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Field Lessons

Strategies to Support California's Children and Families First Act

Inside Reducing Unintentional Injuries

Glossary

Injury is defined as damage to the body resulting in impairment or destruction of health.[1] Injuries can kill, disable or simply require first aid at home.

Unintentional Injury is an injury that occurs in the absence of an attempt to cause harm. As a group, unintentional injuries make up 74 percent of all injury deaths and 94 percent of all injury hospitalizations of children under age five. This paper focuses on unintentional injuries because they are preventable and frequently overlooked, and serious gaps exist in the implementation of known prevention strategies.

Intentional Injury is caused by someone who purposefully attempts to cause harm. Homicide, suicide and assaults are all intentional injuries. Between 7 and 27 percent of alleged unintentional injury deaths of young children may actually be due to abuse or neglect.[2] Homicides are the leading cause of injury death and the second leading cause of injury hospitalization among children less than one year old. They are the second leading cause of injury death of children ages one to four.

Each year one in four U.S. children needs medical attention for a serious injury.[3,4]

Reducing Unintentional Injuries Among Young Children: A Prop 10 Opportunity

By Janice Yuwiler, MPH

Unintentional injuries are the leading cause of death and disability for children from one to five years of age.[5]

In 1998, 235 California children under age five died from unintentional injuries and 8,303 were hospitalized.[6] More children die from injuries each year than from all other causes of death combined, yet most injuries and injury deaths could be prevented.[7] For every death, approximately 18 hospitalizations and 233 emergency room visits occur.[8] Further, an estimated 100,000 children under age 15 in the U.S. are permanently disabled each year.[9]

Among Californians aged zero to five, the average estimated medical cost in 1996–1997 due to fatal and nonfatal injuries was more than $117 million.[10] In addition, the long term cost of care can exceed $4.5 million over the life of a child who suffers a severe injury, such as brain trauma.[11]

Injuries also cause lost quality of life from pain and loss of motor and/or cognitive function.[12] Moreover, even mild brain injury can result in problems with memory, learning and future school performance. Families often experience direct financial impact due to the burden of medical care and rehabilitation, and a parent's inability to participate in the workforce.[13] The effort of caring for an injured child may affect the care and attention parents can give to other children within the family, and marriages often end due to the strain on the family.[14,15,16]

California Children and Families (Prop 10) Commissions have a unique opportunity to improve the health and well-being of young children by helping to prevent unintentional injury. By examining local systems and identifying gaps, local Commissions can advocate for policies, facilitate coordination between players, and help fund programs to reduce gaps in infrastructure, enforcement, knowledge and access to safety equipment.

Cost Savings Due to Injury Prevention Interventions

Intervention	Cost of Intervention[a]	Total Benefit of Intervention[b]
Bicycle Helmet	$10-25/helmet	$440
Child Safety Seat	$50-80/car safety seat	$1,500
Smoke Alarm	$26/alarm and ten years of batteries	$725
Injury Prevention Pediatrician Counseling	$6.80/visit	$65
Sobriety Checkpoint	$8,200/checkpoint	$55,500
Poison Control Center	$30/call	$200

Source: Miller TR, Levy DT. "Cost-Outcome Analysis in Injury Prevention and Control: Eighty-Four Recent Estimates for the United States." *Medical Care*. 2000; 38(6): 570-73.

a Calculated in 1997 dollars.

b Calculated in 1997 dollars. Calculation includes a monetized value for quality of life.

Injuries Are Preventable

Injuries are not "accidents;" they are not random, uncontrollable acts of fate or the result of a child being "accident prone."[17] For many injuries, researchers have identified how the injury occurs and, with this knowledge, have developed effective prevention strategies which vary according to the injury scenario. For example, strategies to prevent drowning will differ depending on whether the incident occurs in a pool, bucket or bathtub.

Developmental Factors

Understanding child development is particularly important for preventing injuries among young children from birth to age five. Children develop rapidly, and each developmental stage puts them at risk for different injuries. For example, when children are exploring their world by mouthing objects, they are at high risk for choking and poisoning. When a child first becomes mobile enough to exit the house unseen (18–30 months), s/he becomes at higher risk for drowning in a backyard pool or pond.[18] Although young children have the motor ability to access hazards, they lack the cognitive ability to recognize and respond to danger.

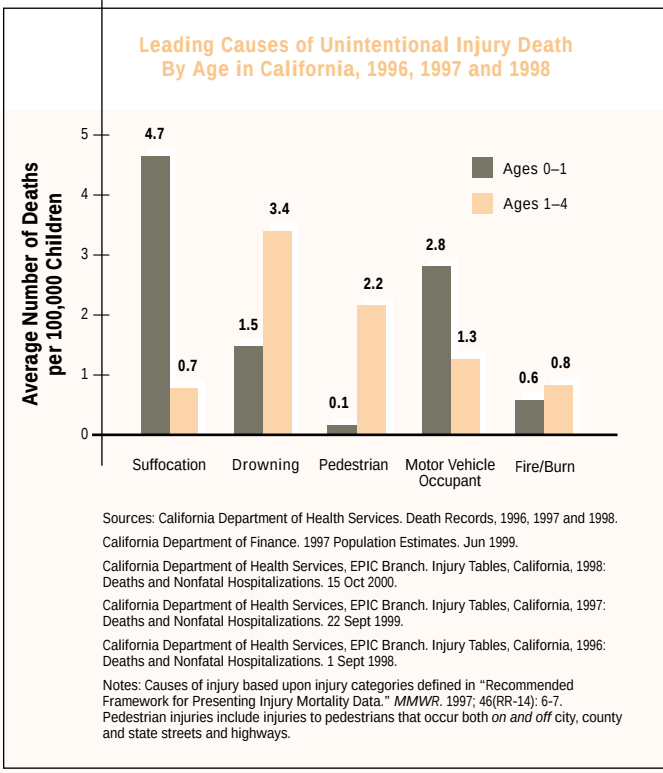
Risk Factors

Children living in poverty experience higher rates of unintentional injury,[19] as do children living in rural areas.[20,21] Conditions such as poor housing,[22] more traffic and a lack of defined play areas put poor children at greater risk for unintentional injury. In addition, safety devices such as a car safety seat or a smoke alarm may seem less important than other family necessities.[23] Similarly, hazardous road conditions and longer response time for emergency medical care put children in rural areas at greater risk. Research also shows that boys are more likely to be injured than girls.[24]

Prevention Strategies

Typically, interventions fall into one of three basic strategies that individuals, communities or societies can implement. Experience has shown that injury prevention efforts are most successful when all three strategies are used together.

Figure 1



Sources: California Department of Health Services. Death Records, 1996, 1997 and 1998.

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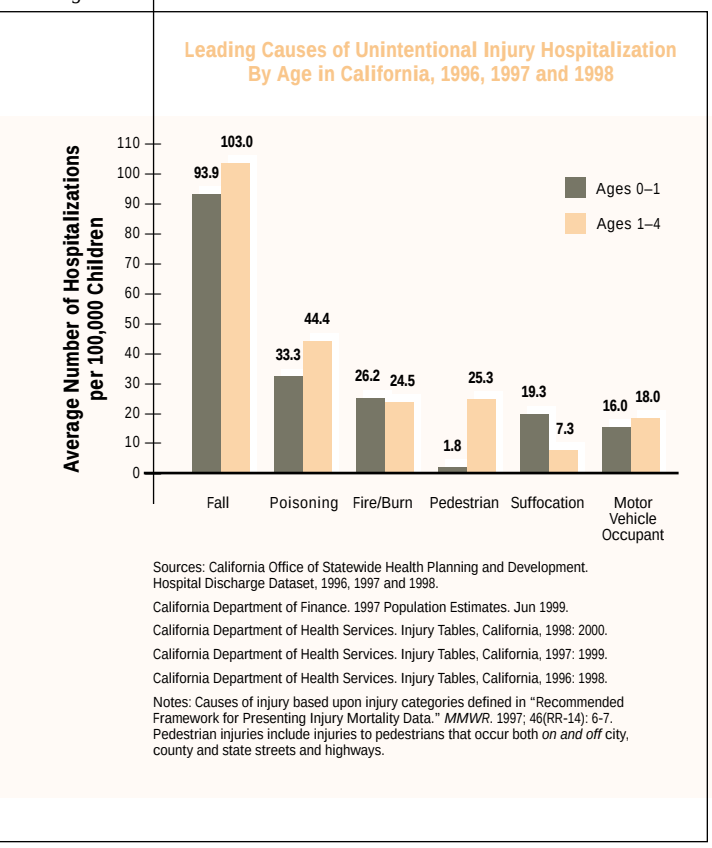
Notes: Causes of injury based upon injury categories defined in "Recommended Framework for Presenting Injury Mortality Data." *MMWR*. 1997; 46(RR-14): 6-7. Pedestrian injuries include injuries to pedestrians that occur both *on and off* city, county and state streets and highways.

Figure 2



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Notes: Causes of injury based upon injury categories defined in "Recommended Framework for Presenting Injury Mortality Data." *MMWR*. 1997; 46(RR-14): 6-7. Pedestrian injuries include injuries to pedestrians that occur both *on and off* city, county and state streets and highways.

• *Environment and Product Modification* Many experts believe this is the most effective intervention strategy because it does not rely on changing human behavior. Examples of new technology and safety products include flame retardant sleepwear, child safety seats, smoke alarms and window guards. Examples of redesigning products and/or the environment include narrowing the space between vertical slats in cribs to prevent head entrapment and modifying the design of residential streets to slow down traffic (traffic calming).

• *Education* At the individual level, education includes reinforcing safe behaviors such as using a car safety seat, installing and testing smoke alarms, and refusing to drink and drive. At the community and societal level, education includes encouraging industry to develop new technologies and safety products, supporting policymakers to pass important safety regulations and informing the public about new laws.

• *Enactment and Enforcement of Legislation and Regulations* A number of California laws and regulations are key to preventing unintentional injuries among young children. These include laws that require homes to have smoke alarms; new pools to have a barrier between the pool and the home; the use of car safety seats and, beginning January 2002, booster seats for children up to sixty pounds; the use of bicycle helmets; lower speed limits for motor vehicles on residential streets; maximum blood alcohol level for drivers; safe storage of firearms; and playground safety standards. Enforcement often plays a key role in the level of compliance with laws and regulations. For example, in the eleven states where law enforcement officials can stop a motorist for not wearing a seat belt, seat belt use averages fifteen percentage points higher than it does in states where officials can only cite a motorist for not wearing a seat belt when they stop the motorist for another cause.[25]

What Communities Need to Know

The leading causes of child injury death and injury hospitalization are not the same. This discrepancy is due to the fact that some injuries are more deadly than others.[26] In addition, how the injury occurs will determine the severity of the injury. For example, fatal burns are primarily the result of residential fires, while hospitalized burns are typically due to contact with hot surfaces. Figures 1 and 2 list the unintentional injury problems for young children in most communities. The California Department of Health Services (DHS) provides county-by-county data on injury death and hospitalization online.

In addition to focusing on the leading causes of unintentional injuries, Commissions should also determine whether special community circumstances deserve attention. For example, if a community does not have many residential pools, pool drowning would not be a prevention priority. However, a particularly severe pedestrian injury problem due to a lack of sidewalks would be a prevention priority.

Resources

- California and County-Specific Injury Death and Hospitalization Data, California Department of Health Services, Epidemiology and Prevention for Injury Control Branch, 916.323.3611 or http://www.dhs.ca.gov/ps/cdic/epic/html/injury_data.html
- California Center for Childhood Injury Prevention, Graduate School of Public Health, College of Health and Human Services, San Diego State University, 619.594.3691 or http://www.cccip.org
- California Coalition for Child Safety and Health, 916.447.7341 or http://www.sacadvocacy.com/cccsh/cccsh.html
- "Demonstrating Your Program's Worth: A Primer on Evaluation for Programs to Prevent Unintentional Injury," Centers for Disease Control and Prevention, 404.639.3311 or http://www.cdc.gov/ncipc/pub-res/pubs.htm
- California Emergency Medical Services Authority EMSC Guidelines, 916.322.4336 or http://www.emsa.ca.gov
- California Safe Kids Coalition, 877.543.7148 or http://www.california-safekids.com

The Orange County Prevention Initiative

The Orange County Children and Families Commission focused on injury prevention in the first grant cycle. The Commission funded the Systematic Childhood Injury Prevention Program (SCIPP), a three-year project to improve the quality, consistency and efficiency of childhood injury prevention counseling and education efforts. The SCIPP will develop multimedia learning tools for healthcare professionals; implement a flexible and integrated system for injury prevention interventions in various healthcare settings; and develop and disseminate culturally and linguistically appropriate injury prevention tools/materials to support patient counseling and education. Outcomes will be measured by tracking injury incidence and by an impact evaluation of the integrated system of childhood injury prevention interventions.

Selected Injury Prevention Interventions for Young Children

Injury	Intervention	Estimated Effectiveness
Bicycle Injuries	Bicycle Helmets	85% reduction in serious head injuries[a]
Burns	Smoke Alarms[b]	50-74% reduction in deaths[c]
Drowning	Four-Sided Pool Fencing	75% reduction in drowning and near-drownings[d]
Falls (window falls)	Window Guards	35-50% reduction in deaths[e]
Motor Vehicle Occupant Injuries	Child Safety Seats[f]	71% reduction in motor vehicle occupant deaths[g]
Pedestrian Injuries	Traffic Calming	78% reduction in serious injuries[h]

Sources:

a Thompson RS, Rivara FP, Thompson DC. "A Case-Control Study of the Effectiveness of Bicycle Safety Helmets." *New England Journal of Medicine*. 1989; 329(21): 1361-67.

b When functioning. (A working smoke alarm is absent in two-thirds of residential fires in which a child is injured or killed. Hall JR. *Patterns of Fire Casualties in Home Fires by Age and Sex*, 1992-1996. Quincy: National Fire Protection Association, 1999.)

c Mallonee S, Istre GR, Rosenberg M, Reddish-Douglas M, Jordan F, Silverstein P, Tunell W. "Surveillance and Prevention of Residential-Fire Injuries." *The New England Journal of Medicine*. 1996; 335(1): 27, 29, 30.

Also see: Ahrens M. *U.S. Experience with Smoke Alarms*. Quincy: National Fire Protection Association, Jan 2000.

d Pitt RW, Balanda KP. "Childhood Drowning and Near-Drowning in Brisbane: The Contribution of Domestic Pools." *Medical Journal of Australia*. 1991; 154: 661.

e Spiegel CN, Lindman FC. "Children Can't Fly: A Program to Prevent Childhood Morbidity and Mortality from Window Falls." *American Journal of Public Health*. 1997; 67(12): 1143, 1145.

f When used correctly. (Almost eighty percent of car safety seats are used incorrectly. Presidential Initiative for Increasing Seat Belt Use Nationwide: Recommendations from the Secretary of Transportation. April 1997: 7.)

g Presidential Initiative. 1997.

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Endnotes

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9 Koop CE. Statement before the Subcommittee. 1989.

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Preventing Childhood Injuries: Recommendations

Local Prop 10 Commissions have the opportunity to collaborate with injury professionals, childcare centers, parents, physicians, schools, family resource centers and law enforcement to integrate injury prevention into ongoing efforts.

1. ***Assess injury prevention as a community priority in Prop 10 strategic planning.*** Consult the county-specific injury death and hospitalization data available online from the DHS. Ensure that someone is responsible for monitoring and preventing childhood injuries within the local health department, and work with them to identify Prop 10 program opportunities and linkages. Include outcome measures that focus on reducing deaths and hospitalizations from injury. Support needed research to learn how and when local injury events occur and to refine and evaluate best practices for local use.
2. ***Enhance community infrastructure***. Empower the local Child Death Review Team to collect standard data by using, for example, the state standardized data collection reporting form. Include injury prevention experts on the local team, and translate team findings into local recommendations and actions. Ensure that Emergency Medical Service system providers are trained and equipped to treat young children. Support local program participation in the statewide injury prevention consortium to provide avenues for training, linkages and implementation of best practices.
3. ***Support enforcement of existing safety laws.*** Partner with law enforcement and local building code officials to address gaps through professional and public education and training, increased manpower, provision of needed safety equipment, or other incentives to expedite compliance with the law.
4. ***Advocate for new policies to require the use of known safety technologies***. Encourage local policymakers to expand the reach of current state law to prevent child drowning by mandating that all pools, not only newly constructed pools, have perimeter fencing and barriers between the home and the pool. Help prevent falls by supporting policies to retrofit balcony railings with vertical slats wider than four inches apart and to mandate installation of window guards on windows above the ground floor. Help prevent pedestrian and bicycle injuries by supporting traffic calming in heavily trafficked residential neighborhoods, as well as the use of rear-mounted mirrors on the backs of delivery trucks.
5. ***Support more effective family education and training.*** Help educate families by supporting programs that conduct "car seat safety check-ups," as well as programs that train medical practitioners to provide injury prevention counseling in primary care settings. Integrate home safety into other Prop 10 family support efforts, including training for childcare workers and homevisiting programs. Ensure that funds generated by traffic citations for children who are not properly buckled up under SB 1073 (Chapter 1223, Statutes of 1991) and SB 567 (Chapter 675, Statutes of 2000) are used to support injury prevention. In smaller counties, where funds may be insufficient to carry out tasks mandated by these laws, use Prop 10 funds to supplement the programs.
6. ***Create a "culture of safety" in your community.*** Community land use planning can be done with an eye towards safety. Encourage the local board of supervisors to consider the safety of children as well as the environmental impact of proposed developments for city and urban planning. Assess the availability of safe, accessible play areas in all neighborhood parks and playgrounds.

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