INTRODUCTION

One of the more persistent recent issues in dealing with the problem of repeat drunken driving concerns the relative effectiveness of two different countermeasure approaches: license action versus treatment.

A basic problem in determining which of these two countermeasure approaches is more effective consists of deciding what criteria should be used to measure "success." In the past, members of the traffic safety communities have tended to select those outcome criteria measured in terms of motoring variables, such as subsequent accidents and DUI reconvictions. By contrast, members of the alcoholism and alcohol service provider communities have attempted to emphasize outcome criteria specified in terms of life style variables, such as changes in drinking behavior and social stability.

The present study evaluates the relative long-range effectiveness of the two countermeasure approaches in terms of traffic safety variables alone, i.e. accidents and convictions. We believe traffic safety criteria must take precedence over other program objectives because the events triggering the countermeasures involve a violation of the vehicle code (DUI) which affects the safety of others. However, the two criteria need not be viewed as mutually exclusive objectives. For example, it seems reasonable to expect that reductions in problem drinking lead to reductions in drunken driving in order for a rehabilitation effort to be considered "effective." Furthermore, improved driving records—even in the absence of positive life style changes such as reduced drinking or abstinence—would indicate program "success."

The California DUI demonstration project. California acquired a new component in its drunken driving countermeasure system on January 1, 1976 when Senate Bill 330 (SB 330) became effective. Pilot alcohol abuse programs for convicted drunken drivers in four demonstration counties were established. These drunken driving programs (DDPs) provided courts in the demonstration counties with an alternative to traditional sanctions for repeat drunken driving offenders. In exchange for their participation in a 12-month DDP, repeat offenders retained their driving privileges, thus avoiding the mandatory license actions (12-month suspension for a second DUI or 3-year revocation for three or more DUI convictions) normally imposed by the Department of Motor Vehicles (DMV).
An earlier evaluation of the pilot DDPs after 1 year did not, however, support the rehabilitation model. For the 12-month period following conviction for a repeat drunken driving arrest, mandatory license actions were found to be a more effective traffic safety countermeasure than participation in a drunken driving program. The positive effect of license actions was attributed to reduced and more cautious driving by the recipients of these actions during the 12-month period. However, proponents of the treatment model argued that, while the effects of license actions would diminish once they were removed, long-term benefits from the DDPs would occur as clients' resistance to change was overcome and positive behaviors were learned. Further research seemed necessary to determine how the effects observed during the initial 12-month postconviction period would vary over a longer time period. The present study was undertaken for this purpose and is reported in detail by Sadler and Perrine, whereas the present paper is limited to examination of a few selected aspects of the study.

**METHOD**

Selection of demonstration and comparison counties. The four SB 330 demonstration counties were selected through a competitive bidding process, and drunken driver programs were operating in each by July 1976. Four comparison counties were selected by means of a three-phase matching process based on similarities between county pairs on 15 relevant traffic safety, alcohol abuse, and socio-economic indicators.

Subjects. A total of 8,275 repeat DUI offenders who resided in one of the eight evaluation counties were used as subjects, but they were obtained from three different samples. First, in the four demonstration counties, alcohol program participation required the willingness of both the court and the repeat DUI offenders. For all such SB 330 participants, DMV withheld imposing the mandatory license action. Second, the remainder of the repeat DUI offenders in the demonstration counties formed a nonparticipant comparison group. Third, a second comparison group was formed from all repeat offenders in the four match counties. Subjects in both comparison groups were identified from DMV's records of DUI suspension and revocation activities; each subject had received either a mandatory 12-month license suspension or a 3-year license revocation.

Approximately 1% (83) of the 8,275 subjects from the original study could not be re-identified for the present study. The new group sizes for the remaining 8,192 repeat DUI offenders are: 2,534 alcohol program participants, 2,420 demonstration-county license-action nonparticipants, and 2,866 match-county license-action recipients.

Criterion variables. Recorded accidents and countable convictions were subdivided on the basis of whether alcohol was or was not officially involved. The police officer who investigates an accident must indicate on his report
whether in his opinion the driver had been drinking (HBD) or not. This official indication was used for coding a given accident as having been alcohol related (HBD) or nonalcohol related (non-HBD).

The convictions were subdivided on the basis of the number of points assigned. The 2-point offenses are assumedly all alcohol involved: DUI, hit-and-run accident, and reckless driving. Lesser 1-point moving offenses include: failure to stop at a red light, speeding, illegal lane changes, etc. Thus, 1-point convictions are treated as nonalcohol related, whereas 2-point convictions are treated as alcohol related.

RESULTS

Due to severe space limitation, only the most relevant results are presented here in summary form, namely, graphs representing the following outcome criteria over the 4-year period: (1) non-alcohol-related accidents and convictions, (2) alcohol-related accidents and convictions, and (3) combined alcohol and non-alcohol-related accidents. Repeated-measures analyses of covariance were used to compare groups on the outcome criteria. In the following figures, all data points represent adjusted means for each group within each of the 4 follow-up years. The data were adjusted for preconviction differences on variables or covariates that were correlated with the outcome criteria. The data points in the following figures represent mean values per 100 drivers; and the higher the value, the worse the traffic safety experience.

Nonalcohol-related outcome criteria. Analyses of nonalcohol-related accidents and convictions generally indicate large significant differences favoring the license-action groups (demonstration county nonparticipants and match-county offenders) over the alcohol program participants. Regarding non-HBD accidents, the alcohol program participants had approximately 70% more such accidents over the 4-year period (see Figure 1). The participants also had significantly more non-HBD accidents within each of the 4 years. The differences between the two license-action groups were not significant.

Regarding 1-point convictions, the alcohol program participants also had approximately 70% more across the 4 years than did the license-action groups. The participants were significantly higher (p < .01) than the other two groups within each of the 4 years, but the nonparticipants and match-county offenders did not differ significantly from each other (see Figure 2).

Alcohol-related outcome criteria. Two alcohol-related outcome measures were used to assess the traffic safety impact of having participated in an alcohol treatment program in lieu of receiving a mandatory license action: HBD accidents and 2-point convictions. Regarding HBD accidents, the 4-year trend indicated a 9% overall decrease, but no significant differences among or between the three groups (see Figure 3).
Figure Legends

Fig. 1. Mean non-HBD accidents (per 100 drivers) for alcohol program participants, demonstration county license-action non-participants, and match county license action offenders, by follow-up year.

Fig. 2. Mean one-point convictions (per 100 drivers) for alcohol program participants, demonstration county license-action non-participants, and match county license action offenders, by follow-up year.

Fig. 3. Mean HBD accidents (per 100 drivers) for alcohol program participants, demonstration county license-action non-participants, and match county license action offenders, by follow-up year.

Fig. 4. Mean two-point convictions (per 100 drivers) for alcohol program participants, demonstration county license-action non-participants, and match county license action offenders, by follow-up year.

Fig. 5. Mean total accidents (per 100 drivers) for alcohol program participants, demonstration county license-action non-participants, and match county license action offenders, by follow-up year.
Regarding 2-point convictions, it was discovered that the conviction rate in the match-counties was approximately 30% lower than in the demonstration counties; therefore, the match-county data were omitted from analysis. As shown in Figure 4, the 4-year rate on 2-point convictions for alcohol program participants is approximately 9% lower than the rate for the nonparticipants. The overall differences are statistically significant ($p < .05$). Further analysis by type of license action indicated that the 3-year license revocation with its assumedly reduced driving exposure is associated more with driving without drinking than with driving after drinking. One implication of this finding is that the optimal traffic safety countermeasure for repeat DUI offenders may be some combination of license action and alcohol abuse treatment.

Combined alcohol- and nonalcohol-related accidents. All HBD and non-HBD accidents were combined to form a criterion measure called total accidents (see Figure 5). The alcohol program participants had approximately 30% more total accidents across all 4 years than either of the two other groups. The differences between groups were statistically significant during the first 3 years and the directional trend continued but was not significant in the fourth year. The alcohol program participants also had higher 4-year rates than the two other groups for fatal and injury accidents, as well as for late-nighttime accidents.

CONCLUSIONS

1. License action is a more effective traffic safety countermeasure for repeat DUI offenders than participation in a 12-month alcohol program.
2. License actions result in substantially lower 4-year rates of nonalcohol-related accidents and convictions than alcohol program participation.
3. License actions and alcohol program participation have roughly equivalent long-term effects on alcohol-related accidents and convictions.
4. The effect of license action is probably attributable to reduced driving exposure and to more cautious driving behavior during the period without a valid license.
5. The greater the duration of a license action, the larger the long-term effects tend to be.

REFERENCES
