COSGROVE EXHIBIT 4

American Academy of Pediatrics

TEXTBOOK OF PEDIATRIC CARE

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Table 30-2 Haddon's Matrix and Examples of Variables and Injury Prevention Interventions

	EPIDEMIOLOGIC DIMENSION			
PHASE	**HUMAN**	**VECTOR OR VEHICLE**	**PHYSICAL ENVIRONMENT**	**SOCIOECONOMIC ENVIRONMENT**
Preevent	Judgment Coordination	Safe storage of firearms Infant walker ban	Bicycle paths Swimming pool barriers	Speed limits Graduated driver licensing
Event	Car safety seat use Use of protective equipment	Airbags Energy-absorbing surfacing on playgrounds	Smoke alarms Highway guard rails	Helmet laws Enforcement of seat belt laws
Postevent	Age Physical condition	Activated charcoal Fuel system integrity	Time to emergency treatment Availability of rehabilitation programs	Training of emergency medical system personnel Cardiopulmonary resuscitation training

Adapted from American Academy of Pediatrics, Committee on Injury and Poison Prevention. *Injury Prevention and Control for Children and Youth.* 3rd ed. Elk Grove Village, IL: American Academy of Pediatrics; 1997; and PediaLink continuing medical education course, Moving Kids Safely: Introduction to Car Safety Seats.

appropriate action or not. Airbags are a good example. Both active and passive strategies can be quite successful when used, but passive strategies, when they exist, are usually favored over active strategies. Active strategies require compliance, and a risk always exists that they will not be fully used. Active strategies are often least likely to be adopted by the persons at greatest risk.

Education, Engineering, and Enforcement

Another framework for categorizing injury-prevention measures is the *3 Es*. Education is the approach that is most familiar to health professionals; examples include counseling during health supervision visits and public education campaigns. Engineering involves modifying a hazard or the environment to prevent injuries or reduce the severity of injuries. Enactment and enforcement of legislation and regulation can motivate people to adopt safety-promoting behaviors, require environmental modifications to reduce hazards, and facilitate changes in social norms. Injury prevention is usually most effective when all 3 approaches are incorporated. For example, bicycle helmet use can be promoted through education in schools, design of more comfortable or attractive helmets, and local laws or ordinances requiring helmet use.

Intentional Versus Unintentional Injuries

Injuries are often classified as unintentional or intentional. This dichotomy is useful in many ways; however, the intent of human behavior is not always clear cut and is better described as a continuum. For example, should injuries that result in part from inadequate parental supervision be considered unintentional or intentional resulting from child neglect? Additionally, strategies that prevent unintentional injury (eg, locking up firearms, turning down the water heater temperature) may also prevent some intentional injuries. For these reasons, and because injuries result from both, injury-control efforts often address both intentional and unintentional injury. Nevertheless, some forms of intentional injury, for example, child abuse and child and adolescent suicide and homicide, are so important as causes of pediatric morbidity and mortality that they demand focused attention. Furthermore, the causes of intentional injury are extremely complex, and violence-prevention efforts must take a multifaceted approach that includes the pediatrician. The pediatrician's important role in violence prevention is discussed in Chapter 31, Violence Prevention.

Pediatrician Roles

Pediatricians can attempt to persuade individuals to decrease their risk of injury through educational efforts with individuals or groups. Injury-control advocates have additional strategies at their disposal. Pediatricians can be involved in many of these activities, including media campaigns, legislation, regulation, litigation, environmental design, and cultural change. For most causes of injury, multiple strategies will need to be applied. The pediatrician can also become involved in research to identify risk and protective factors for injury and to evaluate prevention interventions.

ANTICIPATORY GUIDANCE

Evidence of positive outcomes after injury-prevention counseling in clinical practice was identified by a structured review of the literature.[1] The evidence for the effectiveness of injury-prevention counseling is stronger in some areas than it is in others, prompting continual calls for additional research, improvements in counseling, and investment in more passive injury-control strategies. For example, the redesign of baby walkers resulted in a dramatic decrease in injuries associated with falls down stairs in this product, demonstrating the

BOX 30-1 Topics Recommended by the American Academy of Pediatrics for Office-Based Unintentional Injury-Prevention Counseling

INFANTS

Traffic safety: Appropriate use of car safety seats rear-facing in the back seat

Burn prevention: Smoke alarms, hot water temperature no higher than 120°F

Fall prevention: Window and stairway guards and gates, avoiding walker use

Choking and strangulation prevention: Keeping small objects and balloons or plastic bags away from infants, blind and drapery cord safety

Drowning prevention: Supervising baths, emptying buckets

Safe sleep environment: Back to sleep in a crib that meets current safety standards

CPR training: Parent knowledge of infant or child CPR and local emergency medical services (911)

PRESCHOOLERS

Traffic safety: Appropriate use of car safety seats, not leaving children unsupervised in or around cars

Burn prevention: Smoke alarm batteries; keeping children away from hot objects

Fall prevention: Window and stairway guards and gates; preventing furniture tip-overs

Poison prevention: Storage of poisons; poison control phone number (1-800-222-1222)

Drowning prevention: Pool fencing; *touch supervision*

Firearm safety: Preferably keeping firearms out of the home or at least keeping firearms unloaded and locked separately from locked ammunition

SCHOOL-AGED CHILDREN

Traffic safety: Booster seat and seat belt use, avoiding riding on ATVs and in the beds of pickup trucks; safe pedestrian practices; helmets for biking

Water safety: Swimming lessons, but no swimming alone; personal flotation devices for boating

Sports safety: Safety equipment, physical conditioning, and protective equipment for rollerblading and skateboarding

Firearm safety: Preferably keeping firearms out of the home or at least keeping firearms unloaded and locked separately from locked ammunition; asking about firearms in other homes the child visits

ADOLESCENTS

Traffic safety: Seat belt use, role of alcohol in motor vehicle crashes, and minimizing distracted driving; graduated driver licensing; rules for teenage drivers; helmets for biking, motorcycling, and riding an ATV

Water safety: Role of alcohol and other drugs in water-related injuries; personal flotation devices for boating

Sports safety: Safety equipment; physical conditioning

Firearm safety: Preferably keeping any firearms out of the home or at least unloaded and locked separately from locked ammunition

ATV, All-terrain vehicle; *CPR*, cardiopulmonary resuscitation.
Modified from American Academy of Pediatrics, Committee on Injury, Violence, and Poison Prevention. Office-based counseling for unintentional injury prevention. *Pediatrics*. 2007;119:202-206.

effectiveness of the passive prevention approach after years of unsuccessful anticipatory guidance and the use of warning labels.[2]

Even though injury-prevention counseling has become a cornerstone of pediatric practice, it can be daunting, not only because of the time and expertise it requires, but also because of its breadth. Injury risk is so universal and the sources of possible injury so diverse that a pediatrician cannot counsel on all possible risks. Injury-prevention topics can be prioritized based on severity of the injury, frequency with which the injury occurs, and the availability of effective preventive strategies. Pediatricians will want to be sensitive to the individual circumstances of patients and families as well. For instance, farm families may need advice that city families do not, and vice versa. Knowing that a family has a boat or a backyard swimming pool prompts a special discussion of drowning risk. In another example of the need to customize anticipatory guidance, counseling a family that has 2 automobiles about car safety seats poses a different set of issues than does counseling a family that relies on taxis for transportation; yet child passenger safety is a high priority for both.

The American Academy of Pediatrics (AAP) recommends that parents be given advice by the pediatrician about various injury issues, depending on the age of the child (Box 30-1).[3] The AAP also provides several tools to facilitate counseling, including age-specific survey instruments to assess risk and handouts for families, as part of TIPP—The Injury Prevention Program.[4] (The counterpart AAP program for intentional injury prevention is Connected Kids: Safe, Strong, Secure, as described in Chapter 31, Violence Prevention.)

Counseling about any injury-prevention topic requires both knowledge and counseling skill. In addition to TIPP materials, several resources are listed at the end of this chapter that can provide a pediatrician with the knowledge for advising parents (and communities) about injury prevention. Counseling technique is not specific to injury prevention but can be adapted from existing methods for prompting and supporting healthy behavior change (eg, motivational interviewing). Counseling techniques that include motivational interviewing are addressed in Chapter 24, Communication Strategies.

Traffic Safety

Car Safety Seats

Because motor vehicle crashes are the leading cause of death of children and adolescents, the topic warrants frequent discussion during well-child care. Use

Table 30-3 Appropriate Car Safety Seat Selection Based on Child's Age, Height, and Weight

IF THE CHILD IS	USE THE FOLLOWING TYPE OF CAR SAFETY SEAT	AND REMEMBER THE FOLLOWING
Younger than 1 year OR under 20 lb	Rear-facing car safety seat (infant-only or convertible)	NEVER place a rear-facing car safety seat in the front seat with an airbag.
Older than 1 year AND over 20 lb	Recommended: rear-facing convertible seat to seat's height or weight (usually 30 or 35 lb) limit Then: forward-facing car safety seat (convertible, combination, or forward-facing only) to seat's height or weight limit	When switching a convertible seat from rear-facing to forward-facing, adjustments are usually needed to the harness, the angle of the seat, and the seat belt.
Too tall or heavy for a forward-facing seat with a harness (often around 4 years of age or 40 lb) Big enough to fit in the adult seat belt (usually around 4' 9" and between 8 and 12 years of age)	Booster seat None. Use the vehicle's seat belt if it fits properly (shoulder belt across chest and shoulder, lap belt low and snug on thighs, child's back against vehicle seat back and knees bent at edge of vehicle seat).	Booster seats must be used with lap and shoulder belts. Children should sit in the back seat until they turn 13 years of age.

Adapted from American Academy of Pediatrics, Committee on Injury and Poison Prevention. Selecting and using the most appropriate car safety seats for growing children: guidelines for counseling parents. *Pediatrics.* 2002;109:550-553.

of car safety seats is a complex issue that pediatricians should not expect to master fully. Rather, pediatricians should know how to counsel parents on appropriate car safety seat selection based on developmental milestones (age, height, weight, and behavior) and where to refer parents for more information. When counseling on car safety seat selection, pediatricians should be familiar with state laws. However, recognizing that state laws often do not reflect best practice in car safety seat use is important. Table 30-3 provides information about car safety seat selection. Parents should be encouraged to read the instruction manuals for their car safety seats and vehicles to learn how to install and use car safety seats. For more information, parents can be referred to local *child passenger safety technicians*; a pediatric practice may even choose to have a staff member complete the 3- to 4-day training course to become a certified technician.

Counseling Teen Drivers

Counseling on motor vehicle safety remains important even after children have outgrown car safety seats. In fact, such counseling may be more important because motor vehicle–related death rates increase dramatically in adolescence, and novice teen drivers and their passengers are at particularly high risk. The pediatrician can play a key role in helping parents and teens negotiate their changing relationship, balancing the need to ensure the teen's safety with the teen's growing independence and increasing mobility. A state's graduated driver licensing (GDL) system may provide a good starting point for counseling, and pediatricians should be familiar with their states' laws. Under GDL, teen drivers graduate from a learner's permit to an intermediate or provisional license to a regular driver's license after spending a required amount of time and after demonstrating proficiency in a lower stage; each stage has its own restrictions. However, because many states' GDL laws are relatively weak and a few states do not have GDL laws, parents should be counseled about additional restrictions (eg, limits on the number of teenage passengers, limits on nighttime driving) that they should place on novice teen drivers. Parents and teens both should be counseled on seat belt use and the dangers of impaired driving. They should also be encouraged to have a safe ride agreement, whereby the teen promises to call the parent rather than driving while impaired or with another impaired driver and the parent agrees to provide a ride home in a nonjudgmental way. Pediatricians can consider having a family develop a parent-teen driving contract that specifies restrictions on teen drivers, when the restrictions will be relaxed, and the consequences for violating the restrictions.

Firearms

Because firearms-related injuries (unintentional and intentional) are the 2nd leading cause of death of children and adolescents, firearms are an important topic on which to provide anticipatory guidance.[5] Pediatricians are often reluctant to counsel on this topic, and parents may view such counseling as intrusive or outside the purview of pediatrics. Fortunately, strategies are available that can make counseling on firearms more palatable to both parents and pediatricians. For families with infants and toddlers, firearms can be discussed in the context of childproofing and children's

natural curiosity. For parents of depressed adolescents, the association between presence of firearms in the home and higher risk of teen suicide can be discussed. Especially for parents who are receptive to firearm injury-prevention counseling, the pediatrician can introduce the concept of asking about the presence of guns in other homes where their children spend time.

TOOLS FOR PRACTICE

Community Advocacy and Coordination

- *Child Passenger Safety Issue Brief*, American Academy of Pediatrics (www.aap.org/securemoc/statelegislation/boosterseats_issuebrief.pdf).
- Injury Free Coalition for Kids (www.injuryfree.org/).
- Insurance Institute for Highway Safety (www.iihs.org/).
- *National Center for Injury Prevention and Control* (Web page), Centers for Disease Control and Prevention (www.cdc.gov/ncipc/).
- National Highway Traffic Safety Administration (hotline), 1-800-424-9393; (www.nhtsa.gov).
- National Poison Control Number (hotline), 1-800-222-1222; (www.edisonnj.gov).
- *Reducing the Burden of Injury: Advancing Prevention and Treatment* (book), Institute of Medicine (www.iom.edu/cms/3793/5627.aspx).
- Safe Kids Worldwide (www.safekids.org).
- *Safety and First Aid* (Web page), American Academy of Pediatrics (www.aap.org/healthtopics/safety.cfm).
- Seat Check (www.seatcheck.org/).
- *Teen Driving Issue Brief* (report), American Academy of Pediatrics (www.aap.org/securemoc/statelegislation/gdl_issuebrief.pdf).
- *Transportation Safety* (Web page), American Academy of Pediatrics (www.aap.org/healthtopics/carseatsafety.cfm).
- US Consumer Product Safety Commission, 800-638-2772.
- *Water Safety* (Web page), American Academy of Pediatrics (www.aap.org/healthtopics/watersafety.cfm).
- *WISQARS™*, Web-Based Injury Statistics Query and Reporting System (on-line database), Centers for Disease Control and Prevention (www.cdc.gov/ncipc/wisqars/).

Engaging Patient and Family

- *A Parent's Guide to Water Safety* (brochure), American Academy of Pediatrics (patiented.aap.org).
- *Air Bag Safety* (fact sheet), American Academy of Pediatrics (www.aap.org/bookstore).
- Asking Saves Kids Campaign (ASK) (www.paxusa.org/ask/index.html).
- *Baby Walkers* (fact sheet), American Academy of Pediatrics and National Association of Children's Hospitals and Related Institutions (www.aap.org/bookstore).
- *Car Safety Seats: A Guide for Families* 2007 (brochure), American Academy of Pediatrics (patiented.aap.org).
- *Choking Prevention and First Aid for Infants and Children* (brochure), American Academy of Pediatrics (patiented.aap.org).
- *Home Safety Checklist* (fact sheet), American Academy of Pediatrics (www.aap.org/bookstore).
- *Keep Your Family Safe: Fire Safety and Burn Prevention at Home* (brochure), American Academy of Pediatrics (patiented.aap.org).
- *Parent-Teen Driving Agreement and Fact Sheet* (fact sheet), American Academy of Pediatrics (www.aap.org/bookstore).
- *One-Minute Car Safety Seat Check-up* (fact sheet), American Academy of Pediatrics (patiented.aap.org).
- *Partners for Child Passenger Safety* (Web page), Children's Hospital of Philadelphia (www.chop.edu/consumer/jsp/division/generic.jsp?id=77971).
- *Protect Your Child From Poison* (brochure), American Academy of Pediatrics (patiented.aap.org).
- Seat Check (www.seatcheck.org).
- *The Injury Prevention Program (TIPP)*, American Academy of Pediatrics (www.aap.org/family/tippmain.htm).
- *Toy Safety* (brochure), American Academy of Pediatrics (patiented.aap.org).
- *Trampolines* (fact sheet), American Academy of Pediatrics (www.aap.org/bookstore).

Medical Decision Support

- *Anticipatory Guideline Topics for Car Seat Safety* (fact sheet), American Academy of Pediatrics (pediatrics.aap.org/content.aspx?aid=2001).
- *Car Seat Selection Based on Child's Age, Height, and Weight* (fact sheet), American Academy of Pediatrics (pediatrics.aap.org/content.aspx?aid=2001).
- *TIPP—Guide to Safety Counseling in Office Practice* (booklet), American Academy of Pediatrics (www.aap.org/family/tippguide.pdf).
- *TIPP Safety Program*, American Academy of Pediatrics (www.aap.org/bookstore).
- *TIPP and Connected Kids on CD-ROM: Injury and Violence Prevention Counseling Resources* (CD-ROM), American Academy of Pediatrics (www.aap.org/bookstore).

AAP POLICY STATEMENTS

American Academy of Pediatrics, Committee on Injury and Poison Prevention. Selecting and using the most appropriate car safety seats for growing children: guidelines for counseling parents. *Pediatrics*. 2002;109(3):550-553. (aappolicy.aappublications.org/cgi/content/full/pediatrics;109/3/550).

American Academy of Pediatrics, Committee on Injury and Poison Prevention. Firearm-related injuries affecting the pediatric population. *Pediatrics*. 2000;105(4):888-895. (aappolicy.aappublications.org/cgi/content/full/pediatrics;105/4/888).

American Academy of Pediatrics, Committee on Injury, Violence, and Poison Prevention. Office-based counseling for unintentional injury prevention. *Pediatrics*. 2007;119(1):202-206. (aappolicy.aappublications.org/cgi/content/full/pediatrics;119/1/202).

American Academy of Pediatrics, Committee on Injury, Violence, and Poison Prevention, Committee on Adolescence. The teen driver. *Pediatrics*. 2006;118:2570-2581.

For a complete list of all policy statements from the American Academy of Pediatrics, Committee on Injury, Violence, and Poison Prevention visit: aappolicy.aappublications.org/cgi/collection/committee_on_injury_violence_and_poison_prevention.