

# Peer Reviewed Papers

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## The Effectiveness of Designated Driver Programs

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### Abstract

Designated driver programs aim to reduce alcohol related crashes by encouraging and facilitating a safe means of transport for those who have been drinking and by influencing attitudes and knowledge. This review discusses the use and effectiveness of designated driver programs in preventing drink driving and ultimately reducing alcohol related road trauma. The limitations of studies examining designated driver programs and recommendations for further research are also discussed. The available evidence suggests that while designated driver campaigns can successfully increase the awareness and use of designated drivers, it is less clear whether these programs lead to a reduction in drink driving and/or alcohol related crashes. Differences in the way that designated driver programs have historically been implemented may account for the inconsistent evidence for their effectiveness in reducing drink driving. There are also a variety of methodological problems relating to the evaluation of designated driver programs which need to be addressed by future research.

### Introduction

It has been suggested that if it is understood why people drink and drive, countermeasures can be better designed to prevent it from occurring [1]. Research into the factors involved in drink driving has shown that it is a complicated problem which requires a variety of different approaches to be taken in its prevention [1]. Factors suggested to influence drink driving include:

- attitudes toward drink driving (both the individual and their social group);
- personal factors (eg, alcohol dependence; [2]);
- deterrence (fear of getting caught and punished [3]);
- knowledge (eg, the effects of alcohol on safe driving); and
- situational factors (eg, transport availability; [2]).

Designated driver programs primarily aim to target the situational factors by providing safe transport home after drinking and hence an alternative to drink driving [4]. It has

also been suggested that designated driver programs can also influence attitudes and knowledge [4].

This review will discuss the use and effectiveness of designated driver programs in preventing drink driving and ultimately reducing alcohol related road trauma. The limitations of studies examining designated driver programs and recommendations relating to further research and program development will also be discussed.

Sources of information for this review included empirical journal articles and websites found using databases such as the Australian Transport Index (ATRI), PsychINFO, ScienceDirect, and TRIS Online (Transportation Research Information Services), and web based searches.

### What Are Designated Driver Programs?

A designated driver is usually defined as: *“A person who agrees to abstain from drinking alcohol and drives for one or more persons who have consumed alcohol”* [5, p.549].

It should be noted however that in some programs, the designated driver does not necessarily have to abstain from drinking alcohol but instead keep their blood alcohol concentration (BAC) below the legal limit. In Australia and other countries, designated drivers are also often referred to as “Skipper”, “Bob” and “Des” [6].

A key aspect of most designated driver programs is the use of mass media campaigns. Mass media campaigns promote the general use of designated drivers across the community, using newspaper, television and radio advertisements. In the United States the designated driver message has also been incorporated into the scripts of popular television programs [4]. The key elements of the designated driver message include:

- a designated driver be selected prior to drinking;
- the designated driver stays sober (or in some cases, under the legal limit); and
- the designated driver drives his/her passengers home safely [7].

In order to encourage wider use of designated drivers, some programs also involve an in-premises incentive component. These more formal programs systematically promote the use of designated drivers by offering incentives such as free soft drinks to those acting as designated drivers. These programs are promoted in and around the drinking establishments involved as well as through the media in the community.

## Potential Benefits Of Designated Driver Programs

The aim of designated driver programs is to reduce alcohol related crashes by:

- providing an alternative to driving under the influence (DUI);
- promoting the non-drink driving norm; and
- encouraging responsible travel planning [8].

Some researchers suggest that designated driver programs are quite widespread and popular *“because they are viewed as simple, pro-social, voluntary, inexpensive, widely applicable, requiring a modest behaviour change, and as translating easily into mass media campaigns to change social norms”* [9].

Mass media campaigns have been extensively used to prevent drink driving, including the promotion of messages about the dangers and consequences of the behaviour [10]. However, some have argued that messages that simply warn or encourage individuals not to drink and drive, without providing specific alternative behaviours, are less likely to have a significant impact [11]. Designated driver campaigns aim to encourage a specific alternative behaviour and if presented in conjunction with the usual messages may have a greater impact than general mass media campaigns on the prevention of drink driving.

Besides providing a specific alternative to drink driving, the designated driver concept also aims to change the attitudes and norms of people at risk of drink driving. *“By encouraging drivers to remain alcohol-free, the designated driver [concept] both promotes a social norm of not mixing alcohol with driving and fosters the legitimacy of the non-drinking role”* [12].

Others have also noted that the designated driver message could promote planning ahead when going out drinking [13]. Lack of planning, especially in young people, has been noted as a significant factor in drink driving behaviour [14].

## Designated Driver Programs Overseas

Perhaps one of the largest designated driver programs worldwide took place in the United States as part of the Harvard Alcohol Project. This campaign, initiated by the Harvard School of Public Health in 1987, involved major television networks producing and broadcasting public service announcements promoting the designated driver concept as well as incorporating it into the storylines of popular television programs [4].

In Europe, collectively known as “Euro Bob” there have been campaigns in France, The Netherlands, Belgium, and Greece. A summary of these programs is provided in Table 1

Country	Running period	Program type	Campaign elements
France	23/12/2001-6/01/2002	Mass media	TV ads; radio ads; internet
Belgium	29/11/2001-15/01/2002	Mass media	Billboard posters; TV ads; radio ads; internet; merchandise
Greece	1/02/2002-30/09/02	Mass media	Billboard posters; TV ads; radio ads; internet;
Netherlands	14/12/2001-28/02/2002	Mass media	Billboard posters; TV ads; radio ads; merchandising

Source [15]

## Designated Driver Programs In Australia

There have also been several designated driver programs implemented in Australia, including:

- ‘Pick-a-Skipper’ (Geraldton, Western Australia)
- ‘Sober Bob’ (Northern Territory)
- ‘Who’s DES Tonight?’ (Burnie, Tasmania); and
- ‘The Skipper’ (Gold Coast, Queensland).

‘Pick-a-Skipper’ involved a mass media campaign developed by the Liquor Industry Road Safety Association in Western Australia to encourage people to select a non-drinking designated driver to drive drinkers home [15]. This program was applied in Geraldton (a rural town in Western Australia) as both a mass media campaign and in-premises program. The mass media campaign involved television advertisements aired in Geraldton during a 3 month period from October 1994 to December 1994. The in-premises portion of the program involved the promotion of the campaign in two participating licensed premises including the offering of free soft drinks to any driver designated to drive home two or more drinking passengers [6]. This program was subsequently evaluated and will be discussed in detail in the following section.

‘Sober Bob’ is a designated driver program that has been operating in the Northern Territory since 1997 [16]. Sober Bob involves both mass media and in-premises components similar to the ‘Pick-a-Skipper’ campaign in Geraldton. To date, ‘Sober Bob’ has not been formally evaluated.

‘Who’s DES Tonight?’ is a designated driver program operating in Burnie, Tasmania since December 2004 [16, 17]. It was developed by the Burnie Community Road Safety Partnerships (CRSP) Committee in conjunction with local hotels and the Australian Hotels Association. This program is

an in-premises campaign with supporting marketing material such as posters, flyers, and radio and newspaper advertisements. The licensed premises offer free soft drinks to any person agreeing not to drink any alcohol and provide transport home to one or more passengers. There was also an added incentive of a fortnightly draw of a \$50 petrol voucher for those who registered at participating venues [16, 17].

It is likely that there have been other programs that have operated in Australia and overseas, however they have not been formally documented or evaluated.

## Research Into Designated Driver

Research into designated driver has taken a variety of forms. Some studies have explored characteristics of designated drivers and their users. Others have examined how people use and act as a designated driver, the reasons for using and being a designated driver, and the behavioural outcomes of using and being a designated driver. There have also been a small number of evaluations of specific designated driver programs.

### Evaluations

In 2005, a review of the effectiveness of designated driver programs was conducted in the USA [9] and showed that designated driver programs seem to have been successful in increasing the use of designated drivers (see Table 2). Some of the studies reviewed had relied on an assumption that an increase in the use of designated drivers will automatically translate to less drink driving [18, 19, 20]. Other researchers, however, have not relied on this assumption and have also included a measure of drink driving behaviour in their evaluations [6, 21]. An evaluation of the 'Pick-a-Skipper'

program in Geraldton, Western Australia was conducted in 1999 [6]. As mentioned previously this designated driver program involved television and newspaper advertisements as well as in-premises incentives (free soft drink for designated drivers). As part of the evaluation, surveys were conducted on a random sample of Geraldton residents one week prior to the introduction of the campaign.

These results were then compared to surveys conducted one week after the three month trial. This comparison showed greater use of designated drivers among the sample following the campaign which, like other studies in the review [9], appears to indicate the program's success in persuading drinkers to utilise a designated driver. In attempt to measure the impact of the program on drink driving outcomes, the evaluation in Geraldton assessed the self-reported drink driving behaviour of the participants. However, based on this measure, no reduction in drink driving was found following the introduction of the program. It is possible however, that the general community-based nature of the survey was not sensitive enough to identify changes in behaviour among the key target groups.

In this regard, an evaluation of a designated driver program in Melbourne used a similar methodology but this study surveyed the patrons of three licensed premises instead of a community sample. In this study, post-test surveys also revealed an increase in the use of designated drivers; however unlike the results in Geraldton, there was also a decrease in reported drink driving. Specifically, they found a decrease in the percentage of people (-6.5%) reporting being in a vehicle (either as a passenger or a driver) where the driver was believed to be over the legal limit (i.e., blood alcohol concentration of 0.05%) [21].

Table 2 Overview of evaluations of designated driver programs

					Measures		Results		
Author	Program type	Sample (Location)	Pre-post	Method/s	DD Use	Drink driving	DD Use	Drinking in DD	Drink driving
Boots & Midford (1999)	Mass media & Incentive	Community (Australia)	✓	Survey / Focus groups	✓	✓	↑	N/A	-
Simons-Morton & Cummings (1997)	Incentive	Drinking establishments (USA)	✓	Observation	✓	✗	↓	N/A	N/A
Brigham, Meier, & Goodner (1995)	Incentive	Drinking establishment (USA)	✗	Observation	✓	✗	↑	None	N/A
Meier, Brigham & Gilbert (1998)	Incentive	Drinking establishments (USA)	✓	Observation	✓	✗	↑	N/A	N/A
Boots (1994)	Incentive	Drinking establishments (Australia)	✓	Survey	✓	✓	↑	↓	↓

Source: [9]

A review of the literature found one experimental design in which the effects of designated drivers on drink driving were explored. Although not an evaluation of a specific program, it did systematically assess the impact of the designated driver message on drink driving. An experiment was conducted in 2002 on college students travelling across the Mexico/United States border [7]. Prior to crossing the border into Mexico, participants were given surveys and a breath-test and were randomly assigned to one of six conditions. Participants were also breath tested on their return to the United States and results showed that drivers exposed to the designated driver message had lower BACs on their return.

It should also be noted that an evaluation of the ‘Skipper’ designated driver program is currently underway in Queensland (22, 23). This evaluation is utilising a before/after design to compare the impact of the program in an experimental area (Mackay) with a purposefully selected comparison area (Rockhampton). A range of outcome indicators are being examined including awareness of designated driver, use of designated driver, acting as a designated driver; as well as self-reported drink driving and actual drink driving (as measured by Random Breath Testing rates). While the preliminary evidence suggests that the program has been associated with increased awareness and use of designated driver, no clear impacts on behaviour change have yet been established [22].

### Barriers to effective designated driver programs

Despite the fact that designated drivers seem to be widely used there is some evidence that essential program elements are not applied [7, 23, 24]. As noted previously, for a designated driver program to be successful, it is suggested that the certain criteria must be met. If any of these conditions are not met, it is possible that the program will not be successful in reducing drink driving nor alcohol related crashes.

There have been a number of studies that may provide support for this suggestion. For example, research has shown that a significant number of people do not specifically select their designated driver before drinking [25, 26, 27]. In fact, in one study, the majority of participants believed that selecting a designated driver did not necessarily need to occur prior to drinking [27].

Research has also shown that many designated drivers continue to drink. Studies have indicated in fact that anywhere between 33% and 94% of designated drivers continue to drink after being selected [5, 8, 28]. In one study, alarmingly, 94% of participants indicated that their designated driver consumed alcohol (although it is not known whether they were over the limit when driving) [5].

In some cases designated drivers are chosen simply on the basis of who among the group is the least intoxicated [25]. In this case two of the conditions may be violated: choosing the driver prior to drinking and the designated driver remaining sober.

It has also been suggested that even though the designated driver message may have increase awareness, change attitudes, and therefore increase use, the cognitive processes of participants are not necessarily changed. Specifically, despite the designated driver message being understood and accepted, individuals exposed to the programs may still be failing to plan ahead [7]. Further research is required in order to understand the mechanisms underlying this failure to plan.

### Other issues of concern

Despite its widespread use around the world, designated driver programs have been criticised for a number of reasons. Primarily, the programs have been criticised for the competing messages between road safety and general health. For example, it has been suggested that designated driver promotes the idea that it’s ok to drink as long as you don’t drive afterwards [8]. Following from this idea, designated driver programs have been criticised for possibly promoting excessive drinking among passengers [5, 8].

A number of studies have examined this issue in detail, and have found no support for this criticism [29, 30]. For example, Glindermann, Clarke, and Hargrove [29] collected BAC readings of pedestrians leaving licensed premises. The study found no differences in the BAC levels of those who were travelling with a designated driver and those who were not. This finding has been supported by other studies examining excessive drinking among passengers [30].

Contrary results, however, have been found in studies where passengers drinking levels were compared to drivers [5], or when passengers drinking levels when travelling with a designated driver were compared to their average level of consumption [25]. However, comparing passengers drinking levels to those of drivers may not be a fair comparison as it would be expected and possibly preferred that the driver is not as intoxicated as their passengers. Also, comparisons between average consumption and drinking levels when travelling with a designated driver may simply indicate that some drinkers plan to use a designated driver when they intend to drink more than usual and do not want to drink and drive [30]. These studies do not clearly show that the use of designated drivers leads to excessive drinking but further research on this issue may be warranted.

In addition, it has been suggested that some drivers may decide to use drugs other than alcohol when it is their turn to be the designated driver. For example, a study by Stevenson et al (28) found that a number of the students surveyed reported being a designated driver while feeling the effects of a drug. While drink driving still remains of greater concern to road safety, the increase in use of drugs while driving, especially among young people, may warrant the inclusion of anti-drug driving messages in designated driver campaigns.

## Research limitations

The available evaluations of designated driver have typically suffered from a number of limitations. The first issue is the lack of outcome measures in the evaluations that have been conducted. A majority of evaluations have measured the success of the program solely based on whether there has been an increase in the use of designated drivers. Very few studies have also measured drink driving behaviour to assess whether the use of designated drivers actually decreases driving under the influence.

A possible reason for this is that much of the research conducted to date has focused on marketing rather than road safety outcomes. It may be that for many researchers, designated driver is viewed as a product and the increase use of designated driver indicates that the product has been purchased and hence the campaign has been successful. However, this approach shows little interest in whether the consumers are using the product as directed or whether it is effective in dealing with the problem the product is designed to address (i.e., reduce drink driving).

Another common limitation is the use of self-report and observational methods. These methods are often criticised for being subjective and for introducing potential biases [31]. Some researchers have argued that more objective measures of drink driving behaviour may be more appropriate, such as offence data [8]. There is however potential problems with this measure of drink driving. For example, not all drink driving occasions are detected and this may lead to an underestimate of the drink driving problem [3]. Also, offence data may provide a biased view of the effect of designated driver on the drink driving problem due to other factors such as variations in enforcement practices. The use of a drink driving detection rate could be a way to control for the effect of drink driving enforcement, by taking into account the number of breath tests performed.

Despite the fact that the ultimate aim of designated driver is to reduce alcohol related crashes, few evaluations have examined actual crash outcomes. There are a number of possibilities for why this is the case, including the fact that the random and infrequent nature of crashes makes it difficult to make comparisons and find significant effects particularly over the short-term [10].

There have been a few studies that have reported drink driving offences, crashes, and use of designated driver but have failed to include appropriate controls or baseline data [15, 17]. These studies would therefore be unable to accurately determine the effect of designated driver on subsequent behaviour, over and above other contextual influences.

A final and major limitation is simply a distinct lack of research into the effectiveness of designated driver programs [22]. Researchers have suggested, even recently, that this situation has not changed [9]. There are many designated driver programs currently running around the world; however a large proportion of these have never been evaluated.

## Conclusion

The available evidence suggests that designated driver programs can successfully increase the awareness and use of designated drivers. However, whether these programs lead to a reduction in drink driving and ultimately alcohol related crashes is less clear.

Differences in the way that designated driver programs have been implemented in different locations may account for the inconsistent evidence of their effectiveness in reducing drink driving [7]. In this regard, it is possible that some of the programs evaluated in the past have failed to meet the criteria considered necessary for a successful campaign (e.g., lacked public education support). Alternatively, it may be the case that these programs in isolation can encourage the greater use of designated drivers but not necessarily change the behavior of people likely to drive after drinking.

Research has supported this by showing that designated drivers are often not chosen prior to drinking and that the designated driver does not always remain sober [5, 8, 25, 26, 27]. It is not clear however, why some designated driver programs may have failed to achieve these outcomes.

Another possible explanation for the lack of clear evidence is due to the inherent limitations of the studies into designated driver conducted to date. There are a variety of methodological problems in how designated driver programs have tended to be evaluated, including:

- lack of suitable control or comparison groups;
- lack of baseline measures to establish pre-intervention behaviours;
- the reliance on self-report data; and
- lack of road safety outcome measures.

The lack of clear evidence confirming the effectiveness of designated driver programs does not necessarily mean that such programs should be discouraged. On the contrary, it highlights the need for them to be better implemented and evaluated.

Based on this review, it is recommended that current and future programs are improved by ensuring that the designated driver message is properly conveyed. It also highlights that the use of mass media needs to be recognised as an integral component of any designated driver program, in order to raise general awareness of the initiative and to support the behavioural objectives of the program.

It is also important that further research be conducted to investigate the barriers to effective program implementation, to evaluate current programs, and plan future evaluations using before/after designs, appropriate control/comparison groups, relevant baseline measures, and road safety outcome measures including self-reported drink driving, actual drink driving detection rates and alcohol related crashes.

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