November 18th 2023 is National Injury Prevention Day

NCC Pediatrics Continuity Clinic Curriculum: **Injury Prevention** *Faculty Guide*

Pre-Meeting Preparation:

- Child Mortality and Injury Charts *(Up to Date, CDC 2023)*
- "In Brief: Child Safety and Injury Prevention" *(PIR, 2015)*
- "Promoting Safety and Injury Prevention" *(Bright Futures, 2016)*
- "Basic Car Seat Safety" *(Safe Kids Worldwide, 2017)*
- Explore WISQARS database and look-up "fatal injury" and "non-fatal" injury statistics/maps on your home state/region. Select 1 or 2 different age-groups, and be prepared to discuss your findings. *(PGY3s may choose their assignment location).*

Conference Agenda:

- *Review* Injury Prevention Quiz
- Complete Injury Prevention *Mega*-Case
- **Round-Table Discussion**:
  - Review resident WISQARS data for fatal and non-fatal injury reports OR log-on during clinic and generate statistics/maps for Montgomery County and DC.
  - Discuss cases of unintentional injury that you've seen in clinic or on the ward. *How did you the counsel parents? What injury prevention topics do you always address?*

Post-Conference: *Board Review Q&A*

Extra-Credit:

- CDC website, National Center for Injury Prevention and Control:
Good resource for patient/parent handouts, as well the WISQARS database
- AAP (Council on Injury, Violence, and Poison Prevention)
Policy statements on every imaginable safety-related topic. Find ones that interest you!
- "Dying Young in the United States" *(Population Reference Bureau, 2022)*
- **Child Passenger Safety:**
  - AAP Technical Report *(Pediatrics, 2018)*
  - Car Seat Information for Families *(2023 update)*
- **Gun Safety and Injury Prevention** *(AAP)*
- **Resources to Address the Opioid Epidemic**
- "Accidents Waiting to Happen: A Review of Unintentional Household Injuries in Children" *(PIR, 2021)*
- "Epidemiology, Prevention, and Sequelae of Drowning" *(PIR, 2021)*
- The Injury Prevention Program (TIPP)
- Safe Kids Worldwide
- CDC Child Injury Prevention Topics
- Injury Prevention Resources *(Up to Date, 2022)*

Ten leading causes of death in children and adolescents, United States (<1 to 24 years) 2020, all races, all sexes

Rank	Age groups (years)					
	<1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24
1	Congenital anomalies 4043	**Unintentional injury 1153***	**Unintentional injury 685***	**Unintentional injury 881***	**Unintentional injury 4654***	**Unintentional injury 10,463***
2	Short gestation 3141	Congenital anomalies 382	Malignant neoplasms 382	**Suicide 581¶**	**Homicide 2572Δ**	**Homicide 3894Δ**
3	SIDS 1389	**Homicide 311Δ**	Congenital anomalies 171	Malignant neoplasms 410	**Suicide 2216¶**	**Suicide 3846¶**
4	**Unintentional injury 1194***	Malignant neoplasms 307	**Homicide 169Δ**	**Homicide 285Δ**	Malignant neoplasms 549	Malignant neoplasms 757
5	Maternal pregnancy complications 1116	Heart disease 112	Heart disease 56	Congenital anomalies 150	Heart disease 294	Heart disease 576
6	Placenta cord membranes 700	Influenza and pneumonia 84	Influenza and pneumonia 55	Heart disease 111	Congenital anomalies 184	COVID-19 383
7	Bacterial sepsis 542	Cerebrovascular 55	Chronic lower respiratory disease 54	Chronic lower respiratory disease 93	COVID-19 118	Diabetes mellitus 219
8	Respiratory distress 388	Perinatal period 54	Cerebrovascular 32	Diabetes mellitus 50	Diabetes mellitus 93	Congenital anomalies 200
9	Circulatory system disease 386	Septicemia 43	Benign neoplasms 28	Influenza and pneumonia 50	Chronic lower respiratory disease 90	Complicated pregnancy 155
10	Neonatal hemorrhage 317	Benign neoplasms 35	**Suicide 20¶**	Cerebrovascular 44	Cerebrovascular 75	Chronic lower respiratory disease 130

SIDS: sudden infant death syndrome; COVID-19: coronavirus disease 2019.

* Unintentional injury.

¶ Suicide.

10 Leading Causes of Injury Deaths by Age Group Highlighting Unintentional Injury Deaths, United States – 2018

	Age Groups										
Rank	<1	1-4	5-9	10-14	15-24	25-34	35-44	45-54	55-64	65+	Total
1	Unintentional Suffocation 977	Unintentional Drowning 443	Unintentional MV Traffic 341	Suicide Suffocation 361	Unintentional MV Traffic 6,308	Unintentional Poisoning 15,353	Unintentional Poisoning 14,978	Unintentional Poisoning 13,620	Unintentional Poisoning 10,854	Unintentional Fall 32,522	Unintentional Poisoning 62,399
2	Homicide Unspecified 125	Unintentional MV Traffic 292	Unintentional Drowning 130	Unintentional MV Traffic 360	Unintentional Poisoning 4,245	Unintentional MV Traffic 6,886	Unintentional MV Traffic 5,068	Unintentional MV Traffic 5,328	Unintentional MV Traffic 5,629	Unintentional MV Traffic 7,697	Unintentional MV Traffic 37,991
3	Unintentional MV Traffic 80	Homicide Unspecified 152	Unintentional Fire/Burn 99	Suicide Firearm 202	Homicide Firearm 4,107	Homicide Firearm 4,348	Suicide Firearm 3,222	Suicide Firearm 3,787	Suicide Firearm 4,421	Suicide Firearm 6,375	Unintentional Fall 37,455
4	Homicide Other Spec., Classifiable 68	Unintentional Fire/Burn 123	Homicide Firearm 57	Homicide Firearm 134	Suicide Firearm 2,995	Suicide Firearm 3,429	Suicide Suffocation 2,688	Suicide Suffocation 2,481	Unintentional Fall 2,766	Unintentional Unspecified 4,607	Suicide Firearm 24,432
5	Undetermined Suffocation 45	Unintentional Suffocation 112	Unintentional Suffocation 30	Unintentional Drowning 86	Suicide Suffocation 2,237	Suicide Suffocation 3,117	Homicide Firearm 2,569	Suicide Poisoning 1,396	Suicide Suffocation 1,934	Unintentional Suffocation 3,793	Homicide Firearm 13,958
6	Unintentional Drowning 39	Unintentional Pedestrian, Other 70	Unintentional Other Land Transport 20	Unintentional Fire/Burn 52	Suicide Poisoning 454	Undetermined Poisoning 824	Suicide Poisoning 990	Homicide Firearm 1,382	Suicide Poisoning 1,491	Unintentional Poisoning 3,269	Suicide Suffocation 13,840
7	Homicide Suffocation 30	Homicide Other Spec., Classifiable 66	Homicide Unspecified 17	Unintentional Suffocation 43	Unintentional Drowning 431	Suicide Poisoning 753	Undetermined Poisoning 780	Unintentional Fall 1,131	Unintentional Suffocation 858	Adverse Effects 3,100	Unintentional Suffocation 6,701
8	Undetermined Unspecified 30	Homicide Firearm 54	Adverse Effects 16	Unintentional Other Land Transport 37	Homicide Cut/pierce 256	Unintentional Drowning 482	Unintentional Fall 502	Undetermined Poisoning 876	Homicide Firearm 802	Unintentional Fire/Burn 1,404	Suicide Poisoning 6,237
9	Unintentional Natural/ Environment 22	Unintentional Natural/ Environment 38	Unintentional Pedestrian, Other 15	Unintentional Poisoning 23	Undetermined Poisoning 224	Homicide Cut/Pierce 455	Unintentional Drowning 414	Unintentional Drowning 456	Adverse Effects 766	Suicide Poisoning 1,133	Unintentional Unspecified 6,082
10	Two Tied 18	Unintentional Firearm 30	Homicide Other Spec., NEC[N] 14	Suicide Poisoning 20	Suicide Fall 205	Unintentional Fall 345	Homicide Cut/Pierce 340	Unintentional Suffocation 401	Undetermined Poisoning 704	Suicide Suffocation 1,014	Adverse Effects 4,604

Data Source: National Center for Health Statistics (NCHS), National Vital Statistics System.
Produced by: National Center for Injury Prevention and Control, CDC using WISQARS™.

Centers for Disease Control and Prevention
National Center for Injury Prevention and Control

Ten leading causes of unintentional injury deaths in children and adolescents, United States, 2020, all races, all sexes (<1 to 24 years)

Rank	Age groups (years)					
	<1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24
1	Suffocation 1024	Drowning 423	MV traffic 319	MV traffic 476	MV traffic 2560	Poisoning 5268
2	MV traffic 72	MV traffic 284	Drowning 115	Drowning 82	Poisoning 1396	MV traffic 4181
3	Drowning 34	Suffocation 118	Fire/burn 60	Other land transport 52	Drowning 249	Drowning 297
4	Poisoning 17	Fire/burn 75	Suffocation 38	Poisoning 52	Other land transport 84	Other land transport 100
5	Natural/environment 15	Pedestrian, other 54	Other land transport 33	Fire/burn 45	Firearm 56	Fall 99
6	Fire/burn 8	Natural/environment 43	Firearm 22	Suffocation 33	Fall 53	Firearm 73
7	Unspecified 8	Firearm 40	Pedestrian, other 18	Firearm 30	Fire/burn 40	Fire/burn 60
8	Fall 7	Poisoning 37	Natural/environment 13	Other transport 24	Suffocation 40	Suffocation 59
9	Three tied, 2 each: ▪ Other land transport ▪ Other specified, classifiable ▪ Pedestrian other	Other land transport 19	Struck by or against 13	Fall 18	Other transport 33	Other transport 58
10		Struck by or against 14	Two tied, 10 each: ▪ Fall ▪ Other transport	Struck by or against 15	Pedestrian other 28	Other specified, classifiable 55

MV: motor vehicle.

Data from: Centers for Disease Control and Prevention. WISQARS Leading causes of death reports, 1981-2020. Available at: wisqars.cdc.gov/fatal-reports (Accessed on March 9, 2022).

Graphic 81602 Version 10.0

Child Safety and Injury Prevention

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AUTHOR DISCLOSURE Drs Sanders and Mogilner have disclosed no financial relationships relevant to this article. This commentary does not contain a discussion of an unapproved/investigative use of a commercial product/device.

Unintentional injuries are the leading cause of death in the United States among children older than 1 year of age, adolescents, and young adults. Each year, nearly 9 million pediatric patients are treated in emergency departments for unintentional injuries, and more than 9,000 die from their injuries, amounting to approximately 25 children each day. Common causes of fatal and nonfatal unintentional injury include motor vehicle collisions, drownings, fires, falls, and sports-related injuries. Aside from their morbidity and mortality, these injuries and their treatment result in significant financial burdens for families and society.

Children and adolescents are particularly vulnerable to injury because of their size, immature development, natural curiosity, and inexperience. Males have a higher risk of injury compared to females, and the male death rate from injury is twice that of females. A number of social factors suggestive of family stress and disorganization are associated with greater childhood injury, including lower socioeconomic status, lower maternal age, lower maternal education, and an increased number of people living in one household. Injury rates also vary based on geographic location. Fire and burn-related injuries and deaths are greatest in the southern states, while traffic-related injuries are greatest in the Great Plains states and the South. Motor vehicle crashes are a leading cause of preventable deaths across all age groups.

Patient visits to the office or the emergency department provide physicians with the opportunity to educate parents and children on safety and injury prevention. The specific anticipatory guidance provided to families should depend on the age of the child because the risk and type of injury vary with age. Promoting safety and preventing injury during a child's first year after birth can be difficult because infants are rapidly developing during this time. Families often underestimate infants' motor skills and overestimate their cognitive skills. Suffocation and motor vehicle crashes are the most common causes of injury and death. Parents must pay special attention to restricting infants' exposure to choking and suffocation hazards such as small toys, balloons, and plastic bags. Infants and toddlers should ride in rear-facing safety seats until they reach the age of 2 years or the highest height and weight allowed by the car seat manufacturer.

Infants are also at risk of falls, burns, choking, poisoning, and drowning. Reinforcing the importance of providing constant supervision for infants is critical. All medications, hazardous household products, and dangerous objects should be stored locked in high places, out of the sight and reach of children. Parents should ensure that there are window guards on all windows in the home, working smoke detectors, and fire extinguishers. Staircases in homes should be gated at both the top and bottom to prevent falls.

Infant walkers have been proven to be a cause of significant injuries. Most of the injuries and deaths associated with walkers occurred from falls down stairs. Furthermore, infant walkers provide no developmental benefits; the use of walkers can actually delay the motor skills required for walking.

Bright Futures: Guidelines for Health Supervision of Infants, Children, and Adolescents, 3rd ed. Hagan JF, Shaw JS, Duncan PM, eds. Elk Grove Village, IL: American Academy of Pediatrics; 2008

In-Line Skating Injuries in Children and Adolescents. American Academy of Pediatrics Committee on Injury and Poison Prevention and Committee on Sports Medicine and Fitness. *Pediatrics*. 1998;101 (4):720–722

Child Passenger Safety. American Academy of Pediatrics Committee on Injury, Violence and Poison Prevention. *Pediatrics*. 2011;127 (4):788–792

SIDS and Other Sleep-Related Infant Deaths: Expansion of Recommendations for a Safe Infant Sleeping Environment. Task Force on Sudden Infant Death Syndrome. *Pediatrics*. 2011;128(5):1030–1039

National Action Plan for Child Injury Prevention. Centers for Disease Control and Prevention, National Center for Injury Prevention and Control. Atlanta, GA: CDC, NCIPC; 2012

Sudden infant death syndrome (SIDS), a diagnosis of exclusion that cannot be explained through medical investigations, is the leading cause of death in infancy beyond the neonatal period. The American Academy of Pediatrics (AAP) recommends that all infants be placed on their backs in their parents' room (but not the parents' bed) for every sleep. Soft objects and loose bedding should be kept out of the crib to reduce the risk of suffocation, entrapment, and strangulation. Evidence suggests that pacifier use is linked with lower rates of SIDS, so infants should be put to sleep with a pacifier after 1 month of age.

Children ages 1 to 4 years old are at high risk for injury because their physical abilities exceed their cognitive abilities to understand the consequences of their actions. The leading cause of preventable death in this age group is drowning. Children should never be unsupervised in any body of water, including bathtubs. Home swimming pools and hot tubs should have fencing around all four sides with a self-latching gate. Burns are also a significant cause of injury in this age range. Hot water temperature in the home should be checked and should be no higher than 48.9°C (120°F). Hot pots and pans should be kept out of the reach of children. The safest approach is to keep children out of the kitchen while cooking. Children who are older than 2 years of age or those who have outgrown the rear-facing car seat weight or height limit should ride in a forward-facing safety seat with a harness until they reach the highest height and weight recommendations for the seat, at which time they should transition to a belt-positioning booster seat.

Middle childhood (ages 5 to 10 years) is a time for intellectual development and gaining independence. Ensuring a safe home environment and appropriate supervision continues to be important during this phase of a child's life. Parents should be asked about the presence of firearms in their homes or in the homes that their children visit. Guns should be removed from environments where children live and play, and if firearms are present, they must be stored unloaded in a locked place to which children do not have access, with the ammunition locked in a separate location.

Physical activity and play are also important activities in a child's life during middle childhood and adolescence. Parents should ensure that children on any wheeled recreation device (eg, bicycles, scooters, inline skates, skateboards, rollerblades) wear properly fitting helmets to help prevent head injury. Some physicians' offices and emergency departments provide helmets to patients, and many communities offer "bicycle rodeos" or events where helmets are distributed for free. Children using inline skates and skateboards should also wear wrist guards, elbow pads, and knee pads. Most injuries from wheeled toys without a handlebar occur in the wrists from falls onto outstretched hands. Belt-positioning booster seats for car use are recommended for children in this age group until the vehicle lap-and-shoulder seat belt fits properly, which usually occurs at a height of 4 feet 9 inches or between 8 and 12 years of age.

Pediatricians can have a significant impact on injury prevention by counseling parents and children. Every visit, either in the office or in the emergency department, can incorporate counseling and guidance on injury prevention.

COMMENT: Each year in the United States, about 10,000 children suffer gunshot wounds, and about 3,000 of these children die. Children in the United States are 10 times more likely to commit suicide by firearm and 9 times more likely to die from an accidental gunshot than children in other industrialized countries. The AAP urges pediatricians to ask families about guns in the home and to counsel them that the safest policy is to have none. If a family does keep a firearm, it should be kept unloaded in a locked place, with its ammunition stored separately, also under lock. Given the ubiquity of civilian guns in the United States, estimated to be about 300,000,000 or approximately the same as the total population, the AAP's position makes sense. However, Florida's state legislature has made it illegal for physicians to ask routinely about guns in the home. So much for the safety of our children, not to mention the first amendment!

– Henry M. Adam, MD
Editor, In Brief

Parent Resources from the AAP at HealthyChildren.org

- http://www.healthychildren.org/English/safety-prevention/Pages/default.aspx
- Spanish: http://www.healthychildren.org/Spanish/safety-prevention/Paginas/default.aspx

Promoting Safety and Injury Prevention

Ensuring a child remains safe from harm or injury during the long journey from infancy through adolescence is a task that requires the participation of parents and the many other adults who care for and help raise children. It also, of course, requires the participation of the children themselves. Health care professionals have long recognized the importance of safety and injury prevention counseling as a tool to help educate and motivate parents in keeping their children safe. Many professional societies have bolstered these efforts by recommending guidance to prevent injuries.[1-3]

Safety and injury prevention is a topic area that covers a wide array of issues for infants, children, and adolescents. These issues can be grouped into 2 general categories.

- **Unintentional injury** continues to be the leading cause of death and morbidity among children older than 1 year, adolescents, and young adults. Serious unintentional injuries result from myriad causes, including motor vehicle crashes, falls, burns, poisoning, drowning, firearms, recreational activities, prescription or other drug overdose, and sports. Unintentional injuries take an enormous financial, emotional, and social toll on children and adolescents, their families, and society as a whole. Although the word *accident* is familiar, the word *injury* is preferred because it connotes the medical consequences of events that are both predictable and preventable. The causes of unintentional injury–related illness and death vary according to a child's age, sex, race, environment, geographic region, and socioeconomic status and depend on developmental abilities, exposure to potential hazards, and parental perceptions of a child's abilities and the injury risk. Younger children, boys, Native Americans and Alaska Natives, adolescents, and children who live in poverty are affected at disproportionately higher rates than are other children and adolescents.[4,5]
- **Intentional injury,** which results from behaviors that are designed to hurt oneself or others, is a multifaceted social problem and a major health hazard for children and youth. Homicide and suicide are particularly important for the health

care professional to consider because their frequency increases as children grow older. In addition, in infants and very young children, intentional injury is a leading cause of morbidity and mortality. Intentional injuries cover a wide array of mechanisms, and the effect on children is great, no matter whether the violence is directly experienced or is witnessed. The association of early childhood exposure to violence and subsequent violent behaviors has been established.[6-9] The prevention of violence in all its forms therefore follows a developmental trajectory, beginning with infancy. To provide appropriate guidance and counseling, health care professionals need to be alert to the possible presence of violence in a family or to the effects of a violent environment on a child, which may include seemingly unrelated physical concerns.

Guidance on interventions and strategies to ensure safety and prevent injuries target 3 domains: (1) the development and age of the child, (2) the environment in which the safety concern or injury takes place, and (3) the circumstances surrounding the event. The health supervision visit provides a venue to assess the parents' and the child's current safety strategies, encourage and praise their positive behaviors, provide guidance about potential risks, and recommend community interventions that promote safety.[10]

The health supervision visit also is a good venue in which to review emergency and disaster preparedness measures (Box 1). Information on handling emergencies, how to access local emergency care systems, and CPR and first aid can be made available to all parents. Information on disaster preparedness includes knowing the risks and hazards in the area, making a plan, preparing a kit of emergency supplies, and getting involved in community readiness efforts.[11]

Box 1

Emergency Preparedness Suggestions for Parents

Health care professionals can suggest that parents

- Complete an American Heart Association or American Red Cross first aid and CPR program.
- Have a first aid kit and know local emergency telephone numbers and Web sites. The number for the **national Poison Help line** is **800-222-1222.** The FEMA preparedness planning Web site is **www.ready.gov/make-a-plan.**
- Know when to call a health care professional (counsel parents to call whenever they are not sure what to do).
- Know when to go to the emergency department (counsel parents on when to call **911**).

Abbreviation: FEMA, Federal Emergency Management Agency.

Child Development and Safety

Ensuring safety and preventing injuries must be an ongoing priority for parents as their children progress from infancy through adolescence. However, the nature of their efforts evolves over time. Safety issues in infancy relate primarily to the infant's environment and interactions with parents. Parents must modify the environment to prevent suffocation, motor vehicle–related injuries, falls, burns, choking, drowning, poisoning, violence, and other hazards. They also must maintain active supervision, which means focused attention and intentional observation of children at all times. As a young child's independence emerges and mobility rapidly increases, new safety and injury prevention challenges arise and necessitate further environmental modifications, or childproofing. Parents of young children often underestimate the level of the child's motor skill development (eg, age of ability to climb) and overestimate their cognitive and sensory skills (eg, assessing the speed of an oncoming car or being able to learn from past mistakes). Integrating injury prevention counseling with

developmental and behavioral discussions when talking with the family can be an effective method of delivering this important information.

The middle childhood years are a period during which safety challenges at home begin to be augmented by those outside the home (eg, at school, in sports, and with friends). During middle childhood, increasing independence allows the child to broaden his world beyond that of the immediate family. This requires good decision-making skills to stay safe and reduce the risk of injury. During adolescence, decision-making about safety shifts to choices the adolescent makes about his activities, behavior, and environment.

Parents have an important role to play in keeping their children and adolescents safe through maintaining open lines of communication, balancing strong support with clear limits, and monitoring closely. Strong support and close monitoring by parents have been linked with positive outcomes in children regardless of race, ethnicity, family structure, education, income, or sex.[12,13] Health care professionals can help parents foster openness, encourage communication with their child, and address concerns when they arise.

When a risky behavior is identified, counseling can be directed toward helping the parent and child with strategies to reduce or avoid the risk, such as using appropriate protective gear (eg, seat belts, helmets, hearing protection, and sports equipment), not riding in a car or boat with someone who has been drinking alcohol, locking up prescription drugs, and ensuring that firearms are inaccessible to children and adolescents, especially those with suspected depression or other mental health concerns. Parents should be alert to unusual changes in behavior, such as sleep disturbances, withdrawal, aggression, sudden isolation from peer groups, or the need for unusual or extreme privacy, which can indicate mental or behavioral health problems that need to be addressed. *(For more information on this topic, see the Promoting Mental Health theme.)* Risk-reduction counseling is most likely to be effective when it is used in a repetitive, multi-setting approach, rather than being isolated in the medical office.[14] Partnering with the parent and sharing strategies for how to promote positive youth development, address strengths, and reduce risk-taking behaviors is an important collaborative approach as parents gradually decrease their supervisory responsibilities and help their child transition to young adulthood.[2] *(For more information on this topic, see the Promoting Lifelong Health for Families and Communities theme.)*

Families and Culture in Safety and Injury Prevention

Parents often feel challenged as they try to set priorities among the many health and safety messages that are given to them by the medical community. For some families, these messages may conflict with their cultural or personal beliefs and may result in parents disregarding the health and safety recommendations on topics such as safe infant sleep or the safe storage of firearms. In addition, certain culturally derived medical or alternative health practices may place children at risk of injury. Cultural or gender roles, in which women are not able to tell men in the household what to do, may limit women's ability to enact a safety measure. In some communities, cultural beliefs dictate that the mother or parents are not the primary decision-makers or caregivers for their young children. Acknowledging the influential roles that older women (eg, grandmothers or mothers-in-law) and other elders and spiritual leaders play in guiding child care practices is key to the effective delivery of safety, injury prevention, and health promotion messages. Health care professionals should be sensitive to these cultural perspectives and alert to any potential health and safety issues that may influence the child and family.

The health care professional has the dual role of helping families set priorities among health and safety messages in the context of the child's health, developmental age, and family circumstances, as well as helping families carry out these recommendations within their own cultural framework. The health care professional also should recognize when health and safety information is ineffective because of cultural differences in beliefs about the care of the child. A familiarity with local community public health services and state and local resources is critical to tailoring information and care recommendations to best suit the needs of the child and family. Rather than giving a parent or child an absolute requirement, the health care professional might consider where an appropriate adaptation or modification can be made to accommodate cultural and family circumstances.

Economic realities often affect parents' ability to alter their home to create a safer environment for their child. Children who live in poverty often live in substandard, crowded homes in unsafe neighborhoods. They may be homeless and may be exposed to environmental pollution, such as lead and carbon monoxide. Their parents often experience poor health, economic stresses, and discrimination. These families are least able to make the changes they want and need in their homes and communities. *(For more information on this topic, see the Promoting Family Support theme.)* Health care professionals should be aware of housing codes that govern safety issues (eg, hot water, window guards, carbon monoxide and smoke alarms, and lead paint) and of tenant codes, which require landlords to install or allow the installation of safety devices, require certain upkeep, and protect the tenants from injury. Access to legal services for families who live in poverty has brought improvements to child health and safety. Low-income families, who are least likely to be able to afford injury prevention devices, may require assistance to overcome cost barriers. Community-based injury prevention interventions are effective and are models of community partnership.[15,16] These programs can address cultural beliefs, income barriers, and community norms to help families implement safety interventions, especially those that have been shown to reduce injuries (eg, car safety seats, bike helmets, firearm locks, smoke alarms, and window guards). Community-based interventions are more likely to be successful at reducing injuries if they are integrated into and tailored to the community and involve community stakeholders.[17,18] Trials of community programs that involve home visits to distribute free smoke alarms have reported large increases in smoke alarm ownership and decreases in fire-related injuries.[19]

Safety Considerations for Children and Youth With Special Health Care Needs

Children with special health care needs may have unique needs for safety and injury prevention. Parental supervision must be focused on the developmental level and physical capabilities of the child. To ensure a safe environment, parents of children with special health care needs may have to seek alternative safety equipment, such as specially designed car safety seats or additional door locks to protect children who may wander at night, such as children with autism spectrum disorder. Providing information or resources may improve the quality of life for families, as in the case, for example, of a family that may not be able to travel together without such equipment.[20] Increasing parents' awareness of the potential added complexity of creating a safe environment for their child with special health care needs and guiding parents toward local and national resources are ways that the health care professional can help parents provide a safe environment.

Many children with special health care needs encounter new safety challenges as they enter school and begin to deal with the community at large. They often are vulnerable and at risk of being

bullied or abused. They also may have an increased risk of maltreatment, including child neglect and physical or sexual abuse, including by professionals in schools and other institutions. Because they may rely heavily on caregivers for their physical needs and hygiene, their mental or physical limitation may impair their ability to defend themselves. Health care professionals can discuss appropriate caregiving, highlight risks for abuse, discuss the potential of bullying, and encourage parents to establish monitoring systems at home, in the community, and at school to protect their child. Planning for children with special health care needs requires understanding and anticipating the child's limitations and needs, with designated roles for family members and referral to additional community resources to ensure safety.

Parents of children with special health care needs may want to consider developing a disaster plan that includes lists of medications, food and supplies, equipment, and contact information for health care professionals that are part of their care team.[21] The plan also can include the use of an Emergency Information Form,[22] advanced registration for special needs shelters and evacuation plans, and extra medications and supplies.

Safety and Injury Prevention Counseling in the Bright Futures Health Supervision Visit

Anticipatory guidance for safety is an integral part of the medical care of all children. Counseling needs to be directed to the parent as the role model for the child's behavior and as the person who is most capable of modifying the child's environment. Counseling about some of the more effective safety and injury prevention interventions, such as using car safety seats and seat belts, spans infancy through adolescence, while other issues, such as bicycle safety, are developmentally and age specific.

Evidence from several systematic reviews confirms that injury prevention guidance is effective and beneficial. Because families seek the trusted opinion of pediatric health care professionals, these professionals can deliver important preventive messages that are intended to alter risky behaviors.[23,24] Bass et al[25] found that positive effects from injury prevention counseling included improved knowledge, improved safety behaviors, and decreased numbers of injuries involving motor vehicles and nonmotorized vehicles. However, Barkin et al found that parents can retain only a limited number of topics.[26] Thus, Bright Futures injury prevention topics are distributed across visits so that each visit has no more than 4 to 5 safety-related topics for the health care professional to discuss.

DiGuiseppi and Roberts[27] systematically reviewed 22 randomized controlled trials to examine the effect on child safety practices and unintentional injuries of interventions delivered in the clinical setting. The results indicate that some, but not all, safety practices are increased after counseling or other interventions in this setting. Specifically, guidance about car safety seats for young children, smoke alarms, and maintenance of a safe hot water temperature was more likely to be followed after interventions in the clinical setting than was guidance on other issues. Clinical interventions were most effective when they combined an array of health education materials and behavior change strategies, such as counseling, demonstrations, the provision of subsidized safety devices, and reinforcement.

The effectiveness of counseling can be improved if a health care professional knows the risks specific to the local population. For example, if the major cause of morbidity in the local population is drowning, counseling about active supervision around water is appropriate. In a farming community, counseling about the risk of agricultural

injury and farming equipment safety can be especially pertinent. This advice also applies to counseling regarding the common recreational activities in a professional's geographic area (eg, all-terrain vehicle riding, snowmobiling, personal watercraft). Particularly for adolescents, common occupational hazards should be discussed and use of protective equipment (eg, safety glasses, protective ear covers) should be encouraged. Local injury data can be obtained from state or local departments of health, and statewide fatality data are available online.[28] It is therefore expected that the health care professional will adapt the safety anticipatory guidance to meet the needs of the child, family, and community on the basis of a sound knowledge of the local causes, risks of injury in the child's environment, and the assessed and expressed needs of the child and family.

TIPP (The Injury Prevention Program[3]), developed by the American Academy of Pediatrics (AAP), is a developmentally based, multifaceted counseling program that allows the health care professional to use safety surveys at strategic visits and counsel parents on unintentional injury prevention topics delineated as areas of specific risk. Parents can complete TIPP surveys, which are distributed by office staff, in a few minutes. According to information from the surveys, health care professionals can use different parts of TIPP to individualize and supplement their anticipatory guidance with counseling and handouts that are appropriate for the child's age and community. In an effort to better tailor anticipatory guidance, primary care practices have used kiosk systems to help delineate specific injury risks that families might have in the home.

Four safety topics that deal with ways to reduce or prevent violence have particularly strong research evidence and lend themselves to pediatric anticipatory guidance.

- Using constructive disciplining techniques and alternatives to corporal punishment[29-31] *(For more information on this topic, see the Promoting Family Support and Promoting Healthy Development themes.)*
- Promoting factors associated with psychological resilience among adolescents[32-35] *(For more information on this topic, see the Promoting Mental Health and Promoting Lifelong Health for Families and Communities themes.)*
- Preventing bullying[36-40] *(For more information on this topic, see the Promoting Mental Health theme.)*
- Preventing firearm injury[41-43] *(For more information on this topic, see the Safety priority in selected visits.)*

Since its peak in the mid-1990s, the epidemic of fatal youth violence has steadily declined. Many segments of society, in addition to the health care system, have contributed to this reduction.[44,45] Programs with proven effectiveness are described by the University of Colorado Center for the Study and Prevention of Violence (**www.blueprintsprograms.com**).[46] Information about a wide variety of violence prevention programs, ranging from public service announcements to school curricula, also is available through the Centers for Disease Control and Prevention (CDC) program STRYVE (Striving To Reduce Youth Violence Everywhere).[47]

Surveys and focus groups have demonstrated that parents want to discuss community violence with their child's health care professional.[48] Pediatricians also have expressed enduring interest in violence prevention counseling, although many feel inadequately trained to do so.[49] Few published studies directly address the effectiveness of health care professional counseling in violence prevention. However, the strong supporting research evidence provides a rationale for incorporating violence prevention into routine clinical practice.[1]

Connected Kids: Safe, Strong, Secure, also developed by the AAP, takes an asset-based approach to violence prevention anticipatory guidance.[2] Recommended counseling topics for each health supervision visit discuss the child's development, the parent's feelings and reactions to the child's development and behavior, and specific practical suggestions on how to encourage healthy social, emotional, and physical growth in an environment of support and open communication. Counseling can be supplemented by the use of Connected Kids brochures for parents and their children.

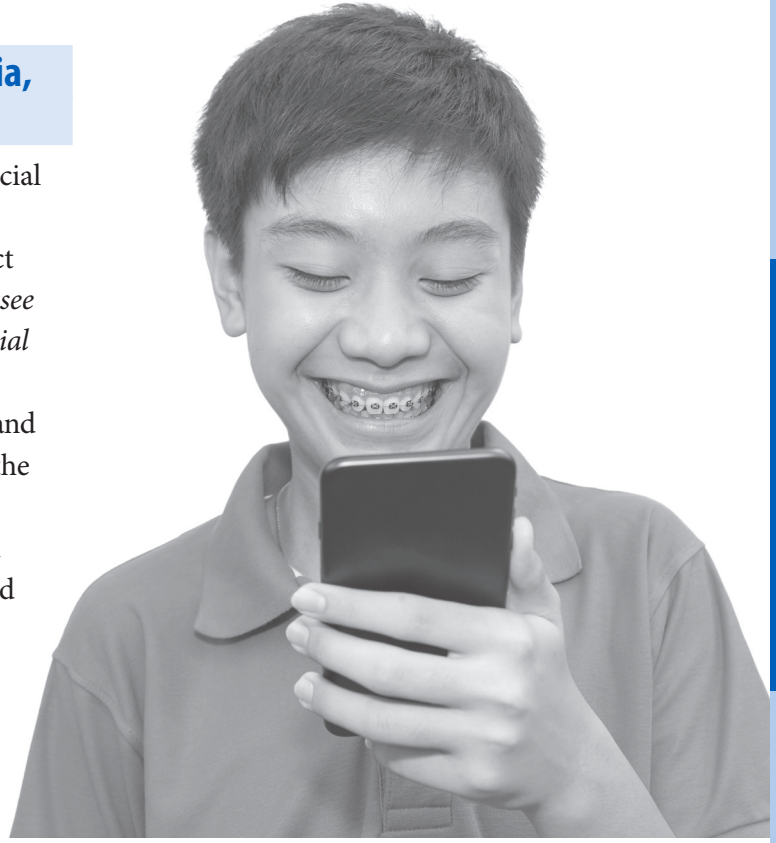
Each Bright Futures Visit has established safety priorities for discussion, and sample questions are provided in the Anticipatory Guidance sections. The priorities and sample questions in each visit that are relevant to safety are specifically linked to the counseling guidelines in TIPP (for Infancy, Early Childhood, and Middle Childhood Visits) and Connected Kids (for all visits), making it easy for the health care professional to incorporate these tools in a Bright Futures practice. In addition, the *Bright Futures Tool and Resource Kit* includes many other resources that may assist the health care professional.

Safe Use of the Internet, Social Media, and Texting

Many children and youth use the Internet, social media, and mobile devices in their daily lives to chat, text message, play games, and conduct searches. *(For more information on this topic, see the Promoting the Healthy and Safe Use of Social Media theme.)* Internet safety and etiquette is important to discuss to help prevent children and youth from being involved with or becoming the victim of bullying, abuse, scams, or stalking. Families should be aware that all information and actions taken online should be considered permanent and can be traced. For example, commercial companies trace actions of online users for research and design to improve their products and services marketed to the public, but others trace this same information for harmful purposes.

Information in the form of public or private postings on social media or online communication through texting or chatting, whether sent or received, can be categorized into online safety issues, including (1) sexual solicitation, (2) harassment, (3) exposure to inappropriate content, and (4) youth-generated problematic content.[50,51] Surveys of youth have demonstrated that the proportion of youth Internet users aged 10 to 17 years who reported being harassed online almost doubled between 2000 and 2010, from 6% to 11%.[52] Rates of unwanted exposure, as in being harassed or solicited online or abused off-line, appear to be higher among youth who are older or who have depression.[38]

Although, at present, no information is available about the effectiveness of Internet safety programs, these programs can offer parents and institutions some guard against the harms of using the



Internet. Parents and health care professionals should have frank discussions on the safety, benefits, and harms of using the Internet and social media. Although data are lacking to support specific policies, basic interventions that promote safe use of the Internet are recommended. Schools can employ programs that teach skills in negotiating peer conflict and managing anger issues online and off-line. These anti-bullying and social and emotional learning programs target relational and verbal harassment behaviors and may involve role-playing and discussion exercises to assist identifying and practicing pro-social skills relevant to their youth peer culture. Schools also can ensure that their bullying and harassment policies address online harassment and cyberbullying incidents. Children and youth should be encouraged to disclose to an adult, including parents, school staff, and other adults, if they are bullied or abused on the Internet.

The Health Care Professional as a Community Advocate for Safety

The clinical setting may not be suitable for carrying out the entire range of information, modeling, resources, and reinforcement that are required to change safety practices. For some families, the effectiveness of clinical interventions can be boosted if they are delivered in concert with efforts that involve representatives from the community to overcome language and cultural differences. For example, community-based educational interventions that have included clinical counseling as one component of a broader effort have shown positive effects on childhood bicycle helmet ownership and use.[53] Bicycle helmet education campaigns, legislation, and improvements in helmet design have contributed to a reduction of fatalities.[54]

Health care professionals can consider participating in fun, community-based safety activities and can work with community partners to increase public awareness about safety issues and provide prevention education. In most communities, it is possible to partner with agencies such as fire departments and Emergency Medical Services for Children departments, state and local Safe Kids coalitions (**www.safekids.org**),[55] and public health programs that work directly with families of young children. In addition, health care professionals often provide leadership for effective safety and injury prevention programs and legislation through advocacy activities and testimony at public hearings. On an individual patient level, health care professionals always should be aware of their role as mandated reporters for suspected child abuse and neglect and risk of harm, including health and safety risks.

Promoting Safety and Injury Prevention: The Prenatal Period

Safety and injury prevention begins in the prenatal period. Preparing for the arrival of an infant should include the purchase of an approved car safety seat and working with a Child Passenger Safety Technician to learn how to install it, as well as purchasing a crib that meets current safety standards. Car seat loaner programs are available in many communities. Prospective parents also can be encouraged to take an infant CPR and first aid class, get a first aid kit, check or install smoke alarms, and place the national Poison Help line telephone number (**800-222-1222**) on all their telephones and in their mobile phone contact lists.

Promoting Safety and Injury Prevention: Infancy—Birth Through 11 Months

Promoting safety and preventing injuries is a continuing task for parents during the first year of their child's life. Injury prevention for the infant requires careful integration of awareness of developmental skills, as they are rapidly acquired, and the active supervision and interventions necessary

to ensure the infant's safety. Parents commonly underestimate their infant's motor skills while overestimating their infant's cognitive skills and judgment. Counseling in the primary care setting is important to help parents understand the correct timing of the development of these skills so that they can focus their safety interventions most appropriately.

Although suffocation and motor vehicle crashes are the most common causes of unintentional injury and death during this age, the infant also is at risk of other injuries, including falls, fires and burns, poisoning, choking, animal bites, and drowning. Each of these tragedies is preventable, and appropriate counseling can provide parents with the knowledge and strategies for reducing the likelihood that these injuries will occur. Vulnerable infants who are exposed to maternal substance use, secondhand smoke, malnutrition, lack of caregiver supervision, or caregiver neglect also are at increased risk of morbidity or death. The importance of establishing good habits begins in infancy, and parents can be counseled about the positive value of their own behavior as a role model for their child.

Sudden Infant Death

Sudden unexpected infant death (SUID) describes certain types of infant mortality, including sudden infant death syndrome (SIDS). After autopsy, case review, and death scene investigation, a SUID may be determined to be caused by asphyxiation, suffocation, parental overlie, infection, or other medical causes. The diagnosis of SIDS is reserved for unexpected and unexplained deaths that occur in infants younger than 1 year.[56] Although SIDS is the leading cause of death in infancy beyond the neonatal period, rates of sleep-related infant deaths, such as accidental suffocation and strangulation in bed (known as ASSB), are on the rise. Leading causes of this form of sudden infant death include suffocation by soft bedding, overlay (when another person rolls on top of or against the infant), wedging or entrapment (when an infant gets trapped between 2 objects, such as the mattress and a wall), and strangulation (when something presses on or wraps around the infant's head and neck, blocking the airway).

A robust body of evidence indicates that the risk of SIDS and other sleep-related infant deaths is reduced when infants sleep on their backs and in their parents' room but not in their parents' bed.[56] Pacifiers have been linked with a lower risk of SIDS. It is recommended that infants be placed for sleep with a pacifier. For breastfed infants, this can be started after breastfeeding is well established (usually by 3–4 weeks of age). A pacifier can be started in formula-fed infants soon after birth. It should not be forced if the infant refuses. It also should not be reinserted once the infant is asleep.

The following independent risk factors for SUID, including SIDS, have been identified:

- Young maternal age
- Maternal smoking during pregnancy
- Inadequate prenatal care
- Exposure to secondhand cigarette smoke
- Low birth weight or premature birth
- Male gender
- An overheated infant
- Prone sleep position for infant
- Infant sleeping on a soft surface
- Bedding (eg, pillows, blankets, bumper pads, stuffed toys) in the infant sleep area
- Infant sleeping on a couch, a sofa, or other cushioned surface
- Bed sharing (infant sleeping with parent or other adult)

Other sleep-related infant deaths, such as those caused by unintentional suffocation or asphyxia, have similar risk factors. Several of these risk factors are under parental control during infancy. Personal experience and beliefs significantly influence a family's acceptance of specific messages regarding infant sleep position and sleep location.

The health care professional should learn the family's views about infant sleep, room sharing, and bed sharing to appropriately tailor sleep-related death prevention and risk reduction counseling. (See Box 2.)

Room Sharing and No Bed Sharing

Parent and infant sleeping practices are influenced by custom and family traditions.[58] It is important to work with families to ensure safe sleep practices while still being culturally sensitive.

Room sharing, defined as an infant sleeping in the parents' room in a separate sleep space, is a common practice in many cultures worldwide. In many cultures, sharing a room is viewed as a part of the parents' overall commitment to their children's well-being. *Evidence shows that room sharing is associated with a reduced risk of sudden infant death, and it is recommended that babies sleep in their parents' room for at least the first 6 months of life but not in their parents' bed.*[57] It should be noted that the case-control studies

Box 2

Reducing Sudden Unexpected Infant Death Risks

In 2016, the AAP Task Force on Sudden Infant Death Syndrome reviewed the evidence and compiled the following recommendations to reduce the risk of sleep-related infant deaths[57]:

- Do not smoke during pregnancy. Avoid alcohol and drugs during and after pregnancy.
- Breastfeeding is recommended and is associated with a reduced risk of SIDS. If breastfeeding occurs in the mother's bed, the infant should be returned to her separate sleep place when the mother is drowsy or ready for sleep.
- Supine sleep position is safest for every sleep; side sleeping is associated with increased risk and is not advised.
- A separate but nearby sleep environment is safest for the infant ("in your room but not in your bed"). The infant's crib or bassinet can be placed immediately next to the parents' bed.
- Parents or other caregivers should not share a bed with their infant; accumulating evidence reveals increased risk of SUID for infants who share a bed with others.
  - The risk is further increased if parents smoke, use drugs or alcohol, or take medications that cause drowsiness or fatigue or induce a deep sleep.
  - Parents should never sleep with their infants on a sofa or couch.
  - There is no evidence that devices claiming to make bed sharing "safe" reduce the risk of SIDS. They are not to be recommended.
  - Provide separate sleep areas for twins and other multiples.
- A pacifier should be offered for naps and night sleep.
- Use a firm sleep surface. Avoid placing soft objects and loose bedding in cribs, bassinets, and playpens. Bumper pads are not recommended.
- Do not allow smoking in the child's environment.
- Avoid overheating the infant; do not over-bundle the infant or set the room temperature too high.
- Do not use home cardiorespiratory monitors as a strategy to reduce the risk of SIDS.
- No evidence is available to recommend swaddling as a strategy to reduce SIDS risk. *(For more information on swaddling, see the Prenatal, First Week, and 1 Month Visits.)*
- Infants should be fully immunized according to AAP and CDC recommended immunization schedules. No evidence exists that links immunizations to SIDS.
- Health care providers, staff in newborn nurseries and NICUs, and child care providers should endorse and model the SIDS risk reduction recommendations from birth.
- Media and manufacturers should follow safe sleep guidelines in their messaging and advertising.

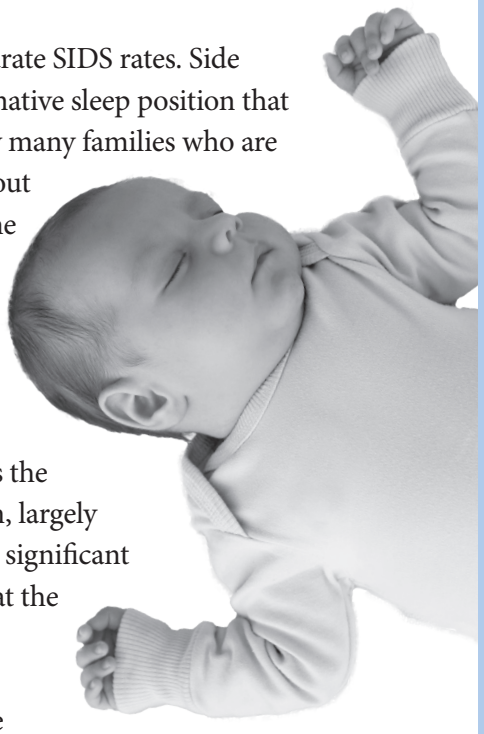
Abbreviations: AAP, American Academy of Pediatrics; CDC, Centers for Disease Control and Prevention; NICU, neonatal intensive care unit; SIDS, sudden infant death syndrome; SUID, sudden unexpected infant death.

regarding room sharing do not provide data or information regarding when it is safe for infants to move out of their parents' room. Previous recommendations used the 6 month recommendation, and other considerations led to the *at least 6 months* recommendation: 90% of SIDS occurs during the first 6 months of life,[56] the highest risk of death with bed sharing is in the first 3 months of life, and it may be difficult to establish good sleep habits in older infants if they are sleeping in the parents' bedroom.[57]

Sleep practices in which parents and infants share a bed also are common in many cultures. Bed sharing can take the form of mother, father, and infant together in the same bed, to mother and infant together with father sleeping elsewhere, to all family members in the same bed. Advocates of this practice claim that bed sharing facilitates breastfeeding, promotes parent-infant attachment, and allows parents to quickly comfort a fussy infant. *However, bed sharing is to be discouraged.* It is associated with a higher frequency of infant death that can be caused by overlying by a parent, sibling, or other adult sharing the bed; wedging or entrapment of the infant between the mattress and another object; head entrapment in bed railings; and suffocation on water beds or because of clothing or bedding causing oral-nasal obstruction.[59] Parent movement also may push the infant out of the bed.

Sleep Position

Despite more than 20 years of recommendations, at least 25% of infants,[60] overall, continue to be placed in the prone or side position for sleep, and 23% of white[61] and 43% of black infants[62] still sleep on their side or in the prone position. These percentages have become stable over the past 10 years as the progress made by the Back to Sleep campaign has plateaued.[63] The prone sleep position used more often by African American families[24] and in friend and family care settings is a contributing factor to disparate SIDS rates. Side lying, an alternative sleep position that is practiced by many families who are concerned about using the prone position, statistically carries the same degree of increased risk of SIDS as the prone position, largely because of the significant probability that the infant will roll from the side position to the prone position during sleep.[56] The risk of death caused by SIDS is approximately 8 times higher for infants who are placed for sleep on their side or in the prone position.[56]



Promoting Safety and Injury Prevention: Early Childhood—1 Through 4 Years

Young children are especially vulnerable to many of the preventable injuries because their physical abilities exceed their capacities to understand the consequences of their actions. They are extraordinary mimics, but their understanding of cause and effect is not as developed as their motor skills. Gradually, between the ages of 1 and 4 years, children develop a sense of themselves as people who can make things happen. However, at this age, young children are likely to see only their part in the action. A 2-year-old whose ball rolls into the road will think only about retrieving the ball, not about the danger of being hit by a motor vehicle. Parents and other caregivers of young children must provide active supervision. They should establish and consistently enforce safety rules, recognizing that this is done to establish a foundation

for following rules because young children do not have the cognitive capacity to understand the rule, take action, and avoid the hazard. Water safety is critical at these ages, when the ability to swim safely is not developed. Parents and other caregivers should be aware of potential hazards in their home, including common household chemicals (eg, dishwasher detergent, pesticides), medications, heavy objects (eg, televisions [TVs]), furniture tip-overs, and family or neighborhood pets, and should create a safe environment that will allow the young child to have the freedom he needs to explore. Creating a safe environment involves storing potentially harmful items out of sight and out of reach of children. Medicines in purses, cupboards, and on shelves are common sources of potentially harmful items. Choking hazards include small toy parts, plastic bags, and certain foods, such as peanuts, popcorn, raw carrots, uncut hotdogs or grapes, and hard candy. Educational materials are available as part of the PROTECT initiative in partnership with the CDC (**www.cdc.gov/MedicationSafety/protect/protect_Initiative.html**).[64]

Parents can teach their child about personal safety at an early age. Parents should train their child how to approach authority figures (eg, teachers, police, and salesclerks) and ask them for help in the event he becomes lost or temporarily separated from his parents. Health care professionals also can play an important role in preventing and identifying child sexual abuse, particularly because they are mandated reporters. It is important to have discussions with families and caregivers about healthy sexual development and sexuality to assess for any problems and concerns. Providers should be able to talk with parents and caregivers about concerns and should be aware of problems signs. *(For more information on this topic, see the Promoting Healthy Sexuality and Sexual Development theme.)*

A child aged 1 to 4 years also does not fully understand that his actions can have harmful consequences for himself or for others, and parental guidance is therefore necessary to shape aggressive behaviors. Longitudinal observations have suggested that childhood aggression peaks around age 17 months and, with adult guidance, most children learn to regulate these tendencies before school age.[65]

Promoting Safety and Injury Prevention: Middle Childhood—5 Through 10 Years

Middle childhood is a time of intellectual and physical growth and development, when children become more independent. The controls and monitoring that parents provided during the early childhood years change as children get older. As children go to school, participate in activities away from home, and engage in more complex and potentially dangerous physical and social activities, they need to develop good judgment and other skills to function safely in their expanding environment. Safety promotion and injury prevention are central aspects of the child's education.

Preventing or lessening the effects of violence also is an ongoing concern for many children during the middle childhood years, especially those living in families or communities in which violence is prevalent. Television and other media violence[66] also may have serious effects during this period, as children spend increasing amounts of time away from home or out of the active supervision of a parent and have increased opportunities to watch TV.

School and Community Safety

During this time, children begin transitioning from complete dependence on their parents to developing their own strategies and decision-making skills for ensuring their own safety. Nowhere is this more apparent than when children

are out of the home and functioning independently in their community. The process of going to school, on errands, to a friend's house, or to a music lesson, scout meeting, or team practice can present challenges to the young child who is negotiating her environment. Walking or taking the bus, going with groups of other children, and meeting new adults all have the potential to increase social skills and respect for others, as well as the potential to place the child in danger. This developmental stage is the time when children acquire essential interpersonal skills, including conflict resolution. School-based conflict resolution and skill-building programs have been shown to be effective.[67]

The health care professional should encourage parents to know their child's activities, daily whereabouts, and friends. Good communication between parent and child is essential to the child's safety. Lessons that were introduced in early childhood, such as pedestrian safety (eg, retrieving a ball from the street), pet safety, dealing with authority figures, and appropriate touching by others, should continue as needed. This information does not need to be communicated specifically as a safeguard against abduction or abuse but can be taught as developmental achievements in the growing child.[68] The message to parents is that they should actively teach their children about safe behaviors but not generate unnecessary fear or overly restrict freedom and independence.

Children this age should never be left at home alone but increasingly will be spending time away from home at school, friends' homes, or organized activities. Parents should make sure the child has information about her home, including address, telephone number, parents' cell phone numbers, and keys to the home, and a backup contact person if the parents are not available. Parents should insist that the child check in with her family. Health care professionals also can partner with child care centers, schools, after-school programs, and municipalities to enhance public awareness and modify physical environments. Speed bumps, crosswalks, the passage and enforcement of school zone speed limits, and school bus safety laws can create a safer environment for child pedestrians.

Peer pressure also emerges during this period. Children need to be encouraged to develop a sense of their own identity and locus of control and be taught strategies for dealing with inappropriate peer pressure or behavior. Health care professionals can use anticipatory guidance to address these issues with parents and encourage them to discuss these issues with their child. By discussing these issues openly, the health care professional is modeling safe behavior and is encouraging the parent and child to communicate.

Bullying

Bullying is a social phenomenon in which a larger or more powerful child repeatedly attacks (physically or emotionally) a smaller or weaker child.[37,69,70] Cyberbullying is bullying that uses the Internet or electronic devices to spread written or photographic mean-spirited messages about a person. *(For more information on this topic, see the Promoting Mental Health theme.)* Children can be identified as bullies, being bullied, or bystanders; they may both be a bully and be bullied. In some cases, they may be all three. Effective bullying prevention programs have been demonstrated for use in the schools, and all rely on direct measures by school administration and the mobilization of bystanders to protect the children being bullied and identify bullying behavior as socially intolerable. Physician counseling of individual patients begins with the recognition of bullying as a potential cause of psychosomatic concerns and may include both individual counseling and referral of parents to effective bullying prevention resources. It is important to recognize that bullying behavior is often rooted in stressful or traumatic experiences.[71] Bullies, themselves, are at high risk of long-term adverse consequences and often need

behavioral counseling and other interventions to help them interact more positively with their peers.

Play, Sports, and Physical Activity

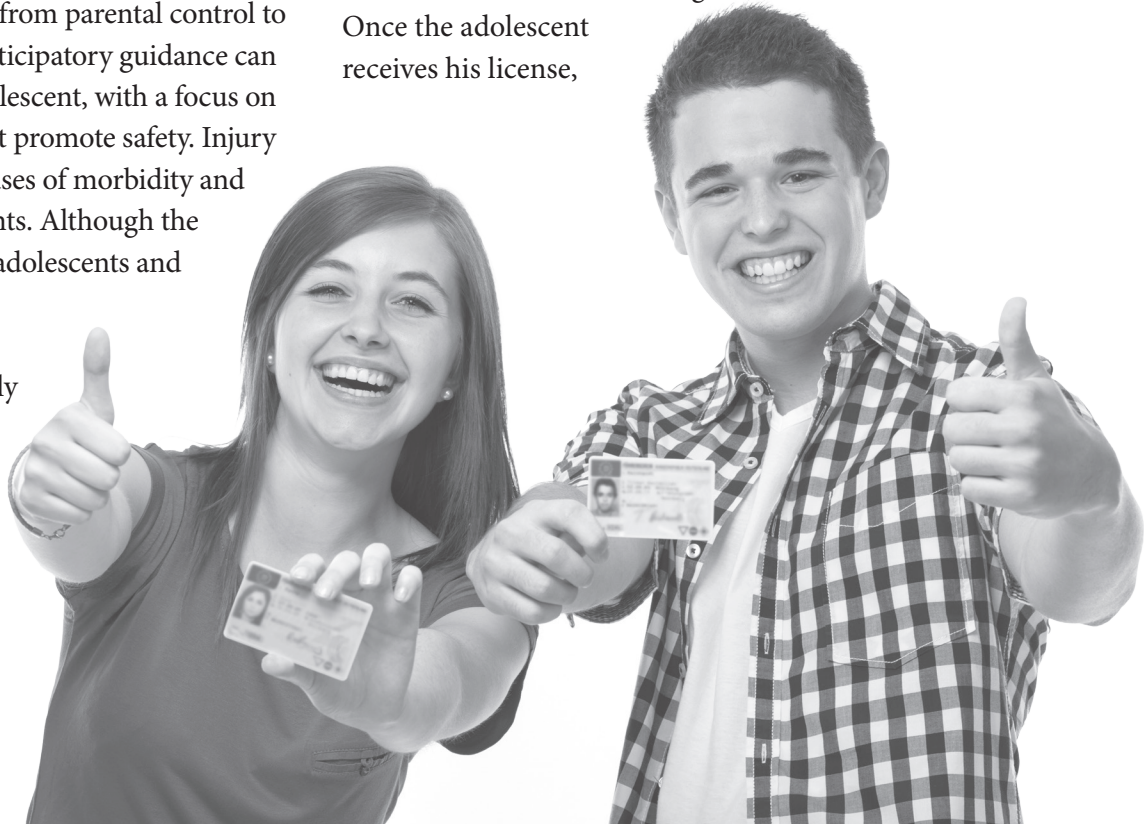
Physical activities play an important role in a child's life during this age, and participation in team and individual sports can consume considerable amounts of time. Although the overall health effect is usually positive, children need to learn and follow safety rules for their protection and the protection of others. *(For more information on this topic, see the Promoting Physical Activity theme.)* Parents also should be encouraged to model safe behaviors, such as wearing bicycle helmets and sports protective gear. Children should follow traffic rules and safety guides concerning bicycle riding, skating, skiing, and other similar activities. The use of protective gear, such as helmets, eye protection, mouth and wrist guards, and personal floatation devices or personal protective devices, is not negotiable and should be used at all times by everyone.

Promoting Safety and Injury Prevention: Adolescence—11 Through 21 Years

In caring for the adolescent patient, the approach to injury prevention shifts from parental control to the adolescent himself. Anticipatory guidance can now be directed to the adolescent, with a focus on encouraging behaviors that promote safety. Injury and violence are major causes of morbidity and mortality among adolescents. Although the leading causes of death of adolescents and young adults aged 11 to 21 years vary by race and age, the top 3 causes consistently are motor vehicle crash injury, homicide, and suicide.[72] Although serious injuries and death are more common among boys, reports of violence among girls are increasing.[73] Dropping out of school, using drugs, and getting in physical fights place adolescents at increased risk of severe injury or death. Protective factors, such as connectedness with school and adults, are associated with reduced violence in youth.[44] Health care professionals can recognize and encourage protective factors in youth as a strategy to promote safety and reduce injuries.

Driving

Learning to drive is a privilege and considered a rite of passage for many adolescents. It is a reflection of their growing independence and maturity. Adapted equipment and special driving techniques make it possible for many youth with special health care needs to drive. Health care professionals can encourage parents to be initially involved with their adolescent's driver's education by doing practice driving sessions together and by establishing rules that foster safe, responsible driving behaviors. Parents should enforce and model safe driving habits, including wearing seat belts at all times, not using cell phones or texting while driving, and not driving under the influence of drugs or alcohol. State laws regarding mobile device and seat belt use are becoming more common. Once the adolescent receives his license,



parents should continue to monitor his driving skills and habits to ensure that safe behaviors persist. Current research suggests that severe motor vehicle crashes involving inexperienced drivers are associated with (1) other teens in the car, (2) driving at night, and (3) distractions, such as using a cell phone, texting, e-mailing, using the Internet, or adjusting devices such as a radio, mapping device, music player, or mobile phone. Comprehensive graduated driver licensing (GDL) programs enacted in many states have been shown to reduce fatal crashes.[74] Parents should familiarize themselves with the provisions of the GDL law in their state and require their adolescent to adhere to the law, whether as a driver or as a passenger of a newly licensed teen driver. However, parents should know that state GDL laws do not include all the provisions recommended by the AAP. Health care professionals can support parents in setting rules and limits that reflect best practice, which is likely stricter than state GDL requirements. This can be accomplished with the use of a parent-teen driving agreement tool; such tools are available on **HealthyChildren.org,**[75] through the CDC,[76] and from motor vehicle insurance companies.

Preventing Distracted Driving

In 2013, the National Safety Council estimated that 21% (1.2 million) of all motor vehicle crashes involved the use of cell phones, with 6% caused by texting while driving.[77] At a speed of 55 mph, a driver who turns his eyes to a phone for 5 seconds will travel more than the length of a football field without looking at the road.[78] Adolescents are more likely than older drivers to talk or text on a cell phone while driving.[78]

Other potential distractions posed by mobile devices include viewing or posting to social media platforms, interacting with a GPS mapping application, playing electronic games, and reading electronic books or Web sites. Although the increased risk associated with such activities is not yet well described, any manipulation of a mobile device while driving is a distraction and likely increases the risk of a crash.

Though little data exist to demonstrate efficacy, strategies to decrease distracted driving include legislation, enforcement, pledges, and the use of technology to block mobile device functionality while in a moving vehicle. States and municipalities increasingly are enacting bans on the use of mobile devices by drivers. Use of technology, such as in-car cameras and anti-texting applications for smartphones, may help prevent texting and driving. Given that teens are more likely to use safety belts and helmets if their parents do, it is reasonable to deduce that teens may be positively influenced by parents who demonstrate undistracted driving behaviors. Parents and adolescents can be encouraged to discuss the topic of distracted driving and to use a text-free-driving pledge. Resources available to prevent distracted driving are available at **www.distraction.gov.**[79]

Violence

Violence and exposure to violence increase the risk of homicide, aggressive behavior, and psychological sequelae, including post-traumatic stress disorders.[6,80-85] It has been estimated that each year approximately 8.2 million children have been exposed to intimate partner violence (IPV).[83] Childhood exposure to IPV seems to increase the likelihood of risky behaviors later in adolescence and adulthood.[86] Additionally, children who witness IPV are at increased risk of adverse behavioral and mental health issues.[80,83]

Sexual and dating assaults are a leading cause of violence-related injury in adolescence.[28,87] In the 2013 Youth Risk Behavior Survey, among high school students reporting having dated in the prior 12 months, 10.3% report physical dating violence and 10.4% report sexual dating violence, with a higher prevalence among girls.[87] Adolescents who report a history of experiencing dating violence

are more likely to experience negative health consequences and engage in serious risk behaviors.[88] Comprehensive IPV interventions conducted by teachers in schools in combination with community activities have been effective in preventing IPV perpetration and abuse among adolescents.[89] Screening for violence exposure can identify those who need further intervention.

Certain youth subcultures may experience comparatively greater violence, including injury, abuse, and rape. Teens who use drugs, report having been in more than 4 fights in the past year, are failing in school, or have dropped out of school are at substantially increased risk of serious violence-related injury.[90,91] Studies have found abuse, substance use, and sexual risk behaviors among gay youth to be significantly higher than among their heterosexual peers.[92] Homicide is consistently the leading cause of death for male African American adolescents.[93]

Suicide

Suicide is the third leading cause of death for adolescents, and a 2013 survey found that suicidal ideation is reported by more than one-sixth of high school students.[87] Medications, knives, automobiles, and firearms are all readily available to most adolescents, representing ubiquitous opportunities for depressed youth to harm themselves. *(For more information on these topics, see the Promoting Mental Health theme.)*

Gangs

The 2012 National Youth Gang Survey (NYGS) estimates there are 30,000 active gangs and 850,000 gang members throughout 3,100 jurisdictions in the United States.[94] The 2012 NYGS results reveal that more than one-third of the jurisdictions that city (populations of ≥2,500) and county law enforcement agencies serve experienced gang problems between 2005 and 2012.[95] This number translates to an estimated 3,100 jurisdictions with gang problems across the United States. The prevalence of youth gang membership varies according to the city but is higher in larger cities and those with a history of gang activity. Risk factors for gang involvement include prior and early involvement in delinquency, especially violence involvement; poor parental supervision and monitoring; low academic achievement and attachment to school; association with peers who are delinquent; and criminogenic neighborhoods with drug use and youth who are in trouble.[96] *(For more information on this topic, see the Promoting Lifelong Health for Families and Communities theme.)* Health care professionals should be alert to these risk factors and should screen for gang exposure. The National Youth Gang Center has resources for gang prevention, intervention, and suppression.[97]

Sports

Pre-participation sports physical examinations, which are directed at identifying the few adolescents for whom a sport would be dangerous, provide a unique opportunity for health care professionals to counsel adolescents and their parents on preventing sports injury and violence (eg, intentional fouls during contact sports, hazing, brawling) and promoting general health. Generally, sports participation should be encouraged because of the physical, emotional, and social benefits. *(For more information on this topic, see the Promoting Physical Activity theme.)*

Some medical conditions warrant a limitation in sports or require further evaluation before participating. An AAP policy statement from the Council on Sports Medicine and Fitness provides a detailed review of medical issues that limit participation.[98] Some youth with special health care needs may have condition-specific restrictions on their activity and may require alternative or adapted activities that are safe and appropriate. If a heart murmur is innocent (eg, it does not indicate heart disease), full participation is permitted,[98] but other cardiac disorders may require further evaluation. The

presence of significant hypertension without heart disease or organ damage should not limit participation, but the adolescent's blood pressure should be measured at the heath care professional's office every 2 months. Adolescents with severe hypertension should be restricted from isometric activities (eg, weight lifting) and competitive sports until their hypertension is under control and they have no end-organ damage.[99] Any temporary suspension from sports participation because of a medical condition (eg, concussion or surgery) should be reinforced by the health care professional, and adolescents and parents should be made aware of the importance in adhering to all recommendations as to when to resume sport activities.

Health care professionals should advise adolescents to use appropriate protective gear (eg, helmets, eye protection, knee and elbow pads, personal floatation devices or personal protective devices, mouth and wrist guards, and athletic supporter with cup) during recreational and organized sports activities and focus on overall strengthening and conditioning as well as training for their specific sport as key ways to prevent injury and maintain fitness.

Performance-enhancing substances, including anabolic steroids, are an important topic for discussion, and adolescents should not use them. Health care professionals also can encourage parents to be cautious about allowing their adolescents to participate in highly competitive sports until they are physically and emotionally mature enough and to ensure that such programs are properly certified and staffed by qualified trainers and coaches.

The use of sports and energy drinks by adolescents is another issue that health care professionals can address during a pre-participation examination. As stated in an AAP policy statement, these drinks "…are a large and growing beverage industry now marketed to children and adolescents for a variety of uses.… Sports drinks are different products than energy drinks…[they] are flavored beverages that often contain carbohydrates, minerals, electrolytes (eg, sodium, potassium, calcium, magnesium), and sometimes vitamins or other nutrients. Although the term 'energy' can be perceived to imply calories, energy drinks typically contain stimulants, such as caffeine and guarana, with varying amounts of carbohydrate, protein, amino acids, vitamins, sodium, and other minerals." Energy drinks pose potential health risks primarily because of stimulant content. They are not appropriate for children and adolescents and should never be consumed. "Sports drinks are appropriate when there is a need for rapid replenishment of carbohydrates and/or electrolytes in combination with water during periods of prolonged, vigorous sports participation or intense physical activity."[100] *(For more information on this topics, see the Promoting Physical Activity theme.)*

Recent new knowledge on sports injuries has focused greater attention on 2 issues: concussions and the injuries resulting from cheerleading. Clinicians should be aware of recommendations from the AAP and should address these issues during pre-participation sports examinations.

- **Concussion.** Although the collision sports of football and boys' lacrosse have the highest number of concussions and football the highest concussion rate (0.6 per 1,000), concussion occurs in all other sports and has been observed in girls' sports at rates similar to or higher than those of boys' sports. Girls' soccer produces the most concussions among girl athletes and has the second highest incidence rate (0.35 per 1,000) of all sports.[101] As of 2014, all 50 states had enacted laws on concussion awareness and management of young athletes.[102] Parents, coaches, and athletic trainers can ensure that return-to-play guidelines are followed and that the student-athlete is provided sufficient time for recovery from any injury before resuming the sport.[103]

- **Cheerleading.** Over the past 30 years, cheerleading has increased dramatically in popularity and has evolved from leading the crowd in cheers at sporting events into a competitive, year-round sport involving complex acrobatic stunts and tumbling. Consequently, cheerleading injuries have steadily increased over the years in both number and severity. Sprains and strains to the lower extremities are the most common injuries. Although the overall injury rate remains relatively low, cheerleading has accounted for approximately 66% of all catastrophic injuries in high school girl athletes over the past 25 years. Cheerleaders should have a pre-participation physical examination before participating in a cheerleading program and should have access to appropriate strength and conditioning programs.[104]

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BASIC CAR SEAT SAFETY

Be sure to buckle up the right way on every ride!

SAFE KIDS WORLDWIDE™

All children must use a car seat, booster seat or seat belt.

- My child always rides in a back seat and never in front of an airbag.
- Everyone in my car buckles up on every ride using the right car seat, booster seat or seat belt for each person's age and size.
- My child's car seat has all of its parts, labels and instructions and has never been in a crash.
- I follow the instructions for my car and my car seat so that my child is buckled in right and tight.
- My child's car seat has never been in a crash.
- I never leave my child alone in a car.

Use our online Ultimate Car Seat Guide for information on all your car seat needs. www.safekids.org/ultimate-car-seat-guide

Babies under 2 use rear-facing car seats

- My child always rides in a back seat and never in front of an air bag.
- My child always rides in a car seat made for his or her size and age.
- My child sits facing the back of the car in his or her car seat.
- The harness straps are snug on my child, and I can't pinch the buckled strap at the shoulder.
- My child's car seat is buckled tightly in the car and doesn't move more than one inch when I pull it where the seatbelt is buckled/attached.
- My child uses a bigger rear-facing car seat until he or she outgrows the harness. Many harnesses go to 35, 40 or 45 pounds.
- I never leave my child alone in a car.

Toddlers and big kids use forward-facing car seats with a top tether

If my child is over age 2 AND has outgrown the weight or height limits for the rear-facing seat:

- My child always rides in a back seat.
- My child always rides in a car seat made for his or her size and age.
- The harness straps are snug on my child, and I can't pinch the buckled strap at the shoulder.
- My child's car seat is buckled tightly in the car and doesn't move more than one inch when I pull it at the belt path. I use the top tether.
- My child uses this car seat until he or she outgrows the harness. Many harnesses go to 50 pounds or more.

Older, bigger kids use booster seats with lap and shoulder seat belts

If my child has outgrown the weight or height limit of the forward-facing car seat:

- My child always rides in a back seat.
- My child always rides on a booster seat using a lap and shoulder seat belt.
- The lap belt sits low on his or her hips, not the stomach.
- The shoulder belt is on my child's shoulder – not on the neck, under the arm or behind the back.
- The seat belt is snug, flat and comfortable on my child.
- My child may be between 8-12 years of age before the seat belt fits without a booster.

Kids ready for seat belts

If my child has outgrown the booster seat:

- My child always rides in a back seat until age 13.
- My child always uses a lap and shoulder seat belt.
- The lap belt sits low on my child's hips, not the stomach.
- The shoulder belt is on my child's shoulder – not on the neck, under the arm or behind the back.
- My child's back is firmly against the vehicle seat back, his or her knees bend at the front edge of the vehicle seat, and he or she can sit this way for the whole ride.
- The seat belt is snug, flat and comfortable on my child. If the seat belt does not fit right, my child must use a booster seat.

Injury Prevention Quiz

1. What is the leading cause of death in kids **>1year**? Unintentional Injury

2. List the top 5 causes of injury mortality in 2020 in kids **1-18 years**. What about the <1 year and 1-4 year age groups? 5-9 years? 10-14 year age group?15-19 year olds?
    1. Firearms
    2. Motor Vehicle Accidents
    3. Suffocation
    4. Poisoning (4th due to adolescent substance use, infant/toddler rate comparatively low)
    5. Drowning

    Hint -- use WISCARS to look up all fatalities by age group for the year 2020. This list will differ from the **unintentional** injury list included in the module.

    <1 year age group, **suffocation is #1**.
    1-4 year age group, **drowning is #1**
    5-9 years olds, MVA is #1
    10-14 year olds, firearms is #1
    15-19 year olds, firearms is #1
3. Discuss the current AAP recommendations for the following:

    - **Rear facing carseats**: At least until age 2 years and longer if the maximum height/ weight limit that the carseat allows.
    - **Forward-facing carseats**: When kids outgrow the rear-racing (see above) until they outgrow the maximum height for the car seat (varies
    - **Belt-positioning booster seat**: When kids outgrow the forward facing carseat, OR to 4'9" (usually 8-12 years old, but by law usually 6 years/60 pounds, whichever comes later.)
    - **Seat-belt alone**: When kids outgrow the booster seat OR can properly sit with feet flat on the ground and the seatbelt is not too high on the abdomen or cutting into the neck. AAP recommends back seat until age 13 years.

4. **Hot water heaters** should be set to no more than 120 degrees F

5. The phone number for **Poison Control** is 1-800-222-1222.

Injury Prevention *Mega*-Case

You are seeing 2 new families in your continuity clinic today. The families are identical in composition: both sets of parents are bringing in their healthy 2 month old daughter and 3 year old son in for routine well-visits. Review of their charts and history obtained from the parents reveals unremarkable birth, past medical, and past surgical history. Growth and development are appropriately tracking. You obtain a social history from each:

Family #1:

- Father is AD Marine Enlisted E-3
- Mother works part-time at night as a waitress
- Family lives in an older 2 bedroom apartment on the 10th floor in a "rough" neighborhood
- No daycare—cared for by mom when dad is at work and vice versa

Family #2:

- Father is AD Marine Officer O-5
- Mother is a PhD who works at NIH
- Family lives in a newly renovated house in Chevy Chase
- No daycare—family has a nanny

What other questions do you want to ask the parents regarding safety issues, and what kind of anticipatory guidance will you give for each family?

Refer to the **AAP Pediatric Patient Education** . Safety counseling will vary somewhat patient to patient depending on social factors, identified red flags in history, etc. Use your history to guide anticipatory guidance. Here are just a few as examples:

- **Car seat use**?— What kind, and where are they positioned?
- Home **"baby-proofing"**?— More detailed discussion about potential safety hazards at home—gates for the stairs , outlet covers, cabinets locked, medications/chemicals locked and out of reach, no choking hazards (i.e. small toys of the 3 yr old, wires, cords on the blinds, etc.)
- **Smoke detectors**— Do they have them, do they work, and are they regularly tested?
- **Hot water heater** temperature— In an apartment, the family won't necessarily have individual control over the temperature (or may need to go through their landlord/maintenance to change it). You can have the family check the water temperature by letting the hot water run for 2 minutes and measuring with a cooking (not regular) thermometer. Have them talk to their landlord if >120 degrees.
- **Window locks**—present? Asking about location of the 3 year old's bed or other furniture in the bedroom (preferably away from a window, esp. if not safety locked—kids can climb on furniture and get out of the window).
- **Guns** in the home? If so, discuss keeping them unloaded and locked separately from ammunition?

You find out the following:

Family 1:

- The 3 year old is restrained in a belt- positioning booster seat in the back seat of the car most of the time (he proudly tells you that he sometimes gets to ride in the front seat of car if he's "a good boy.") The family received this booster as a hand-me-down from a cousin.
- The 2 month old is in older brother's old infant carseat in the back seat of the car, rear facing.

What do you tell the parents? Is anything in this information against the law?

- Review with parents the AAP recommendations on carseat use, and their rationale.
- Recommend checking to see if there have been recalls for their carseats, as they are older.
- In terms of legality, it depends on the state. Refer to the Insurance Institute for Highway Safety for the state-specific laws. In **Maryland/DC**, the fact that the 3 year old is sometimes not in a carseat is against the law, but the fact that he is in the front seat is not (**VA law** does have "rear seat preference".)

Family 2:

- The 3 year old is restrained in a forward-facing car seat in the back seat of the car.
- The 2 month old is in a rear facing infant seat in the back seat.

- The 3 year old sleeps in his own room in a "big boy" bed.
- The 2 month old sleeps in bed with mom and dad.

How do you counsel the parents about safe-sleeping practices?

Review risks for suffocation, unintentional falls, etc. Review ways to make co-sleeping safer — e.g. positioners to partition the baby off from the parents, avoid alcohol, drugs (prescription or otherwise) that may depress the CNS. Avoid smoking. See Sleep module for more information.

- The 3 year old loves to ride his tricycle. When asked about helmet use, mom laughs and says he doesn't have one—after all, it's only a tricycle! Plus, he tends to ride mainly in the grass in front of the house.

What guidance can you give regarding helmet use?

Refer to Insurance Institute for Highway Safety for map-link to **state laws on bicycle helmet** use. Discuss that head injuries can still happen, even on a tricycle— and that good habits start early. Review the importance of good modeling behavior— kids who don't wear helmets are more likely to have parents who don't wear bike helmets.

Three weeks later, you are seeing both families back in clinic for an acute visit.

Family 1:

- After a busy night at work, mom fell asleep on the couch with the baby on her chest—woke up when the baby rolled off onto the carpeted floor and started to cry. When she woke up, she also noticed that her 3 year old was playing in the kitchen "cooking" with the oven turned on.

Family 2:

- Over the weekend while enjoying a quiet day at home, the 3 year old "got into" his vitamins and ate approximately 20 before his parents realized that he wasn't in his playroom and found him in the kitchen.

After ensuring that all children are well with no major injuries, what kind of counseling do you give the parents?

THERE IS NO SUBSTITUTE FOR GOOD SUPERVISION Parents may swear that their house is completely baby-proofed, but kids will still find ways to get into trouble.

For Family 1: Delve a little deeper into the social situation— i.e., is mom over-tired from working nights and watching the kids during the day? Does she have any family/social support who might be able to help out from time to time? Reinforce safe-sleeping habits.

For Family 2: Reinforce supervision and discuss having all meds, vitamins, chemicals, etc. locked up and out of reach.

One of the goals of these cases is to get you thinking about the socioeconomic disparity in unintentional injuries and how socioeconomic factors play into each of these cases. Think about how these factors will affect safety issues and overall health/well being as the kids in these cases get older… e.g. pedestrian safety (walking home from school/bus stop in Chevy Chase versus southeast DC), helmet safety, water safety (ability to access swim lessons), etc.

Discuss among your group other examples of socioeconomic factors affecting injury prevention (either at an individual level, policy level, or both).

Injury Prevention Board Review

1. During the prenatal visit with new parents, a mother expresses concern about regulating the temperature of the bath water for the new baby. You tell her that standards regarding hot water heaters have been determined.
Of the following, the temperature that has been determined to be appropriate for hot water heaters is CLOSEST to
A. 110ºF
B. 120ºF
C. 130ºF
D. 140ºF
E. 150ºF

Burns are among the most common accidental injuries in infants and children, and scalding injuries occur most frequently. Children commonly are burned by hot liquids spilled from a table or stove, but approximately 3,800 injuries and 30 deaths each year are reported to be due to burns from tap water that is too hot.

The amount of contact time required to produce a third-degree burn is less than parents may realize.

Water Temperature	Time
150ºF	2 seconds
140ºF	6 seconds
130ºF	30 seconds
120ºF	5 minutes

Therefore, the Consumer Product Safety Commission has recommended that all water heaters be set to 120ºF. Parents should call their local electric or gas companies for instructions on adjusting the temperature. Parents who live in apartments should talk with their building managers about having the temperature lowered because the hot water heaters in most apartment buildings are set at higher temperatures to provide hot water to all tenants. In addition to setting hot water heaters to a lower temperature, parents should hand-test water before bathing children and infants, and young children never should be left unsupervised in the bathroom.

2. You are seeing 16-year-old twin brothers for health supervision visits. They tell you that they plan to spend most of the summer boating and fishing at their camp on the lake.
Of the following, the advice MOST likely to decrease their risk of a boating-related fatality is to
A. conduct regularly scheduled engine maintenance
B. have both boys take swimming lessons before the summer
C. install a carbon monoxide detector on the boat
D. post the phone number to the United States Coast Guard on the boat
E. wear life jackets at all times while on the boat

Boating and the use of personal watercraft are popular recreational activities in the United States that are associated with an increased risk of death or injury. In 2004, 3,363 injuries and 676 deaths involving boating incidents were reported. The most common cause of death is drowning.

Other deaths and injuries include carbon monoxide poisoning, hypothermia, vaginal lacerations (with personal watercraft), and other trauma, such as head injuries and fractures. In the 2004 report, alcohol was a factor in one third of deaths, and 90% of drowning victims were not wearing life jackets. Therefore, the best advice for people planning to use boats and personal watercraft is always to wear a life jacket or personal flotation device while on the boat or watercraft. Alcohol use also should be avoided while operating or riding in boats and watercraft. Boating education courses are recommended to improve operator experience and reduce carelessness. Boaters can enroll their boats in the United States Coast Guard's Vessel Safety Check program, which checks safety equipment and gives information on safety procedures.

Carbon monoxide poisoning can be prevented by installing detectors and ensuring sufficient ventilation on the boat. People who swim or stand near the swimming platform of houseboats are at particular risk for carbon monoxide poisoning.

Although conducting regularly scheduled maintenance visits, having passengers take swimming lessons, and posting the Coast Guard number on the boat are good ideas for boat safety, none of these actions prevents boating fatalities more than having all passengers wear life jackets while on board.

3. An 18-year-old young man comes to your office for his precollege health supervision visit. In screening for psychosocial risk factors, you find that he has ridden in a car with a drunk driver and driven himself after having four to five drinks.

Of the following, you are MOST likely to counsel him that

A. a blood alcohol level of 0.05% is not considered illegal for driving among those younger than 21 years of age

B. alcohol involvement in crashes peaks during daylight and nonholiday periods

C. at any blood alcohol concentration, the risk of being involved in a motor vehicle crash is higher for teen drivers than older drivers

D. teen drivers are more likely to drive after drinking than are older drivers

E. the minimum alcohol purchasing age of 21 years in all states has not been successful in reducing alcohol-related crashes among teenagers

Alcohol use remains a significant factor in motor vehicle crashes among teenagers, both from drinking and driving themselves and riding with a driver who has been drinking. In the 2005 *National Youth Risk Behavior Survey*, 9.9% of high school youth (grades 9 through 12) reported that they drove a car or other vehicle one or more times in the 30 days preceding the survey after having consumed alcohol. In the same survey, 28.5% of high school students reported that they had ridden in a car or other vehicle in the 30 days prior to the survey that was driven by someone who had been drinking alcohol. As reported by the Insurance Institute for Highway Safety, young drivers are less likely than adults to drive after drinking alcohol, but their crash risk is higher at all levels of blood alcohol concentrations (BACs) when they do so. The elevated risk of crashes is especially valid at low and moderate BACs (ie, less than 0.08%). This increased risk is believed to be due to teenagers' relative inexperience with both drinking alcohol and driving.

All 50 states and the District of Columbia now have zero BAC thresholds for teenage drivers that were prompted by federal legislation that took effect October 1, 1998. Most states also have graduated licensing that, although differing by state, places restrictions on beginning drivers, including setting higher ages for initial licensure, requiring supervised driving, and restricting night driving and passengers in the car. Alcohol involvement in crashes peaks at nighttime and over holiday periods, making the nighttime restrictions especially appropriate. Since July 1988, all 50 states and the District of Columbia have set laws that require a minimum age of 21 years to purchase alcohol. Minimum purchasing age laws and zero tolerance laws both have been shown to be effective in reducing drinking and driving among teenagers, as evidenced by fewer nighttime fatal crashes. Research on graduated licensing also has shown a reduction in crash involvement rates for teens after programs were implemented.

Pediatricians should emphasize repeatedly to adolescents the importance of safe driving behaviors and ensure understanding of zero tolerance laws. Pediatricians also should screen adolescents routinely for risky use of alcohol and other drugs, which can cause similar impairments in driving behavior. The precollege health supervision visit is an ideal time to discuss risks of college drinking and reinforce the risks of drinking and driving as well as other drug use risks.

4. In researching a presentation you are making at your son's high school, you learn that unintentional injuries are the leading cause of death in the adolescent age group. You plan to address this issue in your discussion of preventive care.

Of the following, the LEADING cause of death from unintentional injuries in adolescents is
A. automobile crashes
B. bicycle injuries
C. drowning
D. firearms
E. sports injuries

Adolescence is a time of exploration and risk-taking, especially during the middle adolescent stage of psychological development. Certain risky behaviors may result in fatal consequences. The three leading causes of death in the 11- to 21-year-old age group are vehicular injuries, homicide, and suicide. The word "injury" is preferred over "accidents" because the word accident implies that the event is not preventable.

Health-care professionals should direct their anticipatory guidance for adolescents to encouraging behaviors that promote safety and injury prevention. In the area of automobile safety, parents should be encouraged to enforce a policy of not drinking or using drugs while driving and avoiding distractions, such as the use of cell phones. In addition, they should familiarize themselves with the Graduated Driver License Law, if any, in their state and require their children to adhere to the law when they are either a driver or passenger in a motor vehicle.

Exposure to violence increases the risk for homicide, aggressive behaviors, and mental health issues. All adolescents should be screened for violence exposure to identify those in need of further intervention. Clinicians should ask parents and adolescents about the presence of firearms in the home and discuss measures to enhance safe storage. Preventing injuries during sports activities is the shared responsibility of adolescents, parents, physical education teachers, and coaches.

Using protective equipment (eg, bicycle helmets), limiting the duration of repetitive activities, setting an appropriate pace, and refraining from the use of ergogenic aids are all important issues to address.

5. You are seeing a 14-year-old boy for a physical examination, which he needs to have completed to attend summer camp. In screening him for safety issues, you find that he does not use a seat belt.
Of the following, a TRUE statement about seat belt use by adolescents is that
A. alcohol consumption is not significantly related to low seatbelt use in teens
B. male teens are more likely to use seatbelts than female teens
C. most high school students report that they rarely or never wear a seatbelt when riding as a passenger in a car
D. most youth who died as occupants in passenger vehicle crashes were not wearing seatbelts
E. motor vehicle collisions rank behind cancer and suicide as the leading cause of death for teenagers

Motor vehicle crashes are the leading cause of death for teenagers. Seat belt use is the most effective countermeasure to prevent injuries and fatalities in motor vehicle crashes. The failure of adolescents to use seatbelts contributes greatly to mortality risk; in 2005, 56.8% of youth 16 to 20 years of age and 54.8% of youth 10 to 15 years of age who died as passenger car occupants were not wearing seatbelts. Fortunately, the percentage of high school students who reported rarely or never wearing a seatbelt when riding in a car driven by someone else decreased from 25.9% in 1991 to 10.2% in 2005, as measured by the National Youth Risk Behavior Survey. Teens who have been drinking are less likely to use seatbelts, and male teens are less likely to use a seatbelt than female teens.

Pediatricians should address the wearing of seatbelts throughout adolescence and support legislation setting more rigorous safety belt and child restraint laws that specify primary enforcement and mandatory use by all occupants. Pediatricians also should advise parents to set a good example of requiring all occupants to use seatbelts, not drink and drive, and not speed.