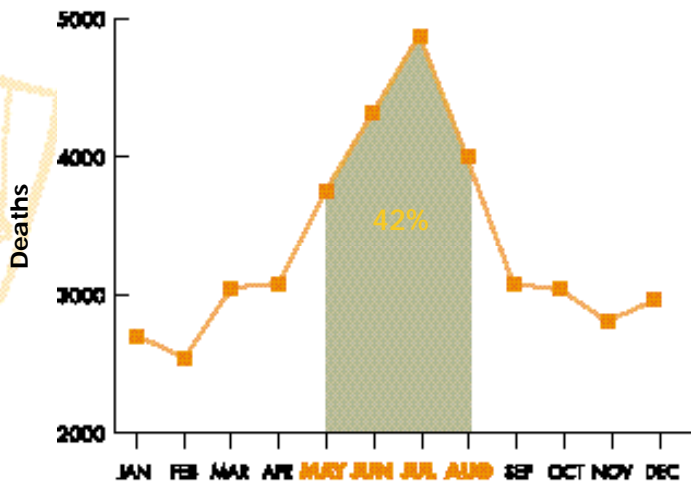
- Nearly half (42 percent) of all unintentional injury-related deaths occurred during the summer months.

- July was the deadliest month for unintentional childhood injury, with 12 percent of deaths occurring in this month alone.

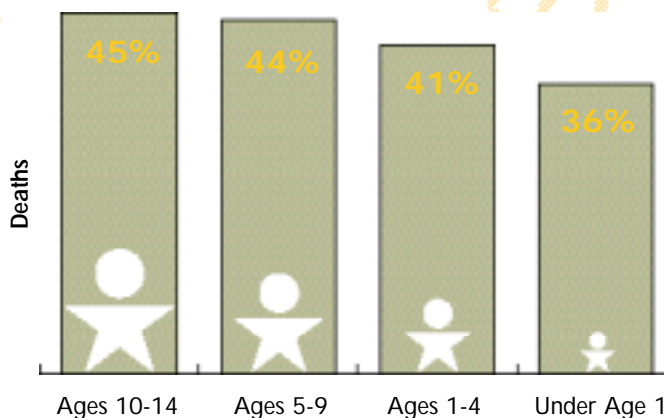
- Deaths among children ages 10-14 increased most dramatically – 45 percent occurred in the summer months. Deaths among children ages 5-9 also increased substantially.

- Mountain states and West North Central states experienced the greatest summer increases (greater than 30 percent) in unintentional childhood injury deaths.

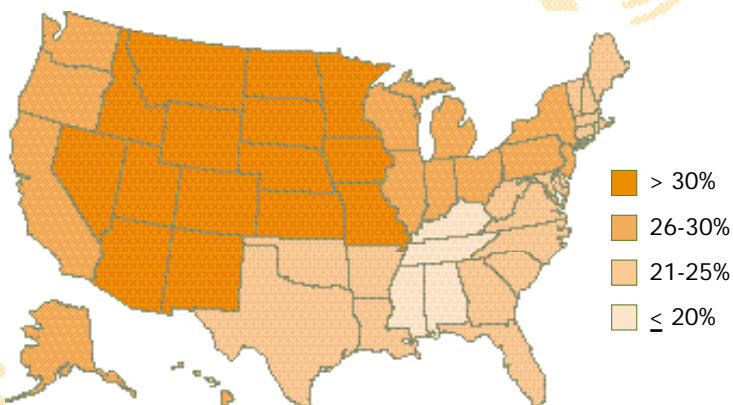
Fatal Unintentional Injury  
Children Ages 14 and Under, 1991 – 1996



Percentage of Deaths Occurring May Through August, by Age  
1991 – 1996



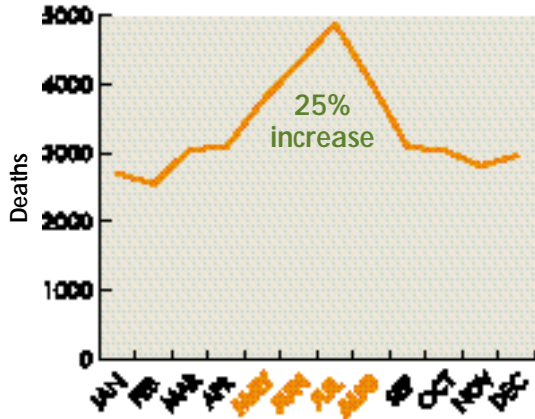
Increase in Deaths Occurring May Through August, by U.S. Region



# FATAL UNINTENTIONAL INJURY AMONG CHILDREN AGES 14 AND UNDER DURING SUMMER MONTHS BY SPECIFIC RISK, 1991 - 1996

## Fatal Unintentional Injury

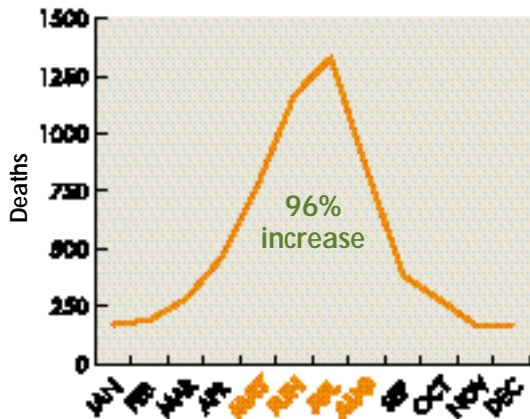
Children Ages 14 and Under, 1991-1996



- From 1991 to 1996, 40,240 children ages 14 and under died as a result of unintentional injuries. Of these deaths, 16,966 (42.2 percent) occurred May through August, a 25 percent increase above average. The majority (two-thirds) of these deaths were a result of bike, pedestrian, motor vehicle occupant injury, falls and drowning.

## Fatal Drownings

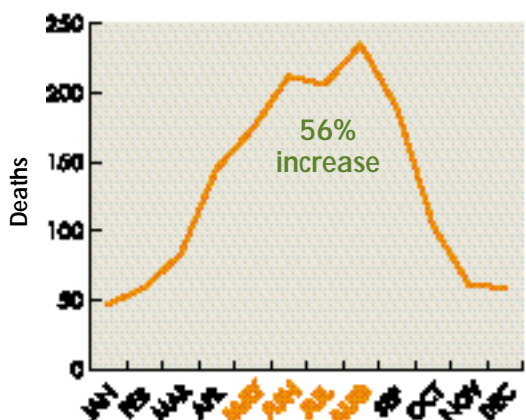
Children Ages 14 and Under, 1991-1996



- From 1991 to 1996, 6,237 children ages 14 and under died as a result of unintentional drowning. Of these deaths, 4,124 (66.1 percent) occurred May through August, a 96.1 percent increase above average.

## Fatal Bicycle-Related Injury

Children Ages 14 and Under, 1991-1996



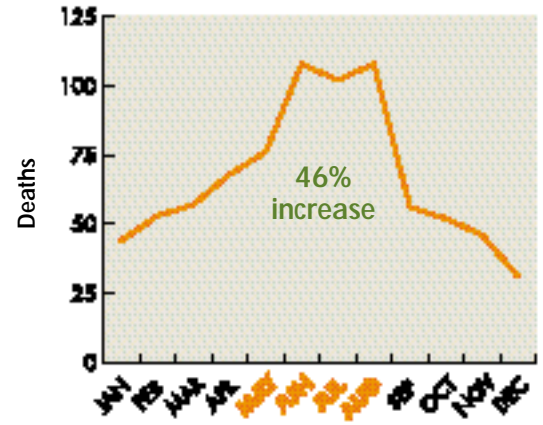
- From 1991 to 1996, 1,547 children ages 14 and under died as a result of unintentional bicycle-related injury. Of these deaths, 827 (52.5 percent) occurred May through August, a 55.8 percent increase above average.





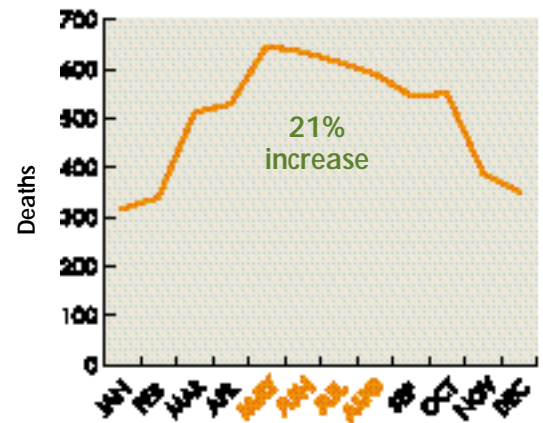
- From 1991 to 1996, 801 children ages 14 and under died as a result of unintentional fall-related injury. Of these deaths, 394 (49.2 percent) occurred May through August, a 46.0 percent increase above average.

**Fatal Fall-Related Injury**  
Children Ages 14 and Under, 1991-1996



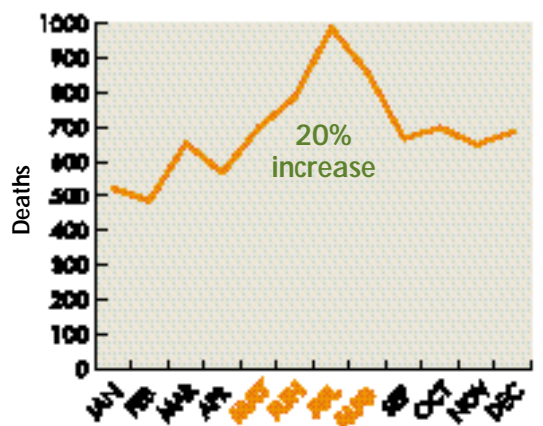
- From 1991 to 1996, 6,018 children ages 14 and under died as a result of unintentional pedestrian-related injury. Of these deaths, 2,458 (40.8 percent) occurred May through August, a 21.1 percent increase above average.

**Fatal Pedestrian-Related Injury**  
Children Ages 14 and Under, 1991-1996



- From 1991 to 1996, 8,263 children ages 14 and under died as a result of motor vehicle occupant injury. Of these deaths, 3,331 (40.3 percent) occurred May through August, a 19.6 percent increase above average.

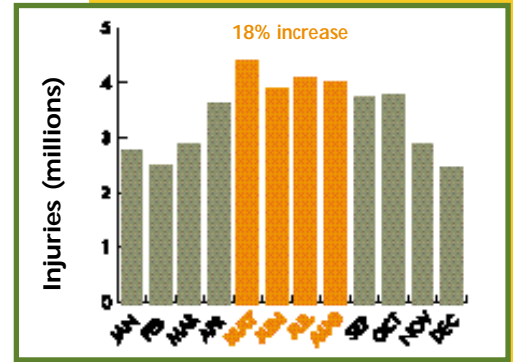
**Fatal Motor Vehicle Occupant Injury**  
Children Ages 14 and Under, 1991-1996



## EMERGENCY DEPARTMENT VISITS FOR UNINTENTIONAL INJURY, CHILDREN AGES 14 AND UNDER

### ED Visits for Unintentional Injury, Children Ages 14 and Under 1993-1998, United States

A total of 41,049,721 injury visits to U.S. hospital emergency departments by children ages 14 and under were estimated to have occurred in the six-year period from 1993 to 1998. Of these, 16,386,401, or 39.9 percent, were estimated to have occurred May through August. This is an 18 percent increase over the number of visits that would have occurred if the rate of injury were constant throughout the year.

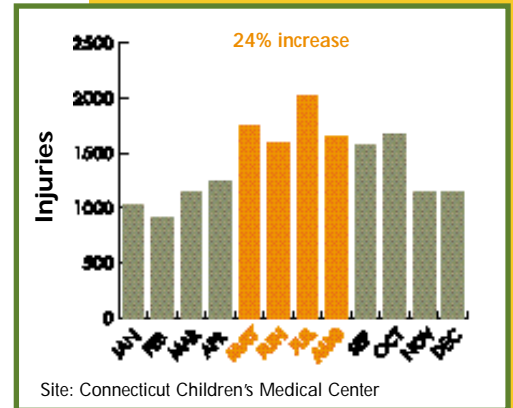


### CONNECTICUT SAFE KIDS:

#### ED Visits for Unintentional Injury, Children Ages 14 and Under 1997-1999, Connecticut Children's Medical Center, Hartford, Conn.

The Connecticut SAFE KIDS Coalition obtained data from its lead organization, Connecticut Children's Medical Center. From 1997 to 1999, 16,868 children ages 14 and under visited the hospital emergency department for unintentional injury. Nearly 42 percent of these visits (7,023) occurred between May and August – a 24 percent increase above average for the year. The risks for children ages 5-9 increased most dramatically.

Located in central Connecticut, the medical center's emergency department provides service to the entire state, but primarily to the residents of Hartford County. Approximately 675,000 children ages 14 and under live in the state of Connecticut, and 168,849 live in Hartford County. The population of Connecticut is primarily urban and suburban.



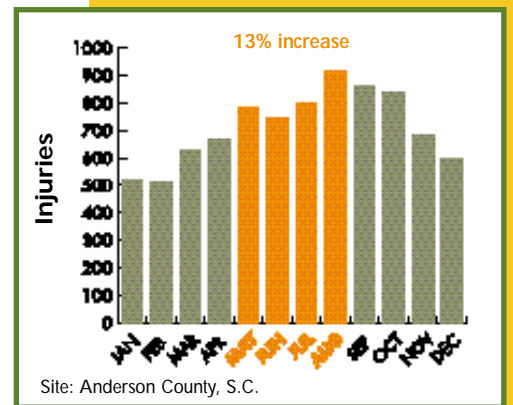
Site: Connecticut Children's Medical Center

### ANDERSON COUNTY SAFE KIDS:

#### ED Visits for Unintentional Injury, Children Ages 14 and Under 1997-1999, Anderson County, S.C.

The Anderson County SAFE KIDS Coalition obtained data from inpatient and outpatient uniform billing records of all Anderson County children treated for all causes of injury in a hospital emergency department. From 1997-1999, a total of 8,558 Anderson County children ages 14 and under visited hospital emergency departments for unintentional injuries. Of these injuries, 37 percent (3,250) occurred between May and August – a 13 percent increase above the average. The risks for children ages 5-9 increased most dramatically.

Located in northwestern South Carolina along the Georgia border, Anderson County is home to 31,224 children ages 14 and under. Fifty-eight percent of the county's population is urban; 42 percent is rural.



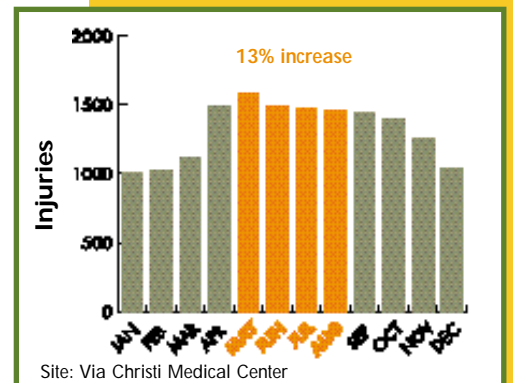
Site: Anderson County, S.C.

### WICHITA AREA SAFE KIDS:

#### ED Visits for Unintentional Injury, Children Ages 14 and Under 1997-1999, Via Christi Medical Center, Wichita, Kan.

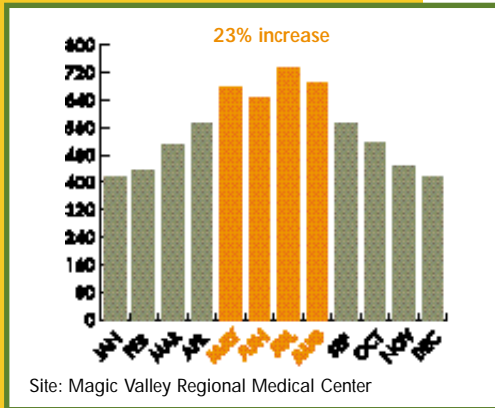
The Wichita Area SAFE KIDS Coalition obtained data from its lead organization, the Via Christi Regional Medical Center. From 1997 to 1999, a total of 15,780 visits were made to the medical center's two emergency departments for childhood unintentional injuries. Of these, 38 percent (6,004) occurred between May and August – a 13 percent increase above average. The risks for children ages 5-9 increased most dramatically.

Wichita is located in Sedgwick County in south-central Kansas, which is home to approximately 102,000 children ages 14 and under. Sedgwick County contains urban, suburban and rural populations.



Site: Via Christi Medical Center



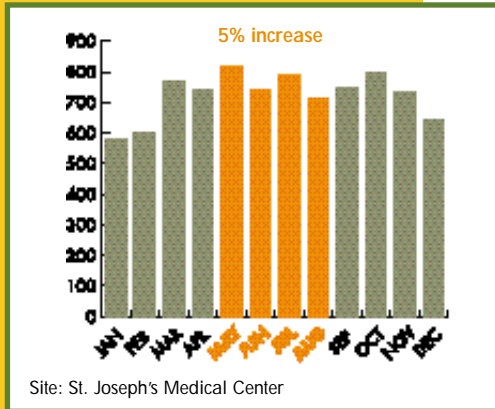


### MAGIC VALLEY SAFE KIDS:

#### ED Visits for Unintentional Injury, Children Ages 14 and Under 1995-1999, Magic Valley Regional Medical Center, Twin Falls, Idaho

The Magic Valley SAFE KIDS Coalition obtained data from its lead organization, the Magic Valley Regional Medical Center. From 1995 to 1999, 6,621 children were treated in the medical center's emergency department for unintentional injuries. Of these injuries, more than 41 percent (2,745) occurred between May and August – a 23 percent increase above average. The risks for children ages 5-9 increased most dramatically.

Located in Twin Falls, Idaho, the medical center provides services to the more than 37,700 residents ages 14 and under of southern Idaho and northern Nevada. Magic Valley is a primarily rural and agricultural area.

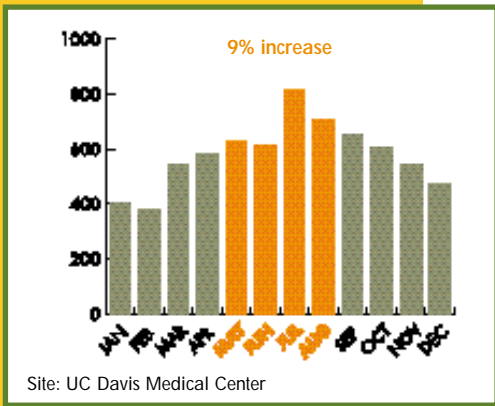


### ARIZONA STATE SAFE KIDS:

#### ED Visits for Unintentional Injury, Children Ages 14 and Under 1997-1999, St. Joseph's Medical Center, Phoenix, Ariz.

The Arizona State SAFE KIDS Coalition obtained data from its lead organization, St. Joseph's Hospital and Medical Center. From 1997 to 1999, the hospital had records of 8,666 visits to the emergency department for childhood unintentional injuries. Approximately 35 percent (3,055) of these occurred between May and August. Unintentional injuries as a whole rose just 5 percent above the yearly average during the summer months, and both bike-related injury and pedestrian-related injury decreased during these months, presumably due to excessive heat and increased precipitation.

The medical center serves the population of Maricopa County, which is located in central Arizona and includes the city of Phoenix, Arizona's capital. In 1999, Maricopa County had a population of 627,658 children ages 14 and under. The county includes urban, suburban and rural communities.

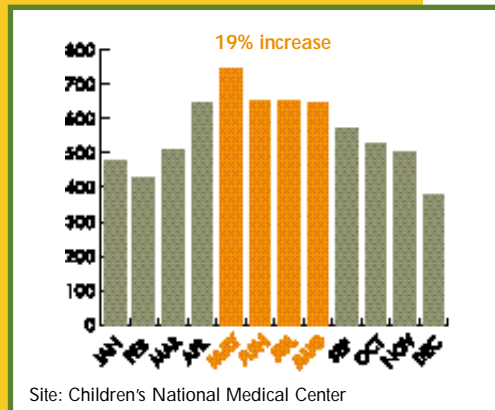


### GREATER SACRAMENTO SAFE KIDS:

#### ED Visits for Unintentional Injury, Children Ages 14 and Under July 1997-June 1999, UC Davis Medical Center, Sacramento, Calif.

The Greater Sacramento SAFE KIDS Coalition obtained data from its lead organization, the University of California Davis Medical Center. In the two-year period from July 1997 to June 1999, children ages 14 and under visited the emergency department of UC Davis for unintentional injuries 7,501 times. Nearly 37 percent (2,766) of these visits occurred between May and August – a 9 percent increase above average. The risks for children ages 5-9 increased most dramatically.

Sacramento County has a population of approximately 272,400 children ages 14 and under. The counties served by the medical center are primarily suburban and agricultural.



### D.C. SAFE KIDS:

#### Hospital Admissions for Unintentional Injury, Children Ages 14 and Under 1991-1996, Children's National Medical Center Trauma Registry\*, Washington, D.C.

Researchers obtained data from the trauma registry at Children's National Medical Center, lead organization for the D.C. SAFE KIDS Coalition. For 1991 – 1996, the medical center's trauma registry has a record of 6,730 admissions of children ages 14 and under for unintentional injury. Of these, 40 percent (2,694) occurred between May and August – a 19 percent increase above average.

Children's Hospital provides care to children from the District of Columbia and adjoining counties in Maryland and Virginia, an area with 4 million people and 365,000 children. The hospital is a source of primary trauma care for urban, suburban and rural areas.

\* Patients treated and released from the emergency dept. are not included in this analysis.

## CONCLUSIONS

This report confirms the assumption that the summer months pose a heightened risk for childhood injury. More specifically:

- July is the deadliest time of the year for childhood unintentional injury.
- Drowning occurs more often during July than any other month. The increase in deaths may be attributed to the number of children out of school during July, as well as the likelihood of warm, long days.
- Motor vehicle-related injuries also hit their peak during July. The increases may be attributed to the number of families who travel by car during this month in addition to the number of children out of school during July.
- Older children experience the greatest increase in unintentional injury-related death during the summer months. This is primarily because children ages 10-14 tend to engage in more risky behavior and are presumably given more freedom from their parents.
- Young school-age children ages 5-9 are also at high risk because they lack the skills to make clear judgments necessary to bike, walk, swim and play safely without adult supervision. Many parents of children this age also fail to restrain them properly in booster seats in motor vehicles, which can lead to severe injuries or even death in the event of a car crash.
- Summer injury peaks are less pronounced in mild-weather regions of the country. Temperate climates enable children to spend more time outdoors; therefore injuries in these regions tend to be distributed more evenly throughout the entire year.

## CALL TO ACTION

The National SAFE KIDS Campaign urges others to join its more than 300 coalitions in all 50 states, the District of Columbia and Puerto Rico, in a multifaceted approach to reducing unintentional injury during the summer months. Specifically, communities need to:

- Spread the word to parents, caregivers and older children about summer risks through television, radio and print media and community events.
- Provide safety devices, including bike helmets, child safety seats, window guards and life jackets to parents in need through community networks.
- Create safer roads by building bike paths, sidewalks and speed-reduction measures into communities where children live, targeting high-risk areas.
- Increase the number of pools with four-sided isolation fencing.
- Pass and enforce child safety laws, including bike helmet, personal flotation device and child occupant protection laws.
- Advocate for affordable childcare options for parents to ensure adequate supervision during the summer months.



A Program of



Founding Sponsor



Special thanks to the following SAFE KIDS coalitions:

Arizona State SAFE KIDS  
Greater Sacramento SAFE KIDS  
Connecticut SAFE KIDS  
Washington, D.C. SAFE KIDS  
Magic Valley SAFE KIDS  
Wichita Area SAFE KIDS  
Anderson County SAFE KIDS

and to Johnson & Johnson for its longstanding support of the National SAFE KIDS Campaign and this study.

National SAFE KIDS Campaign  
1301 Pennsylvania Avenue, NW  
Suite 1000  
Washington, DC 20004

tel 202-662-0600  
fax 202-393-2072

[www.safekids.org](http://www.safekids.org)

*Suggested citation:* Kane BE, Mickalide AD, Paul HA. Trauma Season: A National Study of the Seasonality of Unintentional Childhood Injury. Washington, D.C.: National SAFE KIDS Campaign. 2001 May.

