Community Preventive Services Task Force

# Reducing Alcohol-impaired Driving: Publicized Sobriety Checkpoint Programs

## Task Force Finding and Rationale Statement

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Suggested Citation:

The Community Preventive Service Task Force (CPSTF). *Reducing Alcohol-impaired Driving: Publicized Sobriety Checkpoint Programs.* The Community Guide [www.thecommunityguide.org]. The Community Preventive Service Task Force, Atlanta, Georgia, 2012. https://doi.org/10.15620/cdc/164235

# Task Force Finding and Rationale Statement

## Intervention Definition

Publicized sobriety checkpoint programs are a form of high visibility enforcement at which law enforcement officers stop drivers systematically to assess their degree of alcohol impairment. Media efforts to publicize the enforcement activity are an integral part of these programs. The program goal is to reduce alcohol-impaired driving by increasing the public's perceived risk of arrest while also arresting alcohol-impaired drivers identified at checkpoints.

There are two types of sobriety checkpoints:

- Selective Breath Testing (SBT) - police must have reason to suspect that a stopped driver is intoxicated before a breath test can be requested. SBT is used in the United States.
- Random Breath Testing (RBT) - all stopped drivers are given breath tests for blood alcohol concentration (BAC) levels. RBT is used in Australia and several European countries.

## Task Force Finding (August 2012)

The Community Preventive Services Task Force recommends publicized sobriety checkpoint programs based on strong evidence of effectiveness in reducing alcohol-impaired driving.

## Rationale

### Basis of Finding

The Task Force finding is based on earlier evidence from a Community Guide systematic review published in 2001 (Shults et al., 23 studies, search period January 1980 to June 2000) along with more recent evidence (15 studies, search period July 2000 to March 2012) reviewed in 2012. Based on this updated review, the Task Force recommendation for the effectiveness of this intervention remains positive and unchanged. Evidence presented below comes from the updated search period.

Primary evidence for this Task Force recommendation comes from 10 studies (reported in five papers) that evaluated the impact of publicized sobriety checkpoint programs on alcohol-involved crash fatalities in the United States. These 10 studies showed a median relative percentage decrease in alcohol-involved crash fatalities of 8.9% (interquartile interval [IQI]: -16.5% to 3.5%). The remaining five studies evaluated changes in outcomes that could not be combined with alcohol-involved crash fatalities. Two of these studies that were from the United Studies found decreases of 64% and 28% in the percentage of drivers with a BAC above the legal limit, and one study found a 4.6% decrease in the rate of alcohol-involved crash fatalities per vehicle mile traveled. Another U.S. study found a decrease of 18.8% in alcohol-involved collisions. A study from New Zealand found a decrease of 22% in serious and fatal nighttime crashes (a well-established proxy for alcohol-involved driving crashes). These results are consistent in direction with those from the 2001 Community Guide review.

### Applicability and Generalizability Issues

Of the included studies from the updated search period, 14 were conducted in the U.S., and one was conducted in New Zealand. Most studies focused on the general population, and two studies—one that focused on college-aged drivers and one that reported results separately for men aged 21 to 34 years—found reductions in alcohol-involved driving outcomes, showing publicized sobriety checkpoint programs are also effective among young adults, a particularly high-risk population.

Two studies that evaluated the use of "low-manpower" staffed checkpoints—those using 11 law enforcement personnel or fewer—found decreases in the percent of nighttime drivers with a BAC ≥0.08% and in the percent of alcohol-involved fatal crashes. These findings suggest that publicized "low-manpower" staffed checkpoint programs are effective.

Evidence from the updated search period showed a smaller median effect for sobriety checkpoint interventions in the U.S. when compared with evidence from the 2001 original Community Guide review; this is most likely due to changes in the environment around alcohol-impaired driving. Since the original review was published in 2001, alcohol-impaired driving and crashes in the U.S. have declined. Laws have been passed to reduce alcohol-impaired driving, and the public has become more familiar with sobriety checkpoints. Finally, improvements in engineering have led to safer cars and fewer crash deaths (NHTSA, 2012). Because there is less opportunity to achieve large declines in rates of alcohol-involved motor vehicle crashes, the smaller median effect from the updated search period is noteworthy..

### Data Quality Issues

Of the 15 studies included from the updated search period, 10 were interrupted time series with a comparison group, one was a controlled before-after study, two were interrupted times series studies, and two were before-after studies.

### Other Benefits and Harms

Additional benefits of sobriety checkpoints were identified in this review. Checkpoints may help law enforcement officers detect violations of the law that would otherwise be missed. For example, officers at a checkpoint can easily determine whether occupants are not using mandated safety restraints.

Potential harms of sobriety checkpoints include inconvenience to drivers who are required to stop, and intrusion of privacy. The U.S. Supreme Court ruled, however, that checkpoints are a minimal and acceptable intrusion given the benefit of preventing impaired driving and noting the small amount of time required of non-impaired drivers (U.S. Supreme Court, 1990). Additionally, public support for sobriety checkpoints is high, with 73% of those surveyed supporting the use of checkpoints in their community several times a month (AAA, 2009).

### Considerations for Implementation

Considerations for implementation include restrictions against conducting checkpoints. As of August 2012, 12 states prohibit the use of sobriety checkpoints (GHSA, 2012). Additionally, an integral part of publicized sobriety checkpoint programs is the use of media, either paid ads or news stories (i.e. "earned" media); to publicize the program and increase the population's perceived risk of arrest for alcohol-impaired driving. Six studies in the review reported that following implementation of a publicized checkpoint intervention, there were increases ranging from 4% to 32% in the percent of people from a targeted community who had seen or heard messages about drinking and driving or checkpoints showing that the intervention did increase awareness.

Securing the necessary law enforcement staff to implement sobriety checkpoints presents another challenge to implementation. Law enforcement agencies are often understaffed and their attention and resources are divided, with other priority areas. In addition, sobriety checkpoints are typically conducted during times when alcohol-impaired drivers are most likely to be on the roads, such as weekend evenings, and staff overtime is often required.

Compared with regular and saturation patrols, sobriety checkpoints are harder and potentially more dangerous to implement during adverse weather conditions as checkpoints require law enforcement personnel to stand outside while patrols allow them to spend most of their time in vehicles. Law enforcement also may be less supportive of sobriety

checkpoints because they can result in fewer arrests of impaired drivers compared to other forms of high visibility enforcement, such as saturation patrols.

A final implementation challenge is conducting the sobriety checkpoint in a manner that maximizes the effectiveness. The National Highway Traffic Safety Administration publishes a how-to guide for planning and publicizing sobriety checkpoints which describes how to implement checkpoints effectively (NHTSA, 2002). This guide recommends selecting a site for conducting checkpoints by identifying locations that have a high incidence of impaired driving-related crashes or fatalities and are safe for both law enforcement and motor vehicle occupants. Vehicles are randomly selected (e.g., every fifth vehicle) for driver assessment and standardized methods are used for determining who and how to test for alcohol. These precautions can help avoid implementation concerns about racial profiling by ensuring that sites, vehicles, and drivers are selected based on standardized procedures, and that the methods used to detect impaired drivers are not left up to an individual officer's discretion.

## Economic Evidence

Five cost-benefit studies were identified. Two selective breath testing studies reported benefit-to-cost ratios of 6:1 and 23:1 and three random breath testing studies reported ratios of 2:1, 14:1 and 57:1. The RBT study with the highest ratio considered both fatal and serious injury crashes averted over a 3-year period as opposed to the other two RBT studies that used nonfatal crashes over 9 months and nighttime fatal and nonfatal crashes over 2 years. Furthermore, the intervention in the study with the highest ratio was more intensive, reaching one in three drivers, compared to another RBT study, which reached one in nine drivers. In summary, all studies found that benefits exceeded costs, indicating that publicized sobriety checkpoint programs have the potential for substantial cost savings.

### *Other Economic Findings*

Three cost-effectiveness studies were identified in the updated search. The first study assessed the costs and outcomes of a 2-year regularly staffed program in Tennessee. It reported a cost of $1.25 million and a 20.4% reduction in alcohol−involved fatal crashes with an estimated cost per averted alcohol−involved fatal crash of $5,787. The other two studies analyzed the comparative cost effectiveness of changes in drinking and driving behavior: one study of weekly low-manpower checkpoints in two rural counties in West Virginia had a calculated cost of $35,146−$40,168 per percentage point reduction in nighttime drinking drivers with BAC ≥0.08 g/dL; the other study of checkpoints in a large California university community had a calculated cost of $1,723 per percentage point reduction in self-reported driving after drinking. However, without additional information, it is not possible to translate these three reported measures into the more commonly used cost-effectiveness measures of cost per life-year saved or cost per quality adjusted life-year. These three studies (one low-staffed and two regularly staffed) found that operation costs of low-staffed sobriety checkpoint programs ($391–$446 per checkpoint) were less than those of regularly staffed programs ($1,470–$3,445 per checkpoint).

Nine studies from four papers reported costs of media advertising that ranged from $1 to $82 per 100 persons in the targeted area. Five studies provided information on change in media awareness, measured before and after advertising the intervention. The cost per additional 100 people aware of the sobriety checkpoints ranged from $29 to $257. The incremental cost of media varied based on the length, density and duration of publicity, and the type of media used.

## Evidence Gaps

The 2001 Community Guide review discussed several evidence gaps, most of which were not addressed by the evidence found during the updated search period. Only one study evaluated random breath testing checkpoints, making it impossible to adequately compare RBT and SBT. Similarly, there was not enough evidence from the updated search

period to assess the effects of passive alcohol sensors that allow law enforcement officers to detect any measured presence of alcohol in a vehicle.

There also was insufficient information available in the studies from the updated search period to determine whether paid versus earned media had different effects on study outcomes because most studies either used both types or did not report which type was used. Further research should include descriptions and measures of media used.

The 2001 review also asked whether posting warning signs about checkpoints would have an impact on their deterrent effects. There was no evidence available from the updated search period to evaluate this question, and it now needs to be expanded as motorists can download applications to their smartphones to alert them to the presence and location of nearby checkpoints (Bertolucci, 2011). As the use of smartphones becomes more widespread, it will be important to understand the impact these applications may have on the effectiveness of sobriety checkpoints.

Finally, most of the studies provided either no or partial information about the costs of conducting sobriety checkpoints. Reporting complete costs for implementation, staffing, and media efforts, including the cost of paid media and dollar equivalent of earned media is necessary for a complete review of economic effectiveness. Also, further research is needed to clarify the long-term economic benefits for publicized sobriety checkpoint programs.

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Document last updated March 20, 2014