

Counseling about Proper Use of Motor Vehicle Occupant Restraints and Avoidance of Alcohol Use to Prevent Injury: U.S. Preventive Services Task Force Recommendation Statement

- The U.S. Preventive Services Task Force (USPSTF) makes recommendations about preventive care services for patients without recognized signs or symptoms of the target condition.
- It bases its recommendations on a systematic review of the evidence of the benefits and harms and an assessment of the net benefit of the service.
- The USPSTF recognizes that clinical or policy decisions involve more considerations than this body of evidence alone. Clinicians and policy-makers should understand the evidence but individualize decision-making to the specific patient or situation.

Introduction

Over the past decade, legislation and enforcement have contributed substantially to the increasing trends in the use of child safety seats and safety belts. This high prevalence of their use in the US is considered a public health success. The 1996 USPSTF recommendation addressed primary care interventions to increase the use of these restraints. This current recommendation focuses on the independent role of primary care interventions to increase the *proper* use of child safety seats, booster seats, and lap-and-shoulder belts (that is, safety belts that include straps across both the lap and shoulder) to prevent motor vehicle occupant injuries (MVOIs). This recommendation also addresses the effectiveness of primary care counseling to prevent alcohol-related MVOI in adolescents and adults. (Figure; Tables 1 and 2).

Summary of Recommendations and Evidence

Recommendation 1: Counseling about Proper Use of Motor Vehicle Occupant Restraints to Prevent MVOIs

The USPSTF concludes that the current evidence is insufficient to assess the incremental benefit, beyond the efficacy of legislation and community based interventions, of counseling in the primary care setting, in *improving rates of proper use* of motor vehicle occupant restraints (child safety seats, booster seats and lap-and-shoulder belts). (See the Clinical Considerations section for definitions of proper use.) This is an **I Statement**.

Rationale

Importance. MVOI is the single leading cause of death in U.S. children, adolescents, and young adults age 3 to 33 years and of unintentional injury-related deaths for

persons of all ages. Proper use of motor vehicle occupant restraints (child safety seats, booster seats, and lap-and-shoulder belts) is associated with a 45% to 70% reduction of fatality risk. Improper use reduces the efficacy of restraints substantially.

Recognition of behavior. Approximately 80% of adults use seat belts. General use of child safety seats is 90% and booster seat use is rapidly increasing. However, *proper* use of child safety seats and booster-seats in infants and children is low.

Effectiveness of counseling to change behavior. Legislation and community-based interventions along with counseling in primary care settings have dramatically increased the use of motor vehicle occupant restraints and have reduced the incidence of MVOIs in all populations. However, the incremental benefit of primary care counseling for general restraint use in the context of legislation and community interventions is unknown. There is insufficient evidence addressing the efficacy of counseling in the primary care setting to increase the *proper* use of motor vehicle occupant restraints in the current high use environment. This constitutes a critical gap in the evidence for counseling.

Harms of counseling. There is *no* evidence addressing the harms of counseling; however, these potential harms are estimated to be none or minimal in magnitude.

USPSTF assessment. The USPSTF concludes that current evidence is insufficient to assess the net benefit of counseling interventions in primary care settings to increase *proper* use of motor vehicle occupant restraints in order to reduce MVOIs in children, adolescents and adults.

Recommendation 2:

Counseling to Prevent Alcohol-related MVOI in Adolescents and Adults

The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of routine counseling of all patients in the primary care setting to reduce driving under the influence of alcohol or riding with drivers who are alcohol impaired. This is an **I statement**.

Rationale

Importance. Alcohol use is involved in nearly 40% of all traffic-related fatalities.

Effectiveness of counseling to change behavior. There is evidence that screening for misuse of alcohol and targeted counseling of those persons who screen positive reduces alcohol consumption and alcohol-related motor vehicle injury. However, there is a critical gap in the evidence of the efficacy of behavioral counseling interventions directed to all patients in the primary care setting to reduce driving under the influence of alcohol or riding with drivers who are alcohol impaired.

Harms of counseling. There is *no* evidence addressing the harms of counseling to prevent alcohol-related MVOI; however, these potential harms are estimated to be none or minimal in magnitude.

USPSTF assessment. The USPSTF concludes that the evidence is insufficient to assess the net benefit of universal counseling in the primary care setting (in the absence of screening and targeted counseling) to reduce the incidence of alcohol-related MVOI.

Clinical Considerations

Patient population under consideration. This recommendation refers to behavioral counseling interventions performed in the primary care setting addressing parents of all infants and children, children, adolescents, and adults.

Elements of effective counseling interventions. The injury prevention benefits of child safety seat and booster seat use require *proper* use. (That is, the seats should be age- and weight-appropriate, and should be installed and placed into the vehicle correctly.) Infants younger than 1 year of age and weighing fewer than 20 pounds should be placed in rear-facing, infant-only car safety seats or convertible seats positioned in the back seat. Infants younger than 1 year of age and weighing between 20 and 35 pounds should be placed in rear-facing convertible seats positioned in the back seat. Rear-facing child safety seats must not be placed in the front passenger seat of any vehicle equipped with an airbag on the front passenger side. Death or serious injury can result from the impact of the airbag against the child safety seat. Toddlers 1 to 4 years of age weighing 20 to 40 pounds should be restrained in a forward-facing convertible seat or forward-facing-only seat positioned in the back seat. Young children 4 to 8 years of age and up to 4'9" (57 inches) in height should be placed in a booster seat in the back seat. After this age (or height), lap-and-shoulder belt use is appropriate. Children younger than 13 years of age should sit in the back seat with lap-and-shoulder belts.

Behavioral counseling interventions that include an educational component as well as a demonstration of use or a distribution component are more effective than those that include education alone.

Other approaches to prevention. Clinical counseling in conjunction with community-based interventions has been effective in increasing proper usage of child safety seats. Over the past decade, legislation and enforcement have contributed substantially to the increasing trends in child safety seat and seat belt use. A comprehensive strategy which includes community-based interventions, primary care counseling in the primary care setting, legislation, and enforcement is critical to the improvement of proper safety restraint usage and decrease in the incidence of MVOI.

Other relevant USPSTF recommendations. The USPSTF currently recommends screening for alcohol misuse and counseling targeted to those patients identified as risky or harmful drinkers. (1)

Other Considerations

Implementation. There is good evidence that community and public health interventions, including legislation, law enforcement campaigns, car seat distribution campaigns, media campaigns, and other community-based interventions, are effective in improving proper use of car seats, booster seats, and seat belts.

Linkages between primary care and community interventions are critical for improving proper car seat, booster seat and seat belt use.

Research needs. On the basis of the effectiveness of legislation and community-based interventions in increasing car safety seat and seat belt use, it is likely that increasing booster seat use will require similar interventions. Randomized controlled trials (RCTs) of counseling interventions are needed to clarify the effectiveness of counseling parents and children in the primary care setting to improve proper use of child safety and booster seats.

Discussion

Burden of disease. Motor vehicle-related injuries are the single leading cause of death for children, adolescents, and young adults between 3 and 33 years of age in the United States, and the leading cause of unintentional injury-related deaths for persons of all ages. Adolescent and young adult drivers have the highest MVOI mortality rates even when controlling for vehicle miles traveled. Increasing the use of occupant restraint devices such as child safety seats and lap-and-shoulder safety belts, and reducing alcohol-impaired driving are among the most important behavioral methods to reduce motor vehicle-related deaths. (2)

The rising prevalence of restraint use over the past decade is considered a public health success. (3) A combination of public health interventions including state legislation, media campaigns, and primary care counseling has contributed to this increase in child safety seat and adult lap-and-shoulder belt use. In the mid-1990s, state regulations mandating child safety seat and lap-and-shoulder belt use were put into place. All 50 states currently have laws requiring safety seats for infants and children, and 49 states and the District of Columbia have adult seat belt use laws, but only half of the states that have these child safety laws include guidance for children 4 to 8 years of age in booster seats. State legislation largely varies, such as permitted unrestrained travel for different specific circumstances or the inability of drivers to receive a citation from the police unless they have been stopped for another traffic violation. States with primary enforcement have increased restraint use by 12% to 23%, and have decreased motor vehicle-related fatality rates.

The current prevalence of restraint use is more than 90% for children 1 to 3 years of age; however proper use of car seats in infants and children is estimated to be only 20%. (4, 5) For children 4 to 8 years of age, booster seat use is less prevalent—premature advancement to seat belts occurs, leading to an increased risk of injuries. (2) When used correctly, child safety seats reduce fatality risk by more than 70% for infants up to 1 year of age and 54% for children 1 to 4 years of age. (2) Variation in restraint use depends on the occupant's gender, age, seating position, economic status, race, and ethnicity. Restraint use for children younger than 9 years of age is complicated by the additional need to correctly use the age-appropriate car safety seat or belt-positioning booster seat.(5) Between 20% and 84% of the time, misuse is severe enough to compromise the effectiveness of the child safety seat or booster seat.

Alcohol use plays a significant role in motor vehicle-related fatalities. Thirty-nine percent of MVOI deaths in individuals 3 to 34 years of age are related to alcohol. More than 80% of alcohol-impaired driving episodes reported by people also include binge drinking. (6) Evidence from multiple time-series studies demonstrates that raising the legal drinking age or lowering legal blood concentration limits can significantly reduce alcohol-related fatal crashes. (2)

Effectiveness of counseling to change behavior. There is fair-quality evidence from 1 group-level controlled clinical trial (CCT) that a combination of community and clinical interventions aimed at increasing the correct use of restraints reduces the risk of MVOI by 39.2 injuries per 10,000 children per year; however, the independent contribution of the primary care counseling interventions could not be determined. On the basis of 13 CCT and RCT studies, there is fair-quality evidence that among infants and children up to age 4 years, behavioral counseling interventions are effective in increasing short-term, correct use of infant and child safety seats at the time of hospital discharge or within 2 months after initially delivering the intervention. (2) Two fair-quality CCTs and two fair- to poor-quality CCTs or RCTs demonstrated that counseling by pediatricians during well-child clinic visits increases the self-reported proper use and observed correct use of restraints for at least 2 months. Three of these studies with follow-up at 4 months or later showed no statistically significant increase in restraint use in the intervention group compared with the control group. (7-9) One fair- to poor-quality group-level RCT demonstrated that well-child clinic education in addition to coercion, incentives, and rewards by non-physician primary care clinic staff and health educators results in a 10% higher infant and child safety seat observed use at 12 months after program initiation in the intervention group compared with the control group that received usual well-child-clinic education only. (10) Investigators of 1 fair- to poor-quality RCT and 1 fair-quality RCT evaluated the effect of counseling pregnant women during the last trimester of pregnancy, and measured self-reported use or observed correct use at discharge after delivery, at 6 to 8 weeks after delivery and discharge, or at both times. In 1 study, an intervention of education plus car seat distribution, compared with education only, resulted in an increase in observed correct use at discharge. At 6 weeks after discharge, the difference was not statistically significant. In the second trial, self-reported usage at 2 months did not statistically significantly differ between a counseling education group and control group. (11) Trials demonstrate that car seat distribution in

addition to educational interventions provided in the inpatient peripartum setting demonstrate greater differences in usage compared with educational interventions alone. (2)

Two studies of counseling interventions in primary care settings for older children and adolescents have been published. One fair-quality CCT of children 5 to 19 years of age who were not wearing their seat belts en route to the office visit reported short-term improvement in observed seat belt use among children immediately after pediatrician-delivered counseling. (12) A fair-quality RCT reported no difference in seat belt use by fifth and sixth graders who received education through an office-based injury prevention program that involved counseling and a written family contract, compared with a control group that received similar information that targeted alcohol and tobacco use at 12 to 36 months. (13)

No RCTs have been conducted for behavioral counseling for booster seat use in the age group of 4 to 8 years in the primary care setting. Investigators of 1 fair- to poor-quality RCT evaluated booster seat education with and without distribution of a free booster seat in the emergency department. (14). The study demonstrated high self-reported use in the education-plus-distribution or installation group compared with education-only and control groups; however, this study has limitations in internal and external validity. A 2006 Cochrane Collaboration meta-analysis demonstrated that interventions outside of the primary care setting which included distribution and education, incentives and education, and enforcement components resulted in two-fold increases in the use of booster seats. (15)

One RCT addressed the effects of counseling adults to use seat belts. Investigators of this fair- to poor-quality RCT studied adults who watched a 6-minute film, and they compared self-reported seat belt use at 6 months between the group who watched a film on seat belt use and the group who watched a film of comparable length that did not mention seat belt use. (16) Self-reported seat-belt use increased equally in both the control and treatment groups. However, strong evidence suggests that safety belt laws, primary enforcement strategies, and enhanced enforcement strategies increase seat belt use. (17)

There is no evidence addressing the impact of behavioral counseling interventions delivered to all patients in the primary care setting in reducing driving under the influence of alcohol or riding with an impaired driver.

Potential Harms of Counseling. There is no evidence regarding harms of counseling in the primary care setting, with respect to the use of age- and weight-appropriate restraints or the avoidance of driving while under the influence or riding with alcohol-impaired drivers. Potential harms are estimated to be none to minimal in magnitude.

Recommendations of Other Groups

The Center for Disease Control and Prevention's *Guide to Community Preventive Services*, known as "The Community Guide," recommends child safety seat use laws, community-wide information and enhanced enforcement campaigns, and distribution or incentive programs plus education programs to increase safety seat use in infants and children. (18) The Community Guide recommends safety belt legislation, primary enforcement laws, and enhanced enforcement programs to increase seat belt use in adolescents and adults. The Community Guide recommends 0.08 blood alcohol concentration laws, lower blood alcohol concentration laws for young drivers, minimum legal drinking age laws, sobriety checkpoints, mass media campaigns, school-based programs, and alcohol server intervention training programs.

The American Academy of Family Physicians supports the counseling of all parents and patients older than 2 years of age about accidental injury prevention, including the use of child safety seats and lap-and-shoulder belts; encourages the development of uniform standardized tests to determine alcohol or drug impairment in all U.S. states; and encourages its members to take an active role in developing strategies to promote the increased use and availability of restraint systems, including air bags. The American Academy of Family Physicians also supports primary enforcement of occupant restraint system legislation; encourages authorities to document the use of occupant restraint systems; and encourages the media to report usage as appropriate. (19)

The American Medical Association supports mandatory seat belt use laws which do not simultaneously relieve automobile manufacturers of their responsibility to install passive restraints; and supports education of state medical societies about these laws, discussion of motor vehicle injuries between physicians and their patients, and the use of active, approved restraints for both adults and children. (20)

The American Academy of Pediatrics recommends that clinicians provide up-to-date, appropriate information for parents regarding car safety seat choices and proper use. (21)

The American College of Obstetricians and Gynecologists recommends that clinicians counsel all women on the use of seat belts; that pregnant women be counseled on proper seat belt fit during pregnancy, and proper use of a car seat for their infant; and that adolescent women be counseled to avoid driving or other situations requiring full attention after drinking, or riding with a driver who has been drinking. (22-25)

The National Highway Traffic Safety Administration (www.nhtsa.gov) recommends education, training, enforcement, outreach, and legislation to increase proper restraint use by children, adolescents, and adults. It recommends community and legislative interventions, as well as screening and clinical counseling, of patients who drink heavily to reduce alcohol- and drug-impaired driving.

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Counseling for Proper Use of Motor Vehicle Occupant Restraints: Clinical Summary of U.S. Preventive Services Task Force Recommendation

Population	General Primary Care Population
Recommendation	Counseling for Proper Use of Motor Vehicle Occupant Restraints
	No Recommendation Grade: I [Insufficient Evidence]

Interventions	There is good evidence that community and public health interventions, including legislation, law enforcement campaigns, car seat distribution campaigns, media campaigns, and other community-based interventions, are effective in improving the proper use of car seats, booster seats, and seat belts.
Suggestions for Practice	<p>Current evidence is insufficient to assess the incremental benefit of counseling in primary care settings, beyond increases related to other interventions, in improving rates of proper use of motor vehicle occupant restraints.</p> <p style="text-align: center;">Linkages between primary care and community interventions are critical for improving proper car seat, booster seat, and seat belt use.</p>
Relevant Recommendations from the Guide to Community Preventive Services (CDC)	<p>The Guide to Community Preventive Services has reviewed evidence of the effectiveness of selected population-based interventions to reduce motor vehicle occupant injuries, focusing on three strategic areas:</p> <ul style="list-style-type: none"> ▪ Increasing the proper use of child safety seats ▪ Increasing the use of safety belts ▪ Reducing alcohol-impaired driving <p>Multiple interventions in these areas have been recommended. Recommendations can be accessed at http://www.thecommunityguide.org/mvoi/</p>

For the full [recommendation statement](#) and [supporting documents](#) for **Primary Care Counseling for Proper Use of Motor Vehicle Occupant Restraints**, please go to <http://www.preventiveservices.ahrq.gov>.

TABLE 1

What the USPSTF Grades Mean and Suggestions for Practice

Grade	Grade Definitions	Suggestions for Practice
A	The USPSTF recommends the service. There is high certainty that the net benefit is substantial.	Offer/provide this service.
B	The USPSTF recommends the service. There is high certainty that the net benefit is moderate or there is moderate certainty that the net benefit is moderate to substantial.	Offer/provide this service.
C	The USPSTF recommends against routinely providing the service. There may be considerations that support providing the service in an individual patient. There is moderate or high certainty that the net benefit is small.	Offer/provide this service only if there are other considerations in support of the offering/providing the service in an individual patient.
D	The USPSTF recommends against the service. There is moderate or high certainty that the service has no net benefit or that the harms outweigh the benefits.	Discourage the use of this service.
I Statement	The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of the service. Evidence is lacking, of poor quality or conflicting, and the balance of benefits and harms cannot be determined.	Read “Clinical Considerations” section of USPSTF Recommendation Statement. If offered, patients should understand the uncertainty about the balance of benefits and harms.

TABLE 2

USPSTF Levels of Certainty Regarding Net Benefit

Definition: The U.S. Preventive Services Task Force defines certainty as “likelihood that the USPSTF assessment of the net benefit of a preventive service is correct”. The net benefit is defined as benefit minus harm of the preventive service as implemented in a general, primary care population. The USPSTF assigns a certainty level based on the nature of the overall evidence available to assess the net benefit of a preventive service.

Level of Certainty	Description
High	The available evidence usually includes consistent results from well-designed, well-conducted studies in representative primary care populations. These studies assess the effects of the preventive service on health outcomes. This conclusion is therefore unlikely to be strongly affected by the results of future studies.
Moderate	The available evidence is sufficient to determine the effects of the preventive service on health outcomes, but confidence in the estimate is constrained by factors such as: <ul style="list-style-type: none">- the number, size, or quality of individual studies;- inconsistency of findings across individual studies;- limited generalizability of findings to routine primary care practice; or- lack of coherence in the chain of evidence. As more information becomes available, the magnitude or direction of the observed effect could change, and this change may be large enough to alter the conclusion.
Low	The available evidence is insufficient to assess effects on health outcomes. Evidence is insufficient because of: <ul style="list-style-type: none">- the limited number or size of studies;- important flaws in study design or methods;- inconsistency of findings across individual studies- gaps in the chain of evidence;- findings not generalizable to routine primary care practice; or- a lack of information on important health outcomes. More information may allow an estimation of effects on health outcomes.

