Effectiveness of designated driver programs for reducing alcohol-impaired driving: a systematic review


CRD summary
This review assessed the effectiveness of designated driver programmes on alcohol-impaired driving and alcohol-related crashes. The authors concluded that there is insufficient evidence to draw conclusions about the effectiveness of population-based campaigns or incentive programmes based in drinking establishments. Overall, this was a well-conducted review and the authors’ conclusions reflect the limited evidence.

Authors' objectives
To assess the effectiveness of designated driver programmes on alcohol-impaired driving and alcohol-related crashes in the USA and other developed countries.

Searching
Journals@Ovid, MEDLINE, PsycINFO, Sociological Abstracts, Sociofile, ERIC and TRIS were searched to July 2003 for studies published in English in peer-reviewed journals and technical or government reports; the search terms were reported. In addition, reference lists were checked and experts were contacted.

Study selection
Study designs of evaluations included in the review
Only comparative studies that met minimum predefined study design and study execution criteria were eligible for inclusion (see Criteria On Which the Validity (or Quality) of Studies Was Assessed).

Specific interventions included in the review
Studies of designated driver programmes were eligible for inclusion. The included studies used population-based campaigns and incentive programmes based in drinking establishments. The level of abstinence for designated drivers to receive incentives varied; abstinence was required to qualify for incentives in programmes set in the USA, but was not required in one study set in Australia. The studies generally used free admission and soft drinks as incentives.

Participants included in the review
Inclusion criteria for the participants were not specified.

Outcomes assessed in the review
The review assessed self-reports of the frequency of selecting a designated driver before drinking begins, observation of self-identified designated drivers in drinking establishments, and self-reports of alcohol-impaired driving and riding with an impaired driver. Studies on unintended effects of programmes were also included. None of the included studies assessed alcohol-related crashes.

How were decisions on the relevance of primary studies made?
The authors did not state how the studies were selected for the review, or how many reviewers performed the selection.

Assessment of study quality
The studies were categorised according to the appropriateness of the study design:
greatest (concurrent comparison group and prospective measures of exposure and outcomes);
moderate (retrospective design or multiple pre or post measurements, but no concurrent comparison group); or
least (single pre and post measurements and no concurrent comparison group or exposure and outcome measured in a
single group at the same point in time).

Study execution was assessed by considering the following threats to validity: descriptions of study population and
interventions; sampling; measurement of exposure and outcomes; data analysis; interpretation of the results (including
follow-up, bias and confounding); and other (unspecified). A total of 9 threats to validity were possible. The studies
were then classified as having good (0 to 1 threats), fair (2 to 4 threats) or limited (5 or more threats) quality of
execution. Only studies rated as having good or fair execution were included in the review.

Two reviewers independently assessed validity. Any disagreements were resolved through discussions with a team of
experts.

**Data extraction**

Two reviewers independently extracted the data using a data extraction form. Any disagreements were resolved through
discussions with a team of experts. Data on the results were extracted from each study.

**Methods of synthesis**

*How were the studies combined?*

The studies were grouped by type of intervention and combined in a narrative. The mean (with interquartile range) of
the increase in designated drivers per night was calculated.

*How were differences between studies investigated?*

Differences between the studies were discussed in the review.

**Results of the review**

Five reports of 9 studies were included (the number of participants was not reported).

Population-based campaigns (1 study).

The only identified study found that a 3-month mass media campaign in a small Western Australian city increased the
proportion of people always selecting a designated driver by 13%. It found no significant change in self-reported
drinking and driving or riding with a drink-impaired driver.

Incentive programmes based in drinking establishments (8 programmes including 5 reported in one journal article and 6
conducted by the same authors).

Seven programmes were set in the USA and one in Australia. The mean increase in designated drivers per night was 0.9
(interquartile range: 0.3 to 3.2; based on 7 studies). However, only two of these studies reported the number of
individuals in the bar during the observation period, making it difficult to compare the studies. The eighth study found a
significant 6.5% decrease (P<0.01) in self-reported driving or riding in a car with an intoxicated driver.

**Authors' conclusions**

There is insufficient evidence to draw conclusions about the effectiveness of population-based campaigns or incentive
programmes based in drinking establishments.

**CRD commentary**

The review addressed a clear question that was defined in terms of the intervention, outcomes and study design. Several
relevant sources were searched, but no attempts were made to locate unpublished studies, thus raising the possibility of
publication bias. The restriction to studies reported in English might have resulted in the loss of some relevant data.
Methods were used to minimise errors and bias in the assessment of validity and extraction of data, but it was unclear
whether similar steps were taken in the study selection process. Validity was assessed and only studies meeting the
minimum quality criteria were included. Some methodological limitations of the data were discussed. Adequate details of each included study were given. In view of the differences among the studies, a narrative synthesis was appropriate. Overall, this was a well-conducted review and the methodological limitations of the included studies support the need for further research.

**Implications of the review for practice and research**

**Practice:** The authors did not state any implications for practice.

**Research:** The authors stated that more research is required to evaluate population-based campaigns promoting the use of designated drivers. They stated that future studies should consider consistently collecting information on the number of drinking groups in establishments, and should qualitatively evaluate the effect of incentive programmes of choices people make about selecting a designated driver. Research on the cost-effectiveness of incentive- and population-based campaigns is also required.

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**Other publications of related interest**


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**Record Status**

This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.