The Guide to Community Preventive Services
THE COMMUNITY GUIDE
What Works to Promote Health

Reducing Alcohol-Impaired Driving: Sobriety Checkpoints (2000 Archived Review)

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Review Summary

Intervention Definition

At sobriety checkpoints, law enforcement officers use a system to stop drivers to assess their level of alcohol impairment. There are two types of sobriety checkpoints: (1) random breath testing (RBT) checkpoints where officers randomly select and test drivers for blood alcohol levels; and (2) selective breath testing (SBT) checkpoints where officers must have reason to suspect a driver has been drinking before testing. SBT is the only type of sobriety checkpoint used in the United States.

Summary of Task Force Finding

The Community Preventive Services Task Force recommends sobriety checkpoints based on strong evidence of their effectiveness in reducing alcohol-impaired driving, alcohol-related crashes, and associated fatal and nonfatal injuries.

Results from the Systematic Review

Twenty-three studies qualified for the review.

- Crashes thought to involve alcohol: median decrease of 18% for RBT checkpoints (interquartile interval: 22% to 13% decrease; 11 studies) and 20% for SBT checkpoints (interquartile interval: 27% to 13% decrease; 10 studies)
- Fatal crashes thought to involve alcohol: median decrease of 22% for RBT checkpoints (interquartile interval: 36% to 13% decrease; 6 studies) and decreases of 26% and 20% for SBT checkpoints (2 studies)
- Crashes declined regardless of the follow-up time of the study, with median decreases of 18% for follow-up times of less than one year and 17% for follow-up times of more than one year.

These results are based on a systematic review of all available studies led by scientists from CDC's Division of Unintentional Injury Prevention with input from a team of specialists in systematic review methods and experts in research, practice and policy related to reducing alcohol-impaired driving.

Publications

Shults RA, Elder RW, Sleet DA, et al. Reviews of evidence regarding interventions to reduce alcohol-impaired driving [www.thecommunityguide.org/mvoi/mvoi-AJPM-evrev-alchl-imprd-drvng.pdf]. *Am J Prev Med* 2001;21(4S):66–88.

Elder RW, Shults RA, Sleet DA, et al. Effectiveness of sobriety checkpoints for reducing alcohol-involved crashes. *Traffic Injury Prevention* 2002;3:266-74.

Task Force on Community Preventive Services. Recommendations to reduce injuries to motor vehicle occupants: increasing child safety seat use, increasing safety belt use, and reducing alcohol-impaired driving [www.thecommunityguide.org/mvoi/mvoi-AJPM-recs.pdf]. *Am J Prev Med* 2001;21(4S):16–22.

Task Force on Community Preventive Services. Motor-vehicle occupant injury: strategies for increasing use of child safety seats, increasing use of safety belts, and reducing alcohol-impaired driving [www.cdc.gov/mmwr/preview/mmwrhtml/rr5007a1.htm]. *MMWR* Recommendations and Reports 2001;50(RR07):1-13.

Task Force on Community Preventive Services. Motor vehicle occupant injury [www.thecommunityguide.org/mvoi/Motor-Vehicles.pdf]. In: Zaza S, Briss PA, Harris KW, eds. *The Guide to Community Preventive Services: What Works to Promote Health?* Atlanta (GA): Oxford University Press;2005:329-84 (Out of Print).

Task Force Finding

Intervention Definition

Sobriety checkpoints are designed to systematically stop drivers to assess their level of alcohol impairment. The goal is to deter alcohol-impaired driving by increasing the perceived risk of arrest. There are two types of sobriety checkpoints. At random breath testing (RBT) checkpoints, all drivers are stopped and tested for blood alcohol levels. RBT checkpoints are common in Australia and several European countries. In the United States, selective breath testing (SBT) checkpoints are used. At these checkpoints, police must have a reason to suspect that the driver has been drinking (i.e., probable cause) before testing blood alcohol levels.

Task Force Finding (June 2000)*

Sobriety checkpoints are strongly recommended based on their effectiveness in reducing alcohol-impaired driving, alcohol-related crashes, and associated fatal and nonfatal injuries in a variety of settings and among various populations. Corollary arrests are a potential added benefit. The brief intrusion this entails into drivers' privacy is generally considered justified by the public interest served by checkpoints. Four economic studies were identified, all of which indicated sizeable economic benefits.

*From the following publication:

Task Force on Community Preventive Services. Recommendations to reduce injuries to motor vehicle occupants: increasing child safety seat use, increasing safety belt use, and reducing alcohol-impaired driving [www.thecommunityguide.org/mvoi/mvoi-AJPM-recs.pdf]. *Am J Prev Med* 2001;21(4S):16–22.

Supporting Materials

Analytic Framework

See Figure 1 on page 67 of Shults RA, Elder RW, Sleet DA, et al. Reviews of evidence regarding interventions to reduce alcohol-impaired driving [www.thecommunityguide.org/mvoi/mvoi-AJPM-evrev-alchl-imprd-drvng.pdf]. *Am J Prev Med* 2001;21(4S):66–88.

Evidence Gaps

What are Evidence Gaps?

Each Community Preventive Services Task Force (Task Force) review identifies critical evidence gaps—areas where information is lacking. Evidence gaps can exist whether or not a recommendation is made. In cases when the Task Force finds insufficient evidence to determine whether an intervention strategy works, evidence gaps encourage researchers and program evaluators to conduct more effectiveness studies. When the Task Force recommends an intervention, evidence gaps highlight missing information that would help users determine if the intervention could meet their particular needs. For example, evidence may be needed to determine where the intervention will work, with which populations, how much it will cost to implement, whether it will provide adequate return on investment, or how users should structure or deliver the intervention to ensure effectiveness. Finally, evidence may be missing for outcomes different from those on which the Task Force recommendation is based.

Identified Evidence Gaps

Results from the Community Guide review indicate that sufficient or strong evidence exists that the effectiveness of the five interventions reviewed reduces alcohol impaired driving. However, important issues related to the effectiveness of these interventions require further research.

General Questions

- How do interventions to reduce alcohol-impaired driving interact with each other (e.g., 0.08% BAC laws and administrative license revocation)?
- What effects do these interventions have on long-term changes in social norms about drinking and driving?

Laws

- How do variations in enforcement levels influence the effectiveness of laws to reduce alcohol-impaired driving?
- What are the independent effects of publicity on the effectiveness of laws to reduce alcohol-impaired driving?
- Does public compliance with new laws change in a predictable manner over time?

Sobriety Checkpoints

- Does the use of passive alcohol sensors at sobriety checkpoints improve their deterrent effects?
- Are the deterrent effects of sobriety checkpoints diminished if warning signs are posted that allow drivers to avoid the checkpoints?
- How do various configurations of sobriety checkpoints (e.g., intermittent blitzes vs. continuous, weekend nights vs. random time periods, number of officers per checkpoint) affect deterrence?
- What level of enforcement and publicity about sobriety checkpoints is necessary to maintain effectiveness over time?

Server Intervention Training

- Are server intervention training programs delivered community-wide effective at decreasing alcohol-impaired driving and alcohol-related crashes?
- What essential content areas should be included in all server intervention training programs?
- What effect does the method by which training is delivered (e.g., videotapes, lectures, role-playing) have on the effectiveness of server training programs?
- How do mandatory vs. voluntary server training programs differ with respect to:
    - Management support for program goals?
    - Level of participation in training programs?
    - Overall effectiveness for decreasing patron BACs and drinking and driving?
- What specific management policies and practices are necessary to get the maximum benefits from server intervention training?
- What is the long-term effect of server intervention training programs? Are "booster sessions" required to maintain effectiveness?
- What effect does server intervention training have on alcohol sales, overall revenues, and tips?

Applicability

Questions remain about possible differences in the effectiveness of each intervention for specific settings and subgroups. For example:

- Are these interventions equally effective in rural and urban settings?
- Are these interventions equally effective when applied to populations with different baseline levels of alcohol-impaired driving?
- Does targeting publicity efforts to specific subpopulations (e.g., young drivers, ethnic minorities, men) improve the effectiveness of interventions to reduce alcohol-impaired driving?

Other Positive or Negative Effects

Few other positive and negative effects were reported in this body of literature. Further research about the following questions would be useful:

- What proportion of youths charged with violating zero tolerance laws had BAC levels elevated enough to warrant a more serious drinking-driving offense?
- Do interventions to reduce alcohol-impaired driving reduce other forms of alcohol-related injury?

Economic Evaluations

Little economic evaluation information was available. Research is warranted to answer the basic economic questions:

- What are the cost-benefit, cost utility, and cost-effectiveness of interventions to reduce alcohol impaired driving?

Barriers to Implementation

Several of the interventions reviewed face barriers to effective implementation. Research into the following areas may help to overcome these barriers:

- What role can community coalitions play in removing barriers to implementing interventions designed to prevent alcohol-impaired driving?

- What are the most effective means of disseminating research findings about effectiveness to groups that want to implement interventions?
- What forms of incentives (e.g., insurance discounts) are most helpful for increasing management and owner support for server intervention training?
- How can the costs of interventions to prevent alcohol-impaired driving be shared or subsidized?
- What situational and environmental influences help or hinder the implementation of server intervention training?

Summary Evidence Tables

Studies evaluating the effectiveness of selective breath testing (SBT) checkpoints for decreasing crashes

Author, Year (Study period) Design suitability: design Quality of execution Evaluation setting	**Intervention/Comparison details**	**Results/Other information**	**Summary value(s)**	**Follow-up Period**
Voas 1985[1] (1981-1984, monthly) Greatest: Interrupted time series with concurrent comparison Good Charlottesville, VA	Sobriety checkpoints operated 12/30/83 to 12/31/84; 94 total operations with 23,615 stops; most concentrated checkpoint program in the US, with ~116,000 inhabitants in target area; passive alcohol sensors used intermittently starting 9/84. Comparison to daytime and non-alcohol-involved crashes	Had-been-drinking crashes decreased by 15% ($p < .05$) from monthly mean of 16.1 (net change = -14%, $p < 01$); Nighttime crashes decreased by 8% ($p > .05$) from monthly mean of 30.52 1 (net change = -13%, $p > .05$); Use of passive sensors increased arrest rate from 1.05% to 3.21%	Other Crashes: -13%	12 months

Author, Year (Study period) Design suitability: design Quality of execution Evaluation setting	Intervention/Comparison details	Results/Other information	Summary value(s)	Follow-up Period
Mercer, 1985[2] (1/80 – 6/84) Moderate: Interrupted time series Fair British Columbia, Canada	Sobriety checkpoints implemented 4/20 – 5/21/84; ~ 60,000 vehicles stopped; limited media coverage	Observed alcohol-related injury crashes in May 10% below expected value (N=251, p > .05) Follow-up period extended 10 days beyond intervention. Author conducted evaluation of media impact on crashes, suggesting that a newspaper strike contributed to the nonsignificant results reported.	Injury Crashes: -10%	1 month

Author, Year (Study period) Design suitability: design Quality of execution Evaluation setting	Intervention/Comparison details	Results/Other information	Summary value(s)	Follow-up Period
Lacey 1986[3] (1/80 – 12/84, monthly) Greatest: Interrupted time series with concurrent comparison Fair Clearwater/Largo, FL	Sobriety checkpoint program implemented 10/83 – 10/84 with increased police training and procedural changes; 12 operations in project period; $75,000 media campaign Comparison to no-intervention sites	Change in proportion of crashes in intervention cities relative to combined intervention and comparison cities (i/i+c): Nighttime crashes – 8% decrease (N = 8298, p< .0001); Had-been-drinking crashes – 20% decrease (N = 3844, p< .0005) Similar results obtained by contingency table analysis on pre/post data	Other Crashes: -14%	15 months

Author, Year (Study period) Design suitability: design Quality of execution Evaluation setting	Intervention/Comparison details	Results/Other information	Summary value(s)	Follow-up Period
Levy 1990[4] (2/83 – 7/86, monthly) Moderate: Interrupted time series Fair Bergen County, NJ	Sobriety checkpoint program implemented 5/83 with ~40,000 stops/year; impact of 2 publicity campaigns also estimated;	Overall reduction of 29% in single-vehicle nighttime crashes attributed to checkpoint activity ($p < .05$); Significant reduction in single vehicle nighttime fatal crashes (no effect size given, $p < .05$) Serious problems of colinearity with publicity campaigns in model	Other Crashes: -29%	39 months

Author, Year (Study period) Design suitability: design Quality of execution Evaluation setting	Intervention/Comparison details	Results/Other information	Summary value(s)	Follow-up Period
Wells 1992[5] (11/86 – 8/90) Greatest: Before/after with comparison (ABAB design) Fair Binghamton, NY	Sobriety checkpoints with use of passive alcohol sensors; 6 waves totaling 72 checkpoints over 2 years; multimedia publicity campaign Comparison to periods between checkpoints	Injury crashes decreased 16% from 298, χ^2, p<.05 (net change = -23%); Late-night crashes decreased 21% from 315, χ^2, p<.01 (net change = -24%); Total crashes decreased 6% from 2,802, χ^2, p<.05 (net change = -1%); Checkpoint/no checkpoint period comparison suggests that effects dissipate rapidly in the absence of checkpoint activity	Injury Crashes: -23% Other Crashes: -24%	N/A (multiple waves)
Castle, 1995[6] (1/83 – 12/94) Greatest: Time series with concurrent comparison Fair New Mexico	Sobriety checkpoints initiated statewide in 12/93 with target of 50% of 15-34 year-old drivers passing through per year; a comprehensive set of other DUI reforms also implemented in 1993 Comparison to all fatal crashes	For months during which checkpoints were active, alcohol-involved fatal crashes decreased 21% from a baseline of 18/month; relative to all fatal crashes the net change was –26% (t=-2.03, p < .05) Perceptions that drunk drivers were at greater risk of being stopped "in the past year" increased by 1 percentage point among men and 22 percentage points among women.	Fatal Crashes: -26%	13 months

Author, Year (Study period) Design suitability: design Quality of execution Evaluation setting	Intervention/Comparison details	Results/Other information	Summary value(s)	Follow-up Period
Stuster 1995[7] (1987-1993, monthly) Greatest: Interrupted time series on non-randomized trial Fair Four California cities	Sobriety checkpoints evaluated in 4 cities; 18 operations per city in 9 month period; staffing level and mobility varied; all intervention communities implemented publicity campaigns; Comparison to no-intervention site and to crashes not involving alcohol	Changes in injury crashes involving alcohol: Modesto – decline of 9.3% from baseline of 11.70 per month (p = .008; net change = -21.5%) Ventura – decline of 39.7% from baseline of 6.66 per month (p = .014; net change = -31.6%) Visalia – decline of 14.7% from baseline of 6.28 per month (p = .018; net change = -17.5%) Across these three cities, median net change = -21.5% In Santa Rosa, the proportion of injury crashes that were alcohol-involved decreased 19%, but insufficient data were available for time-series analysis. Well-publicized roving patrols produced similar effects to checkpoints (net change = -13.4%)	Injury Crashes: -21%	9 months

Author, Year (Study period) Design suitability: design Quality of execution Evaluation setting	Intervention/Comparison details	Results/Other information	Summary value(s)	Follow-up Period
Jones 1995[8] (1/88 to 7/92, monthly) Moderate: Interrupted time series Fair Wichita, KS	Sobriety checkpoints and saturation patrols with multimedia publicity within a program targeting speeding, safety belt use, and DUI implemented 9/91; degree of change in checkpoint activity not reported	Nighttime single vehicle injury crashes decreased 23% (from 30/month, $p < .05$) Nighttime single vehicle crashes decreased 35% (from 69/month, $p < .05$); 48% of adults surveyed (n=635): reported a perceived increase in DUI enforcement post-intervention vs. 44% pre ($p = .18$)	Injury Crashes: -23% Other Crashes: -35%	11 months

Author, Year (Study period) Design suitability: design Quality of execution Evaluation setting	Intervention/Comparison details	Results/Other information	Summary value(s)	Follow-up Period
Mercer, 1996[9] (7/6/95 – 12/7/95 Greatest: Time series with concurrent comparison Fair British Columbia (urban)	Sobriety checkpoints operated 7/6 to 12/7/95; 21% of the driving population tested per month Comparison to areas surrounding the enforcement jurisdictions.	Proportion of insurance claims for single-vehicle injury crashes involving male drivers aged 21 to 40 years decreased by 10% (net change = -19%) Percentage of drivers surveyed with BACs > .08% decreased from 3.2% to 1.1% ($p < .01$).	Injury Crashes: -19%	5 months

Author, Year (Study period) Design suitability: design Quality of execution Evaluation setting	Intervention/Comparison details	Results/Other information	Summary value(s)	Follow-up Period
Lacey 1999[10] (1/88 – 12/96, monthly) Greatest: Interrupted time series with concurrent comparison Good Tennessee	Sobriety checkpoint campaign conducted 4/94- 3/95; 882 checkpoints with 144,299 drivers stopped; intensive multimedia publicity campaign; Comparison to adjacent states	Alcohol-related fatal crashes (BAC > .10) decreased by 20% (9 crashes/month, $p < .05$); Nighttime single-vehicle injury crashes decreased 5% ($p < .05$) Self-reported drinking/driving decreased over program period from 8.6% to 6.0% of survey sample. BRFSS data indicate >90% support for checkpoints.	Fatal Crashes: -20% Injury Crashes: -5%	45 months

Author, Year (Study period) Design suitability: design Quality of execution Evaluation setting	Intervention/Comparison details	Results/Other information	Summary value(s)	Follow-up Period
Voas 1997[11] (7/91 – 12/95, quarterly) Greatest: Time series with concurrent comparison Fair 3 communities in NC, SC, and CA	Sobriety checkpoints initiated as part of a comprehensive community alcohol-related trauma project. Intensity and timing of checkpoints varied by community. Media advocacy training was provided to increase free publicity, but minimal advertising was purchased. Comparison to matched communities.	Checkpoints were associated with an overall reduction in single vehicle nighttime crashes across the 3 communities ($p < .05$). A 10% increase in intervention intensity was estimated to result in a .71% decrease in single vehicle nighttime crashes. Results are confounded due to overlap in media markets across intervention and comparison communities and checkpoint activities in comparison communities. A zero tolerance law for young drivers was implemented in CA during the intervention period.	N/A	24 months

Studies evaluating the effectiveness of random breath testing (RBT) checkpoints for decreasing crashes

Author, Year (Study period) Design suitability: design Quality of execution Evaluation setting	Intervention/Comparison details	Results/Other information	Summary value(s)	Follow-up Period
Ross 1981[12] (1/73 - 10/80, monthly) Moderate: Interrupted time series Fair France	Change in laws authorizing RBT as well as license sanctions; .08 BAC limit; 335,449 stops from inception to 1/31/79; extensive unpaid publicity Comparison to pre-intervention time series	Crash-related deaths decreased 14% from series mean of 1,111 ($p < .05$) Crash-related injuries decreased 12.5% from series mean of 29,468 ($p < .05$) Reported result estimates temporary effect of ~ one year duration Low detection rate relative to expectations from BAC surveys suggests lax implementation of RBT	Fatal Crashes: -14% Injury Crashes: -12%	27 months
McLean, 1984[13] (1/79 – 12/82) Greatest: Before/after with concurrent comparison Fair South Australia	RBT implemented 10/15/81; limited information provided on levels of enforcement and publicity. Comparison of late night crashes to those during the remainder of the day.	Late night serious injury crashes showed a: - net decrease of 6% in metropolitan Adelaide (n = 817) - net increase of 6% in rural South Australia (n = 566) - net decrease of 1% statewide (n = 1383). Roadside survey results and observation of drivers approaching checkpoints suggest that many drinking drivers successfully avoided checkpoints.	Injury Crashes: -1%	13 months

Author, Year (Study period) Design suitability: design Quality of execution Evaluation setting	Intervention/Comparison details	Results/Other information	Summary value(s)	Follow-up Period
Hardes 1985[14] (1977-1983, yearly) Moderate: Time series Fair Hunter Health Region, NSW	RBT implemented 121/17/1982; Hospital admissions following intervention compared to prior trend	Crash-related admissions decreased 19% from extrapolation of trend from 1977 (1373 observed vs. 1697 expected); No inferential statistics (N > 1000/year) Decline in admissions was 31% for males, 8% for females	Injury Crashes: -19%	12 months

Author, Year (Study period) Design suitability: design Quality of execution Evaluation setting	Intervention/Comparison details	Results/Other information	Summary value(s)	Follow-up Period
Armour 1985[15] (10/24-12/31, 1981-1983) Greatest: Before/after with concurrent comparison Fair Melbourne, Australia	RBT blitz campaign; enforcement increased by ~140 man-hours/week and backed by $166,000 mass media campaign Comparison to similar period in previous two years adjusted for daytime crashes	Nighttime injury crashes decreased 18% from mean of 262.5 (net change = -18%, χ^2 = 3.97, p<.01); Weekend nighttime injury crashes decreased 25% from mean of 162 (net change = -24%, χ^2 = 5.21, p<.01) Authors present suggestive evidence that afternoon/early evening operations are as effective as late night	Injury Crashes: -18%	2 months

Author, Year (Study period) Design suitability: design Quality of execution Evaluation setting	Intervention/Comparison details	Results/Other information	Summary value(s)	Follow-up Period
Arthurson 1985[16] (1/81 to 12/84) Greatest: Before/after with concurrent comparison Fair NSW	RBT implemented 12/82; one in three drivers tested yearly; >AU$ 1 million/year publicity campaign Comparison to other mainland Australian states	Fatal crashes decreased 21% following RBT (net change = -13%) Net change significant at p<.05 for 3 of 4 individual state comparisons Number of observations not specified	Fatal Crashes: -13%	24 months

Author, Year (Study period) Design suitability: design Quality of execution Evaluation setting	Intervention/Comparison details	Results/Other information	Summary value(s)	Follow-up Period
Homel 1988[17] (1977 – 1987, weekly) Moderate: Interrupted time series Good NSW	RBT implemented 121/17/1982; one in three licensed drivers tested; extensive publicity campaign Comparison to pre-intervention time series	Drivers killed with BAC > .05 decreased 36% from weekly mean of 4.36 (p < .05) 'Classic' alcohol-related crashes decreased 35% from weekly mean of 13.43 (p<.05) Total fatal crashes decreased 22% from weekly mean of 22.12 (p < .05) Support for RBT increased from 64% in 1982 to 97% in 1987 86% of drinkers endorsed 'higher' chances of being arrested following RBT	Fatal Crashes: -36% Injury Crashes: -35%	60 months

Author, Year (Study period) Design suitability: design Quality of execution Evaluation setting	Intervention/Comparison details	Results/Other information	Summary value(s)	Follow-up Period
McCaul 1990[18] (seven week periods before/after Easter, 1987 & 1983) Moderate: Before/after with non-concurrent comparison Fair Adelaide, South Australia	RBT blitz campaign implemented immediately after Easter, 1987; 96% increase in stops accompanied by an extensive media campaign Comparison to immediately preceding period and similar period in 1983	Proportion of drivers (N=11,488) above: Zero BAC decreased 20.3% (95% CI: -27.4, -13.1) from baseline of .25 (net change = -13.4%) .08 BAC decreased 34.4% (95% CI: -50.0, -18.8) from baseline of .05 (net change = -24.3%) Authors speculate that publicity regarding enforcement was primarily responsible for the observed effect.	N/A	2 months

Author, Year (Study period) Design suitability: design Quality of execution Evaluation setting	Intervention/Comparison details	Results/Other information	Summary value(s)	Follow-up Period
Cameron 1992[19] (1/83 – 12/91, monthly) Greatest: Interrupted time series with concurrent comparison Fair Victoria, Australia	Transition to bus-based RBT operations beginning late 1989 and continuing through Novermber, 1990; > 100% increase in drivers tested (~70,000 tests/month); multimillion dollar publicity campaign promoted transition Comparison to NSW	Injury crashes during 'high alcohol times': 1990 - decreased 30% (net change = -18%; 90% CI: -24.1, –10.9) 1991 – decreased 41.3% (net change = -24%; 90% CI: -35.5, -11.2) Similar results obtained for separate analyses of metropolitan and rural areas	Injury Crashes: -21%	24 months

Author, Year (Study period) Design suitability: design Quality of execution Evaluation setting	Intervention/Comparison details	Results/Other information	Summary value(s)	Follow-up Period
Henstridge, 1997[20] (1976-1992, daily) Moderate: Interrupted time series Fair New South Wales	RBT implemented 12/17/1982; evaluated in a loglinear model with numerous covariates. Comparison to pre-intervention time series	RBT associated with a median: - 15% reduction in fatal crashes; -- 7% reduction in serious injury crashes; 15% reduction in single-vehicle nighttime crashes. Authors modeled the impact of a .05 BAC law implemented prior to RBT as well as seasonal factors, road usage, weather, and economic factors.	Fatal Crashes: -15% Injury Crashes: -7% Other Crashes: -15%	120 months

Author, Year (Study period) Design suitability: design Quality of execution Evaluation setting	Intervention/Comparison details	Results/Other information	Summary value(s)	Follow-up Period
Henstridge, 1997[20] (1980-1992, daily) Moderate: Interrupted time series Fair Western Australia	RBT implemented 10/1988; evaluated in a loglinear model with numerous covariates. Comparison to pre-intervention time series	RBT associated with a: - 28% reduction in fatal crashes; - 13% reduction in serious injury crashes; - 26% reduction in single-vehicle nighttime crashes. Authors modeled the impact of SBT checkpoints implemented prior to RBT checkpoints, as well as seasonal factors, road usage, weather, and economic factors.	Fatal Crashes: -28% Injury Crashes: -13% Other Crashes: -26%	51 months

Author, Year (Study period) Design suitability: design Quality of execution Evaluation setting	Intervention/Comparison details	Results/Other information	Summary value(s)	Follow-up Period
Henstridge, 1997[20] (1980-1992, daily) Moderate: Interrupted time series Fair Queensland	RBT implemented 12/1988; evaluated in a loglinear model with numerous covariates. Comparison to pre-intervention time series	RBT associated with a: - 35% reduction in fatal crashes; - 19% reduction in serious injury crashes; Authors modeled the impact of a .05 BAC law and SBT checkpoints implemented prior to RBT checkpoints, as well as seasonal factors, road usage, weather, and economic factors.	Fatal Crashes: -35% Injury Crashes: -19%	49 months

Author, Year (Study period) Design suitability: design Quality of execution Evaluation setting	Intervention/Comparison details	Results/Other information	Summary value(s)	Follow-up Period
Cameron, 1997[21] (11/93 – 12/94) Greatest: Interrupted time series with concurrent comparison Fair Rural Victoria	Increased RBT enforcement beginning 11/93; 74% increase in stops; Comparison to rural NSW	Injury crashes during 'high alcohol times' decreased 9% (95% CI: -17.71, -0.42) (net change = -15%) Comparison of regions of RBT activity vs. inactivity also indicated significant intervention effect	Injury Crashes: -15%	14 months

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Included Studies

Selective Breath Testing

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Search Strategy

The reviews of interventions to reduce motor vehicle-related injury reflect systematic searches of multiple databases as well as reviews of reference lists and consultations with experts in the field. The team searched six computerized databases (MEDLINE, Embase, Psychlit, Sociological Abstracts, EI Compendex, and Transportation Research Information Services [TRIS]), which yielded 10,958 titles and abstracts for articles, book chapters, reports, and published papers from the Association for the Advancement of Automotive Medicine proceedings about safety belts, alcohol-impaired driving or child passenger safety. Studies were eligible for inclusion if:

- They were published from the originating date of the database through June 2000 (March 1998 for child safety seat interventions)
- They involved primary studies, not guidelines or reviews
- They were published in English
- They were relevant to the interventions selected for review
- The evaluation included a comparison to an unexposed or less-exposed population
- The evaluation measured outcomes defined by the analytic framework for the intervention

For alcohol-impaired driving reviews, supplementary searches were conducted to address specialized questions and to update searches for reviews published after 2001. The final search using the primary alcohol-impaired driving search strategy was conducted through December 2004. For the most recent review in this series, “Effectiveness of Multicomponent Programs with Community Mobilization for Reducing Alcohol-Impaired Driving,” this database was supplemented by a hand search of the “Alcohol and Other Drugs” and “Transportation” sections of the SafetlyLit injury literature update service for the period from January through June 2005.

Primary Search Strategy

1. S MOTOR(W)VEHICLE? OR CAR OR CARS OR AUTOMOBILE? OR MOTORCYCLE? OR TRUCK? OR TRAFFIC(2N)ACCIDENT? OR DRIVING OR DRIVER?
2. S ALCOHOL OR ALCOHOLIC(W)BEVERAGE? OR ALCOHOL(3N)DRINKING OR ETHANOL OR ALCOHOLISM OR DWI OR DUI OR (DRIVING(3N)(INTOXICATED OR INFLUENCE OR DRUNK OR DRINKING OR IMPAIRED))
3. S INTERVENTION? OR OUTREACH? OR PREVENTION OR (COMMUNITY(3N)(RELATION? OR PROGRAM? OR ACTION)) OR DETERRENT? OR PROGRAM? OR LEGISLATION OR LAW? OR EDUCATION OR DETERENCE OR COUNSELING OR CLASS OR CLASSES OR HEALTH(W)PROMOTION
4. S FOOD(W)INDUSTRY OR AIRPLANE? OR AIRCRAFT? OR PILOT? OR SOLVENT? OR SLEEP(W)APNEA OR EMISSION? OR AIR(W)QUALITY OR POLLUTION
5. S (S1 AND S2 AND S3) NOT S4

Higher Education-based Interventions

S1 MOTOR(W)VEHICLE? OR CAR OR CARS OR AUTOMOBILE? OR MOTORCYCLE? OR TRUCK? OR TRAFFIC(2N)ACCIDENT? OR DRIVING OR DRIVER?

S2 ALCOHOL OR ALCOHOLIC(W)BEVERAGE? OR ALCOHOL(3N)DRINKING OR ETHANOL OR ALCOHOLISM OR DWI OR DUI OR (DRIVING(3N)(INTOXICATED OR INFLUENCE OR DRUNK OR DRINKING OR IMPAIRED))

S3 UNIVERSIT? OR COLLEGE? OR CAMPUS? OR (EDUCATION?(2N)(HIGER OR INSTITUTION? OR FACILIT? OR PROGRAM? OR SURVEY?))

S4 S1 AND S2 AND S3

S5 CURRICULUM OR INSTRUCTION OR EDUCATION OR TRAINING OR WORKSHOPS OR PROGRAMS OR COURSE? OR TEACH? OR (SOCIAL(W)NORM?)

S6 STUDENT? OR YOUTH? OR TEEN? OR (YOUNG(W)ADULT?)

S7 S4 AND S5 AND S6

School-based Interventions

S1 MOTOR(W)VEHICLE? OR CAR OR CARS OR AUTOMOBILE? OR MOTORCYCLE? OR TRUCK? OR TRAFFIC(2N)ACCIDENT? OR DRIVING OR DRIVER?

S2 ALCOHOL OR ALCOHOLIC(W)BEVERAGE? OR ALCOHOL(3N)DRINKING OR ETHANOL OR ALCOHOLISM OR DWI OR DUI OR (DRIVING(3N)(INTOXICATED OR INFLUENCE OR DRUNK OR DRINKING OR IMPAIRED))

S3 SCHOOL?(5N)(BASED OR SETTING OR PROGRAM? OR PRIMARY OR ELEMENTARY OR SECONDARY OR ((JUNIOR OR SENIOR)(W)HIGH) OR MIDDLE) OR (EDUCATION?(2N)(INSTITUTION? OR FACILIT? OR PROGRAM? OR SURVEY?))

S4 S1 AND S2 AND S3

S5 CURRICULUM OR INSTRUCTION OR EDUCATION OR TRAINING OR WORKSHOPS OR PROGRAMS OR COURSE? OR TEACH?

S6 STUDENT? OR ADOLESCENT? OR YOUTH? OR TEEN? OR CHILD? OR TEACHER?

S7 525 S4 AND S5 AND S6

Cost Analyses

1. S MOTOR(W)VEHICLE? OR CAR OR CARS OR AUTOMOBILE? OR MOTORCYCLE? OR TRUCK? OR TRAFFIC(2N)ACCIDENT? OR DRIVING OR DRIVER?
2. S ALCOHOL OR ALCOHOLIC(W)BEVERAGE? OR ALCOHOL(3N)DRINKING OR ETHANOL OR ALCOHOLISM OR DWI OR DUI OR (DRIVING(3N)(INTOXICATED OR INFLUENCE OR DRUNK OR DRINKING OR IMPAIRED))
3. S INTERVENTION? OR OUTREACH? OR PREVENTION OR COMMUNITY(3N)(RELATION? OR PROGRAM? OR ACTION)) OR DETERRENT? OR PROGRAM? OR LEGISLATION OR LAW? OR EDUCATION OR DETERENCE OR COUNSELING OR CLASS OR CLASSES OR HEALTH(W)PROMOTION
4. S FOOD(W)INDUSTRY OR AIRPLANE? OR AIRCRAFT? OR PILOT? OR SOLVENT? OR SLEEP(W)APNEA OR EMISSION? OR AIR(W)QUALITY OR POLLUTION
5. S COST? OR ECONOMIC? OR ECONOMETRIC?
6. S (S1 AND S2 AND S3 AND S5) NOT S4

Disclaimer

The findings and conclusions on this page are those of the Community Preventive Services Task Force and do not necessarily represent those of CDC. Task Force evidence-based recommendations are not mandates for compliance or spending. Instead, they provide information and options for decision makers and stakeholders to consider when determining which programs, services, and policies best meet the needs, preferences, available resources, and constraints of their constituents.

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