Post-consumption Designation of Drivers: Finding the “Designated Driver” From Within a Group of Drinkers

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Background
Though the designated-driver is widely popular among all Americans, there is ample evidence that it is often misapplied [1, 2, 3]. To function properly, groups of drinkers must commit to three stages of implementation: (1) the group must designate a driver before starting to drink, (2) the designee must abstain from drinking, and (3) the designee must fulfill his or her responsibility to be the driver. Failure at any of these three stages of implementation could result in potentially impaired drivers either claiming to be the designated driver or usurping the role of the designated driver [4].

Objectives
Young people face a variety of challenges to the successful completion of these steps. Challenges come from both internal cognitive/motivational factors, as well as external factors, such as group dynamics and environmental constraints. At times, inconsistent or incomplete prevention messages may have led to flawed conceptualizations of the designated concept further limiting successful implementation. By taking seriously the implementation errors of drinkers, we may better tailor our messages—especially to young people—to better the chances that designated drivers will be effectively used.

The research presented here describes the further investigation into the choices natural drinking groups make regarding their designated driver.

Methodology
Participants
Participants were recruited on the U.S. side of the San Diego/Tijuana pedestrian border crossing. Whole groups of young people were approached and asked a number of screening questions. Eligible groups must have included a San Diego County resident between the ages of 18 and 30, arrived by private car, and averaged at least one passenger per driver. Eligible participants were offered $10 to participate.

There were 378 groups recruited that successfully completed the data collection. There were 1,709 total participants (57.7% males). Ages ranged from 18 to 46 (M=20.4, SD=2.74). All data collection reported here occurred on approximately one Friday and Saturday night per month between June 2000 and August 2001. Recruitment times were between 10 PM and 1 AM. Returning times were between 12 AM and 6 AM.

Experimental Conditions
Each group was randomly assigned into one of seven experimental conditions. These conditions are summarized in Table 1.
Table 1. Experimental conditions

<table>
<thead>
<tr>
<th>Condition</th>
<th>Description</th>
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<tr>
<td>Control</td>
<td>Participants are treated identically to other conditions, but no questions about designated-driver use are included.</td>
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<tr>
<td>Cueing only</td>
<td>Participant groups are asked to identify their designated driver.</td>
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<tr>
<td>Cue plus physical reminder</td>
<td>After identifying the designated driver, the driver is asked to wear a special ID bracelet with the words “Designated Driver” printed on it.</td>
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<td>Attitude change through dissonance reduction</td>
<td>The identified designated driver is asked to read a pro-designated driver use statement that may evoke feelings of hypocrisy. This in turn may create a dissonant reduction effort that results in a more pro-designated-driver attitude.</td>
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<tr>
<td>Reward of driver</td>
<td>The identified designated driver is offered a reward for returning from Tijuana sober.</td>
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<tr>
<td>Normative pressure through reward</td>
<td>All members of the group are offered a reward if the driver returns sober.</td>
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<tr>
<td>Normative pressure through attitude change</td>
<td>A randomly selected participant group member reads aloud a pro-designated driver use statement. Then the group selects the designated driver.</td>
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Procedures

Two survey staff members wearing colored windbreakers, and carrying clipboards recruited participants. Initial group selection was based upon an appearance that the group may meet the eligibility requirements, and being the next group to cross a tape line placed on the sidewalk once the other surveyors were ready to accept a group for processing.

The survey was described as an effort to make the Tijuana border area safer and more enjoyable for those who visit it. Participants were informed about the nature of the task, and that they would receive a $10 money order upon their return to the United States, if they checked in with a member of the research survey team before 6:00 AM on their way back. We decided to offer the incentive as a $10 U.S. Postal Money Order instead of cash to hinder possible attempts to return to Tijuana to drink more. The entire group must have agreed for the group to participate in the study.

Once the group agreed to participate, members were given a questionnaire on a clipboard and asked to wear a hospital style ID bracelet with a subject code number. This allowed us to match arrival with returning data while maintaining the anonymity of the participant. These methods matched closely those described previously [5].

After the participants completed the self-administered questionnaire, they were asked to provide a breath sample for an alcohol test. Then the group was exposed to the experimental manipulation, thanked for their participation and they continued on their way into Mexico.

Upon their return to the U.S., after completing the Immigration and Naturalization Service and U.S. Customs checks, participants could easily see our survey staff waiting inside the border crossing building. They could then approach our table and check in with the survey...
staff. They were administered a brief standardized interview, asked to submit to another alcohol breath test, and given their incentive fee. Those participants who had been in either condition 5 or 6 were also read a debriefing statement, since they were provided the additional reward regardless of their actual BAC. This was done because the breath test devices used were programmed to store the BAC internally, but not to display the result. Therefore, there was no way to properly assess whether the reward was justified for any given group. The debriefing statement made it clear that they were receiving the reward based upon participation, not their assessed BAC. They were further encouraged to take a taxi if they had been drinking.

Dependent Measures
The primary dependent measure is the resulting BAC of drivers and passengers as they return to the U.S. from visiting Tijuana, Mexico. BACs were measured using a handheld BAC test unit (CMI Intoxilyzer SD-400; CMI, Inc., Owensboro, KY). The units stored the BACs internally only.

Results and Analysis
Focus on the cue conditions
The results of the overall effectiveness of each intervention was presented at a previous ICADTS conference [4]. At that time, we reported that cuing alone produced a statistically significant reduction in driver returning BACs. Other conditions that enhanced the cue produced other effects. This paper will not focus on the effectiveness of these interventions, but instead on the behaviors of the participant groups regarding their selection of the designated driver. The two cue conditions described above offer the least intrusive interventions to study the group behavior; yet these condition also offer necessary information regarding the identification of the designated driver. Therefore, the analyses described below will be based solely on the data gathered from the 431 participants (in 116 groups) who were participants in the cue conditions.

Driver Characteristics
Since all members of the group were administered the same questionnaire and breath-tested upon arrival, it is possible to compare the BACs and other characteristics of passengers and drivers within the group (see Table 2). Those who self-identified as the designated driver upon return were more likely to be male, less likely to have a recent history of consuming 5 or more drinks on one occasion (labeled here as heavy episodic drinking). Perhaps not surprisingly, the driver was far more likely to be the vehicle owner. Fitting the pattern of the driver drinking less, they were also less likely to arrive at the border with a positive BAC.

<table>
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<th>Table 2. Driver and passenger characteristics</th>
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<tr>
<td>Gender (Male)</td>
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<tr>
<td>Age</td>
</tr>
<tr>
<td>Recent heavy episodic</td>
</tr>
<tr>
<td>Vehicle Owner</td>
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<tr>
<td>Arrival w/+BAC</td>
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Pre versus Post Cue Selection
After presenting the cue to the groups, interviewers were instructed to rate each group on whether or not the identified designated driver was pre-determined, or selected by the group following the cue. Interviewers used such behaviors as group discussions and response latency as information to guide their rating. Almost one in five (19%) of the groups appeared to select their driver after the cue was presented. This implies that for at least a substantial minority, it was plausible that alcohol consumption would have occurred prior to designated driver selection had our cue not been present.

Further, data from the returning survey indicate that groups that were observed practicing a post-cue driver selection differed from those who had a pre-cue designated driver. First, there was a trend indicating that post-cue designated drivers held their driver role more tenuously than pre-cue designated drivers. This is indicated by the instances where driver-role switching occurred between the entry and exit contacts with the groups. Though the statistical significance is marginal, it does appear that post-cue selected driver groups were more likely to return with a different driver, $X^2(1)=3.32, p=.07$. Further the driver that is identified by the group upon return had, on average, a higher BAC when the group had made a post-cue versus a pre-cue designated driver selection (M=.039, M=.016 respectively; $p<.05$).

Driver Switching
A number of variables were included into a series of univariate logistic regressions to predict loss of driver status among entry-identified drivers. The resulting number of participants who where identified at entry as driver was 113, with 19 (16.8%) becoming passengers by the return survey contact. Three tested variables were either significant or marginally significant predictors of switching: Arrival BAC, $p<.01$; Recent heavy episodic drinking, $p=.05$; Post-cue selection, $p=.07$. The presence of wristbands, driver sex and car ownership were not predictive of switching behavior.

There is an interesting pattern that emerges from the returning BACs of drivers, ex-drivers and newly assigned drivers (see Figure 1).

![Figure 1 Returning BAC by driver role.](image)

Discussion
Young people may interpret the concept of the designated driver very differently from the public health goal. While all driving groups claimed that their driver was indeed a...
designated driver, returning BACs demonstrate that abstinence was not a requirement for at least some who filled that role. Further, the designation of the driver for some groups clearly was either destined to occur after consumption (e.g., post-cue selection groups) or was observed to have switched after entering the drinking environment. Again, such an implementation of the designated driver concept is problematic and predicted elevated driver BACs.

While even those who poorly used the designated driver concept returned with BACs that were on average lower than their passengers, it is clear that for many, more effective implementation of designated drivers would reduce risk of crashes further.

Conclusion
The findings reported here highlight the utility of group measurement within the drinking environment. Especially for young people, the importance of the natural drinking group within the drinking context is as great as it is ignored within the alcohol research community. The behavior of individuals within groups are clearly affected by interactions that are rarely documented, or poorly understood.

For instance, observed within this study was a finding that identified drivers on entry who then become identified as a passenger have a higher returning BAC than the newly identified driver. While this makes the group’s driver-switching appear strategic, what is not known is how the decision to switch occurred. Was it the result of an observation by the group members that their driver was drunk? Or was it perhaps the result of a continued pre-consumption (or at least pre-intoxication) negotiation in which the identified driver convinced a different individual to accept the role of driver. Of course either or both are possible, but our limited understanding of the mechanism for decisions of such importance is indicative of the gaps that must be filled.

Possible Next Steps
The study of natural drinking groups is both a difficult and important task ahead for this research program. The designated driver concept presupposes functional group process that to date have not been studied adequately. The primary obstacle we face are the lack of measures to adequately observe the relevant group processes. Research is underway to develop such measures, and this will hopefully yield data on group construction, decisions, interaction and behaviors that ultimately will inform our prevention activities.

References