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Short-Term Efficacy Study of the Hard Truth DUI Awareness Initiative

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SHORT-TERM EFFICACY STUDY OF THE HARD TRUTH DUI AWARENESS INITIATIVE

Ralph Anthony Miro

B.S., Charter Oak University, 2001

A Thesis

Submitted in Partial Fulfillment of the

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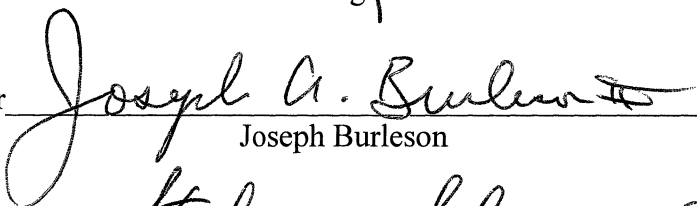
Master of Public Health Thesis


Short-Term Efficacy Study of The Hard Truth DUI Awareness Initiative

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1.0 Introduction

Driving under the influence (DUI) is responsible for the deaths of thousands of young people each year. Although much progress has been made in reducing mortality and morbidity due to DUI via increased law enforcement initiatives, legislation, and penalties for first time offenders, educational initiatives must also be developed in order to encourage a permanent change in attitudes and behaviors. The objective of the present study was to test that The Hard Truth Program, which targets primarily high school students, could achieve the specific goal of discouraging driving after consuming alcohol. Over the past 10-15 years, the United States has increased efforts to prevent drinking by youth under the age of 21. In 1984, federal legislation was enacted to establish 21 years of age as the national minimum legal drinking age (MLDA). Although some states resisted raising the MLDA, by 1989 all states and the District of Columbia instituted the age increase. To address concerns about youth drinking and driving, federal legislation requiring states to adopt a minimum drinking age of 21 or lose highway funds was passed in 1984. By 1987, all U.S. states had adopted an MLDA of 21. (Shults, et al, 2001).

Since this change, the rate of alcohol related traffic deaths for youth younger than age 21 has fallen from 22 per 100,000 in 1982 to 10 per 100,000 in 1997 (NHTSA, 1998). During that period, alcohol use by high school students dropped from 69.7% to 52.7%, and the percent of seniors reporting binge drinking dropped from 40.5% to 30.3% (Johnston et al., 1998). NHTSA estimates that through 1997, the MLDA laws saved 17,359 lives (Voas, R. B., Tippetts, A. S. et al, 2003).

In support of .08 BAC laws, the U.S. Congress included a provision in the 2001 Department of Transportation and Related Agencies Appropriations Act that required states to implement .08 BAC laws by October 2003 or risk losing federal highway construction funds. By July 1998, all 50 states had enacted lower BAC limits (Shults, et al., 2001).

Although these initiatives have had success, the fact remains that 16,000 people lost their lives in 2004 due to alcohol related crashes, with many of the victims being teenagers (NHTSA, 2005). Legislation, the threat of punishment as a deterrent, and parental guidance all play an important role in mitigating this preventable tragedy. Changing the attitudes and beliefs about the risks of DUI is the only approach that will ensure lasting change. Education is the key and there is no challenge more daunting than convincing teenagers that behaviors considered a rite of passage should be reconsidered. The Hard Truth is an educational initiative developed with one primary goal in mind: to reduce mortality and morbidity by convincing teenagers not to operate a motor vehicle after drinking alcohol. This paper will describe the experience with this program to date and delineate our first steps in scientifically validating its efficacy.

2.0 Review of the Literature

An estimated three of every ten Americans will be involved in an alcohol-related traffic crash at some time in their lives (NHTSA, 2000). According to the U.S. Department of Transportation (August, 2005), during 2004 there were 16,694 alcohol-related fatalities in motor vehicle traffic crashes in the United States and an additional 500,000 people were injured (CDC, 2006). In Connecticut, there were 298 motor-vehicle related fatalities and of those, 137 (46%) were alcohol-related. In 2004, approximately 1.4 million drivers were arrested for driving under the influence of alcohol or narcotics (Department of Justice, 2004). In 2001, more than half a million people were injured in crashes where police reported that alcohol was present — an average of one person injured approximately every minute (Blinco Seay et al., 2002). The CDC also reports that more than two-thirds of child passengers ages 14 and younger who died in DUI crashes during 1997-2002 were riding with a drinking driver (Shults, 2004).

In 1995, NHTSA released the *Motivating Anti-DWI Behavior Using Existing Values Final Report* (NHTSA, 1995). According to this report, the prior ten years had seen significant decreases in morbidity and mortality resulting from impaired driving relative to the prior decade. Some of these improvements were credited to more focused and effective enforcement, tougher prosecution of impaired driving offenses, and more effective penalties applied to more offenders (Stewart & Voas, 1993). The report recommended ways to prevent impaired driving in young adults based on their values, attitudes, and beliefs concerning driving drunk, because personal values and attitudes have been shown to be important mediators of behavior.

2.1 Prevalence

Since the National Highway Traffic Safety Administration (NHTSA) began tracking alcohol related fatal crashes in 1982, the proportion of all traffic fatalities that are alcohol related has declined from 57% to 38%. Despite this progress, alcohol-related crashes resulted in 15,786 deaths and more than 300,000 injuries in 1999 (Shults, et al, 2001).

According to results from the National Survey on Drug Use and Health National (SAMHSA, 2002):

- About 1 in 7 Americans aged 12 or older in 2002 drove under the influence at least once in the 12 months prior to the interview;
- Males were nearly twice as likely as females to be DUI; and
- More than 1 in 4 young adults aged 18 to 25 reported driving under the influence of alcohol at least once in the prior year.

For teenagers, consuming alcohol to the point of intoxication has become a rite of passage that is often paired with operating a motor vehicle. The NHTSA study conducted in 2000 assessing 18-25 year-olds and 12-15 year-olds provides information regarding youth perceptions and attitudes about drinking and driving. In terms of drinking and driving, most respondents in the NHTSA (1995) study admitted to driving while intoxicated, and about two-thirds answered yes to the question: "Have you ever driven after drinking so much that you would have been in trouble with the police if you had been stopped?"

Nine percent of the respondents had been arrested for driving while impaired. Of the respondents, 84% were current "drinking drivers," defined as those who 1) admit

to driving while impaired within the last year; 2) had been arrested for DUI in the last year; 3) usually drink on weekends and usually drive themselves; or 4) admit to having driven within 2 hours of consuming alcohol in the last year (NHTSA, 1995). Using alcohol for many adolescents begins long before they reach the legal drinking age of 21. One of the consequences of this behavior is involvement in alcohol-related crashes as reported by the NHTSA Fatality Analysis Reporting System. In 2004 out of the 17,105 victims killed in alcohol related crashes nationally, 127 occurred in the state of Connecticut. According to the findings of the 2002 National Survey on Drug Use and Health, the prevalence of current alcohol use is widespread and increases steeply with age rising from 29% at age 16 to 50% at age 21.

2.2 Youth Attitudes about DUI

A comprehensive report (NHTSA, 2005) offered recommendations for preventing impaired driving among youth based on interviews with select age groups. The primary target group was 18-29 year-old drivers who drink occasionally. This group was selected because young drivers are at high risk of alcohol-related crashes, and it includes both drivers who can drink legally and those who cannot. A secondary target group comprised of 13-15 year old adolescents was also chosen, because they do not yet drive legally.

Information for young adults was collected through 276 personal interviews and 12 focus groups with youth and young adults in Maryland, Wisconsin, and California. These areas were selected to present a range of demographic, geographical, economic, and cultural features that broaden the applicability of the findings to other locations in the United States. Recruitment of the 18- to 29-year-old sample was carried out through

random digit dialing in each of the three sites. Recruitment for the 13- to 15-year-old respondents was carried out at four middle and high schools in and around Madison, Wisconsin. A total of 276 18- to 29-year old respondents participated (92 at each site) and 54 13- to 15-year-old respondents participated in the study. The samples were roughly evenly divided by gender.

Investigators found that alcohol is a central feature of this group's social life, drinking occurs frequently usually with same-sex friends, and often there is peer or social pressure to drink. Most respondents admitted to driving while under the influence, and inconvenience and cost were the primary reasons for not using alternative means of getting home. Designated drivers were the preferred means of avoiding impaired driving, but they had mixed feelings about designated drivers.

Use of the designated driver (DD) has been heavily promoted since 1988, and has had mixed results. A study profiling the type of drinker who typically uses a DD found that DD users relative to nonusers tended to be at-risk, heavier drinkers (Caudill, et al, 2001). In addition, the study found that DD users were more likely to drink outside the home, to achieve higher Blood Alcohol Concentration's (BAC) when drinking outside the home, to ride with intoxicated drivers, and to be heavy drinkers overall. Examining a barroom sample of DD users showed that this group was also more likely to drink and drive, and to ride with intoxicated drivers. The results of this study contradict the common belief that problem drinkers do not often use DD's. These findings are consistent with two prior studies of DD use in the college setting which showed that individuals who drank excessively were more likely to use a DD. Surprisingly, the results of this study demonstrated that younger drinkers were the most

likely to use DD's. Although the results of this study are promising, the fact that at risk drinkers tend to use alternative transportation inconsistently must be addressed. In addition, the subjects surveyed were not high school students, which may have produced different results.

With few exceptions, 18-29 year-old respondents believe that drunk driving is wrong and dangerous, but their definitions of what is considered too drunk to drive vary. Most admitted to driving while intoxicated on occasion, but seemed to feel that this was morally different than driving intoxicated habitually. Although the most consistent value was family for the 18-29 year old group, family did not seem to have a direct link to DD in the minds of most participants (NHTSA 2005).

The reasons for impaired driving seem straightforward, as the respondents reported having a lifestyle that includes frequent drinking and at least occasional drinking to intoxication. The most pressing concern expressed by most respondents reported was getting home, while the potential consequences of driving under the influence seem unimportant or unlikely. Many of the subjects rationalized their decision to drive impaired by stating that they were driving a short distance or that they were the least impaired person in a group. In many cases, respondents said that they only realized how intoxicated they were after they began driving or the following day when they were sober. Inconvenience seemed to be the most powerful deterrent to using alternatives to drunk driving.

Respondents did not report being embarrassed regarding their intoxicated state, but did relate that alternatives to DUI were a "hassle" or expensive. In most cases, they had driven to the drinking location and declined to leave their cars behind and use

alternative means of getting home. The primary concerns about the potential consequences of impaired driving were the possibility of arrest and the resulting embarrassment, inconvenience and expense.

With regard to peers who drink, one/ third of respondents stated that they did not care and the remainder had negative reactions to peers who drink. Almost three-quarters of the respondents felt that their friends would react negatively if the respondent drank, while a full 90% felt that their parent would be displeased. Eleven percent of respondents reported that they have friends who drink and drive yet all respondents held negative view of this behavior. In a focus group consisting of 21-29 year olds, participants agreed that drinking and driving, especially "drunk driving" is inappropriate. Despite this stated attitude, almost all the focus group subjects confessed to driving under the influence when they knew this was wrong, and nearly all of the participants believed that driving after one or two drinks is acceptable. Although the majority of respondents believed that driving "drunk" is wrong, their perceptions and definitions of this behavior varied. Most respondents admitted to driving while impaired on occasion, but appeared to feel that this is morally different than driving drunk habitually (NHTSA, 2005).

The fear of arrest was high for some respondents in the NHSTA study particularly those with previous DUI arrests. However, for those who had not been arrested, the chance of being arrested was treated almost like a game. In terms of drinking limits, respondents tended to place subjective limits on the amount they felt was safe to consume and drive. For example, one respondent reported drinking one drink per hour in order to remain below the legal limit. Most respondents stated their

limits vary from night to night based on how much they have eaten how much stress they are under, or by physical sensations such as numb lips, room tilting, or inability to walk. The most glaring problem with these judgments is that they are typically made after the person is intoxicated. Many respondents who admitted to driving drunk also said they often do not realize how drunk they are until they begin driving or until the following day (NHTSA, 2005).

Failure to plan ahead appeared to be an issue that was pronounced among the respondents. One participant stated, "People do not intend to drive drunk". Most of the respondents seemed to have good intentions, but lacked the skills required to follow through on attempts to avoid drinking and driving. For example, the majority of respondents reported having been designated drivers, but most stated that the decision was an informal one, almost always made after the group had already arrived at the bar, and often at the end of the evening when the least intoxicated member of the group becomes the designated driver by default. Many respondents said that being a designated driver is only acceptable on a taking turn's basis (NHTSA, 2005).

2.3 Alcohol Effects

While most individuals erroneously categorize DUI as driving while profoundly intoxicated, studies have shown that even small amounts of alcohol can cause dangerous impairment (Alcohol Research & Health, 1999). At BAC levels from 0.03-0.12, depending on how the individual's body is able to metabolize alcohol, the following physiological changes often occur: mild euphoria, diminution of attention, loss of judgment and control, beginning of sensory-motor impairment, and loss of efficiency in finer performance tests (Alcohol and The Human Body, 1995). Acute ETOH effects on

cognitive and behavioral functions required for operating a motor vehicle are well documented. Alcohol depresses neural activity, with rapid effects on multiple cognitive-motor processing regions. Sustained and divided attention tasks are most impaired by alcohol. Even BAC's within legal limits "produce significant, generalized impairments" (Calhoun et al., 2004). All of these affected abilities are crucial when operating a motor vehicle.

The NHTSA study (2005), estimated alcohol-related relative risk of driver involvement in fatal crashes by age and sex as related to BAC based on data from the Fatality Analysis Reporting System (FARS) combined with exposure data from the joint NHTSA and the Insurance Institute for Highway Safety's 1996 National Roadside Survey.

The relative risk of being killed as a driver in a single vehicle crash at .08 BAC was found to be 13 times that at .00 BAC for drivers aged 21 to 34. At every .02 percentage point increase in the BAC, a driver more than doubled their risk of receiving a fatal injury in a single vehicle crash among male drivers 16-20, and nearly doubled the comparable risk for other driver groups (NHTSA, 2005).

Several studies have supported the suggestion that BAC's below the legal limit of 0.08 can impair driving skills. A review of the literature from 1981 to 1998 regarding the effects of alcohol on driving related skills found that the majority of studies reported impairment by .05% BAC and 94% of the studies reported impairment at the .08% level (Burns et al, 1995). The lowest BAC and the BAC at which 50% or more of the subjects evidenced impairment varied considerably between the behavioral areas, including cognitive, critical flicker fusion (assessment of the central nervous systems ability to

discriminate discrete bits of sensory information), simulated or actual driving, perception, psychomotor tasks, choice reaction time, simple reaction time, tracking, vigilance, visual functions, and drowsiness. Tests evaluating behavioral areas of divided attention and driving revealed impairment at .01%. The majority of tests evaluating drowsiness exhibited impairment by .02%, and the majority of vigilance testing showed impairment by .04%.

In one study (Burns et al, 1995) based on data obtained from the Southern California Research Institute simulator, a computer-based driving instrument that simulates driving situations, subjects were asked to steer, accelerate, and brake as they responded to varying stimuli encompassing the demands of rural, suburban, and urban driving scenes. At .08%, the changes in reaction time, lane deviation, collisions and speeding incidents were significant enough to have potentially serious consequences. At 0.04% the authors identified a small but “noteworthy” increase in mean lane deviation. This deviation suggests an attention deficit in steering even at a low BAC of .04%. The number of drinks required to reach this level is dependent upon several variables including weight, age, health, and state of mind (OHS, 2006). Subjects at .04% also exceeded the posted speed limit roughly twice as often as subjects driving at zero BAC. The number of collisions increased from slightly more than four at zero BAC to almost six at .04%, and secondary task response time, lane deviation, collisions, and speed limit violations were significantly impaired as well.

There is also evidence to suggest that younger people are more susceptible to the effects of alcohol when they drink and drive. A study using a technique called induced exposure, which calculates BAC risk by using drivers not at fault involved in a crash as

the denominator and at fault drivers as the numerator in a risk estimate calculation, demonstrated that young drivers are at greater risk at lower BAC's than older drivers (Preusser, 2002).

One area of interest relative to the DUI issue has been to examine the physical and cognitive impact consuming alcohol causes especially at levels below the accepted .08%. Testing this effect is difficult due to safety and ethical barriers. In October of 2004, I participated in a brief study at the Hartford Hospital Institute of Living, which examined the changes in these abilities via the use of a driving simulator. The study sought to compare driving skills of subjects who had consumed alcohol and those who had not while monitoring BAC levels following the consumption of an alcoholic beverage. While only six subjects completed the study, the findings suggested that most subjects experienced diminution of physical abilities relative to safely driving while at BAC levels less than .08. In addition, the BAC in most of the subjects climbed rapidly following the first drink and hovered at the .08% mark for an extended period of time.

2.4 Review of Prevention Approaches

A variety of preventive strategies have been identified to address drunk driving. (DeJong & Hingson, 1998) break down the approach to DUI prevention into distinct categories:

- General deterrence policies including administrative license revocation, sobriety checkpoints, lower per se limits, and Zero tolerance laws
- Alcohol control policies, such as minimum legal drinking age, increased alcohol excise taxes, and responsible beverage service.

Mass communication campaigns and general awareness are also included.

A comprehensive study reviewed the effectiveness of five interventions to decrease DUI, using changes in alcohol-related crashes as the primary outcome measure (Shults et al, 2001). In this paper, 76 studies were examined to guide the review process.

The interventions studied are thought to work through three separate pathways:

1. They may reduce alcohol-impaired driving by increasing the perceived risk of detection and punishment;
2. They may reduce alcohol consumption in high-risk settings or among high-risk groups
3. They may foster a social norm that reduces the acceptable amount of alcohol to consume before driving

The environmental approaches reviewed included:

- **Effectiveness and economic efficiency of .08 BAC laws.** Strong evidence was found that .08 BAC laws are effective in reducing alcohol-related fatalities (Shults, et al., 2001).
- **Lower BAC laws for young or inexperienced drivers (.02 or zero tolerance).** Sufficient evidence was found that lower BAC laws are effective in reducing alcohol-related crashes among young or inexperienced drivers (Shults, et al., 2001).
- **Minimum legal drinking age laws (MLDA).** Strong evidence was found that MLDA laws are effective in preventing alcohol-related crashes and associated injuries (Shults, et al., 2001).
- **Sobriety checkpoints.** The studies provide strong evidence that sobriety checkpoints are effective in preventing alcohol-impaired driving, alcohol-related crashes, and associated fatal and nonfatal injuries (Shults, et al., 2001).
- **Intervention training programs for servers of alcohol.** People often drive after drinking alcohol in bars, clubs or restaurants. Two analyses found that about 40% to 60% of intoxicated drivers had recently left a licensed drinking establishment. Sufficient evidence was found that intensive, high-quality, face-to-face server training with active management support is effective in reducing the level of intoxication in patrons (Shults, et al., 2001).

This study did not, however, include an evaluation of educational initiatives.

Deterrence and general awareness

A research report released by the Society for the Study of Addiction described a quasi-experimental non-equivalent comparison group design to test the efficacy of an environmental prevention campaign to reduce DUI among college students (Clapp, et al., 2003). In this study, the evaluators assessed the extent to which a DUI prevention program that included a social marketing and law enforcement component increased students' perceived risk of being ticketed or arrested and reduced their concerns of self-reported DUI. During the baseline period of the study, campus police at each university conducted standard DUI enforcement. During the intervention period, standard DUI enforcement continued at the comparison university. At the experimental university, enforcement was markedly increased and a DUI related media campaign component was added. The prevention campaign included DUI checkpoints, media coverage, and a student-designed social marketing campaign focused on increasing student's perceptions of risk of DUI arrest. Data were collected via pre- and post telephone interviews to assess the percentage of self-reported DUI, and their perceived risk of being ticketed or arrested for DUI within a one-mile radius of campus. The results revealed a significant drop in self-reported driving after drinking at the experimental campus compared to similar drops at the comparison university. Perceptions of DUI apprehension risk increased for students at the experimental university, while no change occurred at the comparison university. Although the results of this study were promising, the investigators identified limitations affecting generalizability. The experimental university had its own public safety department with sworn law enforcement officers who have the authority to conduct DUI checkpoints, while most universities rely solely

on municipal law enforcement, which would significantly decrease actual and perceived risk of enforcement/arrest. One caveat that may be considered is that although the perception of apprehension risk appears to have been increased on campus, it might not affect the student behavior off campus where the risks were perceived to be lower.

Another alternative that has reduced binge drinking is the reinforcement of the actual social norms among students, which is a norm of moderation and sobriety. Research has shown,(DeJong, 2005) that college students tend to overestimate the percentage of their peers who are engaged in high-risk drinking activities, which can exacerbate the problem by encouraging behaviors to be reflective of the exaggerated norm. Creative prevention programs have reversed this dynamic by working with the media to publicize the true drinking norms on campus, which has resulted in significant decreases in high-risk drinking. At Western Washington University, this approach led to a one-year drop of 7% in the binge-drinking rate.

DeJong (2005) also discusses support for public policies that will discourage high-risk drinking, including placing reasonable restrictions on alcohol marketing, sales, and distribution. These general deterrence programs focus on dissuading the general public from driving under the influence as opposed to specific initiatives that attempt to prevent convicted DUI offenders from becoming recalcitrant. Although it has been shown that convicted DUI offenders are at greater future risk than the average driver, fewer than 11% of drivers in alcohol-related crashes with a BAC>0.10% had a DUI violation on record during the three years prior to the crash (DeJong et al., 1998).

Administrative License Revocation (ALR)

An ALR results if the immediate removal of a person's driver's license by law enforcement officials when the driver's BAC exceeds the legal limit. Evaluations of this approach have shown that ALR can reduce recidivism and alcohol-related crashes (Voas, et al., 2002). Since the early 1980's, ALR laws have been enacted in 40 states thereby ensuring that nearly all DUI offenders receive suspensions. Unfortunately, driving while suspended (DWS) laws are difficult to enforce, since a driver's license can only be checked if the vehicle is stopped for a moving violation. Consequently, the probability of identifying a DWS offender is low. Studies of DWS offenders suggest that 75% drive while suspended, albeit they may drive less and with greater care. Compounding this problem is the cost of license reinstatement and the probable rise in the offenders' insurance rates. Several studies have shown that the reinstatement rate is as low as 50% or less (Voas and McKnight, 1989; Voas and Tippetts, 1994; Tashima and Helander, 1999).

Sobriety checkpoints have also been shown to be valuable in reducing DUI. The checkpoints serve two functions: to physically detain impaired drivers and to increase the perceived risk of apprehension. Particular standards for coordinating a legal checkpoint must be followed and are outlined in the NHTSA (2000) manual. Either every driver or a subset of drivers selected on a systematic basis is stopped. Because police have a finite amount of time to interview individual drivers, many drunk drivers evade detection. Research has shown that at checkpoints where all drivers were not detained but subsequently tested for alcohol, that many drivers with BAC's above the legal limit escaped detection (Hlastala, et al., 2005).

A 1998 study funded by NHTSA (Hlastala, et al., 2005) found that the accuracy of the Sobriety Checkpoint Breathalyzer test cannot be based on a single percentage, but depends on the level of the measured BAC (MBAC). The data shows that if the MBAC is lower than 0.04, the officer is usually 80% or more accurate in predicting a subjects category. If the MBAC is greater than 0.09%, then the officer is approximately 90% or more accurate in predicting the subjects category. If however, the MBAC is between 0.06% to 0.08%, the SFST's are only about 30 to 60% accurate in correctly predicting whether a subject's MBAC is greater than or less than 0.08%.

To have the maximum deterrent effect, sobriety checkpoints are best used frequently but on an unpredictable schedule. In addition, if they are well publicized, small, mobile checkpoints utilizing four to six officers can have as much of a deterrent effect as those involving twice as many officers.

There are, however, problems regarding checkpoints which may limit their use. According to a Connecticut Police Officer I spoke with (Lieutenant Paul Resnick), the current DUI laws are so "complex and convoluted" that making a DUI arrest is not only a difficult task, but also expensive. A typical DUI mobile checkpoint in this Officer's town requires the following:

1. One Sergeant at an hourly rate of \$55.23/hr
2. Five Patrol Officers at an hourly rate of \$47.10/hr
3. Typical duration is 4 hours for a total cost of \$1,162.92.

This does not take into account the likelihood of additional overtime being generated, as the time required for processing a DUI arrest is typically 4.0 hours or more. Additionally, according to Officer Resnick, most of these mobile DUI

checkpoints rarely result in a significant amount of actual DUI arrests but instead result in arrests for outstanding warrants, failure to wear seatbelts, etc. It seems that the cost/benefit analysis of a DUI mobile checkpoint may discourage police departments to undertake these missions regularly. Another barrier to the use of sobriety checkpoints occurs in the process of evaluating the BAC. Admissibility of the chemical findings of a defendant's breath, blood, or urine acquired in a DUI arrest is complicated. According to the Connecticut (Statute Sec. 14-227), admissibility of chemical analysis requires that several steps must be taken:

1. The defendant must be afforded a reasonable opportunity to telephone an attorney prior to the test, and have consented to taking the test.
2. A copy of the report describing the test result was mailed to or personally delivered to the defendant within twenty-four hours or by the end of the next regular business day.
3. The test was performed by or at the direction of a police officer according to methods and using equipment approved by DPH and was performed in accordance with subsection (d), which assures reliability of each method and type of device used.
4. An additional chemical test of the same type was performed at least thirty minutes after the initial test was performed.
5. Evidence is presented that the test was commenced within two hours of operation.

Although this is an abbreviated description of the statute, clearly the effort involved is substantial and the legal loopholes are evident.

Where checkpoints are used, police concerns about low arrest rates can be a significant barrier. Several studies, however, report arrest of drivers at these checkpoints for other offenses such as driving with a suspended license or carrying weapons. Informing officers about the general deterrence benefits of their efforts and providing them with regular feedback that links these efforts to crash prevention may decrease this frustration. Four studies of sobriety checkpoints conducted a cost-benefit analysis. Three of these studies reported annual net benefits and the fourth study reported net benefits for the length of the intervention (Shults, et al., 2001).

Zero Tolerance Law

Zero Tolerance Laws have now been implemented nationwide thereby lowering the legal BAC for drivers under the age of 21 to 0.02%. There is strong public support for zero tolerance policies, with 91% of US adults supporting the law (DeJong, et al., 1998). Research suggests that these laws are associated with reductions in fatalities among youth. One study compared the first 12 states that lowered the BAC to 0.02% with 12 nearby states that did not. The states that adopted zero tolerance reported a 20% decline in the proportion of single-vehicle, nighttime fatal crashes among 15 to 20 year old drivers (Voas, et al., 2001). States that lowered the BAC to between 0.04% and 0.06% did not experience declines relative to the comparison states. Minimum legal drinking age laws also have been effective in reducing traffic fatalities. States that adopted age 21 laws in the late 1970's and early 80's experienced a 10% to 15% drop in alcohol-related traffic fatalities among drivers in the targeted age groups, compared with

no change among states that did not adopt these laws. Based on time-series analysis, NHTSA estimates that raising the legal drinking age to 21 has saved over 17,000 lives since 1997 (Voas, et al., 2001).

Despite these successes, legal enforcement of this law remains a weak link in community-based prevention. Lack of consistent law enforcement tends to send mixed messages to teenagers, which undermines the possible deterrent effect.

Easy access to alcohol is another problem. Merchants often sell alcohol to under age patrons. To counter this, increased law enforcement presence, including the use of decoy teams against non-compliant merchants, is paramount. In addition, many teenagers have access to alcohol at home. Parents can store alcohol in a secure location and avoid serving alcohol to any person under the age of 21. Other measures to consider are tamper-proof licenses and increased penalties for illegal service to minors. The final drawback is that teenagers who are interested in acquiring alcohol will always find ways to do so.

Another intervention is the provision of training programs for servers of alcoholic beverages. Server intervention training programs provide education and training to servers of alcoholic beverages with the goal of altering their serving habits to prevent patron intoxication and impaired driving. As of January 1, 2000, 11 states had established mandatory server training programs for all licensed establishments, and 10 states provided liability protection to establishments that voluntarily implemented server training (Shults, et al., 2001). Currently, however, no standards exist for server training programs, and the mode of implementation varies widely in terms of content, class length, and mode of delivery. Typically, these programs involve education about alcohol

beverage control laws and training in recognizing the signs of intoxication. Frequently, the programs include training in specific techniques such as offering food, and delaying or refusing service. This training may be supplemented by role-playing of intervention scenarios. After reviewing eight studies of the effectiveness of server training, the authors concluded that there is sufficient evidence to suggest that intensive, high-quality, face-to-face server training, when supported by management, is effective in reducing the level of intoxication in patrons. The optimal conditions for this type of initiative would exist if all drinking establishments in the community participated.

Several barriers have been identified for server training. One of the major barriers to implementing this initiative is resistance to server training by managers of drinking establishments. Although many managers are supportive of the concept, concerns about profit loss can significantly erode support for the initiative (Shults, et al., 2001). A study examining this concern, however, found no reduction in profits after examining the gross receipts. In addition to the profitability concern, some managers are averse to the concept of “policing” their customers. California’s Department of Alcoholic Beverage Control boasts an active server intervention program that is free of charge to licensed establishments on request. The program is four hours in length, and has trained over 150,000 servers since the programs inception in 1995. Given the programs success, the feeling is that mandatory training would have a wide impact.

Alcohol Ignition Interlock Devices

Breath alcohol ignition interlock devices have been shown to be effective in preventing recidivism of repeat DUI offenders. The effectiveness of this device has been documented in several studies, including a study of drivers in Illinois recently completed

by NHTSA. Raub, et al. (2002) found that drivers with the interlock device were one-fifth as likely to be arrested for DUI during the one year after device installation as the control group. However, using the device alone does not appear to promote long-term change in DUI behavior. Although drivers seemed to refrain from drinking and driving for up to two years after removal of the unit, by the start of the third year the DUI arrest rate for those who had the device installed was similar to those who had not.

In terms of applicability to a prevention initiative within the High School/College age group, this intervention may be helpful, but only if it is mandated for all DUI offenders. Although this device shows promise for reducing recidivist behavior, it is not a tool for DUI prevention overall, especially amongst high school students. This tool is best suited to individuals with long-term drinking problems. Nevertheless, as this technology is further refined, these devices have the potential to be used as a safety measure.

3.0 GENERAL DETERRENCE FOR DUI PREVENTION

General deterrence can be conceptualized as the effect of threatened punishment upon the population in general, influencing potential violators to refrain from a prohibited act in order to avoid consequences. General deterrence targets those who engage in illegal behavior as well as those who have not but may potentially do so. Ross also notes that general deterrence has both short and long-term effects. Short-term effects are behavioral changes based on fear of the consequences. Long-term effects “are

a function of aggregate short-term effects and include development of social and moral norms and habits that prohibit the illicit behavior” (Clapp, et al., 2005).

Some presentation types aimed at teens do not seem to be effective, such as mock crashes which most students view as theater. “Party Smart,” a media campaign produced by the City of Boston in response to the alcohol poisoning death of an MIT student, is an example of this type of approach. One ad shows a teenager vomiting in a toilet, and another reveals an unconscious hazing victim tied to a chair surrounded by empty beer cans. The Transit Authority rejected the ad as too graphic. Despite the effort, the student drinking scene in Boston remains much the same as it was a year ago (DeJong, 2000). Although the MADD organization has employed this type of initiative for many years, they are now exploring alternative programs, as the value of the gory-image approach appears to be in question and considered by many public health experts to be a failure.

Mothers Against Drunk Drivers (MADD) general awareness approach

MADD is primarily a grassroots, voluntary organization that has over 600 state organizations, chapters, and community action teams in each of the 50 states as well as affiliates in Guam, Puerto Rico and Canada (Injury Prevention, 2000). The organization consists of over three million members and supporters nationwide. The sole focus of the MADD organization is to lead the fight against drunk driving to include community awareness initiatives, victim advocacy, fund-raising, legislation, and educational initiatives primarily targeting youth. The catalyst for the development of MADD was the death of a 13 year-old girl who was struck and killed by a repeat offender drunk driver

in California (Hamilton, 2005). Following her death, a small group of mothers joined together to express their outrage and declare drunk driving a preventable crime.

Today, MADD has 26 national board of director members, including a youth director, who manage the fiscal end of the organization and establish public policy positions based on research. MADD is funded by individual contributions, corporate gifts, foundations, government grants, in-kind donations, licenses, promotions, and restricted funds. One program, which MADD considers a jewel in the crown, is the Victim Impact Panel (Wheeler, et al., 2002). The VIP's are not designed or intended to supplant conventional sanctions, such as arrest, fines and driving license restrictions. They offer a supplemental experience, which places the offender in a face-to-face communication environment with victims of drunk-drivers (either direct victims or individuals whose family members have been affected). The audience is typically composed of fifty to two hundred DUI offenders who have been defined by the court as first-time offenders. These sessions can be highly emotional, as the victim-presenters often tearfully recount the details of a drunk-driving crash that either killed or injured a loved one. Presenters often read self-written poems while showing slides of their lost loved ones. The panelists don't judge the DUI offenders, but reinforce the issues of consequences and personal responsibility. While a majority of MADD-VIP panelists are victims, for the first time in MADD's history, an offender who was convicted in 2001 of vehicular manslaughter after her girlfriend was killed in a vehicle she was driving while under the influence became a VIP speaker.

MADD-sponsored studies have found that those who attended MADD-VIP's had a lower recidivism level than non-VIP participants. A Washington County, Oregon

study (MADD, 1989) found the recidivism rate of VIP participants was 8.8% compared to a non-participant re-arrest rate of 40-45%, however, this has not been a consistent finding. A randomized trial assessing the impacts of the VIP on first-time DUI offenders was done in Bernalillo County, NM (Wheeler, et al., 2002). Findings from this randomized trial indicated that a VIP, in combination with an intensive 28-day treatment program, did not produce a significant benefit beyond that which was derived from attending the 28-day program alone. At 2-year follow up, there were no significant differences between the two groups on alcohol consumption, drinking and driving behavior, or recidivism. One possible reason for the VIP's failure is that first and foremost, drinking and driving is not a one-time activity. This raises the issue of severity of the person's alcohol problem and whether more intensive therapy is required. Participants in the Detention/Treatment program reported that they had driven under the influence on average 36 times before their first DUI arrest. In addition, the average BAC at arrest for program participants was 0.17, more than twice the legal limit of 0.08.

The authors concluded by stating that VIP panels or similar approaches may be a valuable tool as an overall drunk driving prevention and education program designed to educate those who don't have a defined alcohol problem. Young adults in high school or middle school might benefit from hearing the dangers and consequences of driving while intoxicated." While some high school students may already have developed abuse or dependency, most students in this age group have not.

4.0 CONCEPTUAL APPROACH TO A SCHOOL BASED INTERVENTION

The National Institute on Alcohol Abuse and Alcoholism has suggested an overall approach to a student focused drinking reduction initiative (DeJong, 2005) In general, the messages should be directed to a well-defined target audience taking into account its geographic, demographic, psychological and problem relevant characteristics. Ideally, the members of a target audience should share similar knowledge, concerns and motivations that affect their behavior. As stated in the models of behavioral change process, change results when people are led through the following series of steps:

1. **Awareness.** A campaign must raise consciousness of the problem, encourage reevaluation of personal risk, and encourage consideration of individual or collective action.
2. **Knowledge and beliefs.** The campaign must bring about a change in beliefs and attitudes about the behavior being encouraged. It is essential to anticipate and address the audience's areas of resistance.
3. **Behavioral skills.** Behavior change often requires the development of newly acquired skills i.e. self-monitoring, refusal behaviors. These behaviors can be taught using media by modeling or systematic instruction.
4. **Self-efficacy.** The belief that one can execute a particular behavior is predictive of subsequent behavioral change. Observing another's experience is an important method of developing efficacy expectations.

- 5. Supports for sustaining change.** Learning and then maintaining a new behavioral pattern requires that people understand how to monitor their behavior; apply self-reinforcement strategies; and anticipate, eliminate or cope with stimuli that trigger unwanted or competing behaviors.

General awareness programs are essential for reminding people about the risks of DUI. In addition, general awareness programs are best combined with programs focused on individual behavior and enhanced law enforcement (DeJong & Hingson, 1998). Concern about causing an alcohol-related crash that may result in injury or death can be channeled into support for policies that address the problem. Garnering such support entails attacking the current system of knowledge and beliefs that help to sustain current drinking and driving norms. According to DeJong & Hingson (1998), key points of a general awareness program should include:

1. Reinforcement that an alcohol-related crash is the foreseeable result of a person's decision to drink and drive, a decision for which they will be held accountable;
2. Each and every act of impaired driving is a serious offense, whether a crash happens or not;
3. Even small amounts of alcohol can impair a person's ability to drive safely; and
4. Nearly 40% of those who die in alcohol-related crashes are innocent victims.

In a review of school-based drinking and driving initiatives (Elder, et al., 2005), the authors identified the following key components of school-based DUI health

promotion programs that are effective in helping reduce the incidence of riding with drunk drivers:

1. Knowledge of consequences and alternatives to DUI
2. Development of refusal and other skills
3. Change in perceived social norms
4. Change in attitudes and intentions
5. Peer, media, and societal influences
6. Drinking and driving/riding with a drinking driver
7. Fatalities/injuries from alcohol related crashes

On the basis of its research, NHTSA (2005) has suggested several possible actions that may motivate young people to avoid drinking and driving. In order to reduce ambivalence about drinking and avoiding driving under the influence, provide positive images of responsible behavior, instill a positive image of persons who prevents others from drinking and driving, foster a positive image of designated drivers, demonstrate positive consequences for preventing, and avoiding drinking and driving as well as for being the designated driver. In order to overcome the belief that occasional impaired driving is acceptable, emphasize the importance of consistency. In order to overcome the belief that only driving while *very* intoxicated is dangerous, emphasize and educate that any amount of alcohol may impair.

Research shows that most youth cite family as the most valued thing in their life. Seventy-two percent of the respondents in the NHTSA (1995) study chose family, while 48% chose friends. When the idea of using a designated driver or driving responsibly is framed within the context of family and friends, respondents shift directly to the values

of life and safety. In order to tie into the value of family, NHTSA recommended that images of family be invoked as part of motivation for avoiding and preventing drinking and driving. In order to tie into the value of friends, use value of friendship as major motivation for avoiding and preventing drinking and driving. Appeal to the concept of sharing the role among friends in being a designated driver or helping others to avoid drinking and driving. Acknowledge that peer pressure will impact movement towards and away from responsible behavior. In order to make countermeasures more realistic, use realistic situations recognized by the target audience.

NHTSA also suggested that DUI interventions show strategies for avoiding drinking and driving that are deemed practical by the audience such as modeling appropriate behavior. This could include responsible hosting, refusing drinks when pressured by others, and planning how to get home before drinking occurs.

The communicator, in a program, must also be perceived as unbiased and trustworthy. Research method suggests that to encourage this perception is for the communicator to argue for positions that would seem to be contrary to his/her self-interest (Elder, et al, 2005). For instance, having a DUI offender who has been involved in a fatal crash and subsequently incarcerated relate the experience may be especially effective in a DUI program. Doing this is clearly painful for the speakers especially since most have killed someone close to them, which is diametrically opposed to their own self-interest.

Another factor that appears to enhance perceptions of trustworthiness of the message is the use of multiple sources. If several people communicate the same message, they are more persuasive than a single individual because several individuals

sharing the same message would be less subject to a personal idiosyncratic bias (Taylor, et al., 1994). However, multiple sources have this advantage only if their judgments are regarded as truly independent of each other.

A major factor that influences persuasion is discrepancy. The greater the discrepancy, the greater the potential pressure to change. There tends to be increased attitude change as the discrepancy between our initial beliefs and the communicator's message widens. The communicator must take care, however, not to send extremely discrepant statements, as this may cause the recipients of the message to doubt the credibility of the source (Taylor, et al, 1994). Conversely, low-discrepant messages tend to produce the same unwanted results. Ideally, maximum attitude change tends to occur with moderately discrepant communications. Although the message not to drink and drive is discrepant for most teenagers, previous studies already mentioned have shown that teenagers seem to understand that drinking and driving is wrong.

While there is some conflicting evidence, research has shown that fear messages can affect attitudes and behaviors. Janis and Feshbach (1953) found that the persuasive arguments could succeed without the use of fear arousal. However, in general, the research on the effectiveness of fear appeal has shown that fear arousal seems to increase the effectiveness of a persuasive communication. Findings from the NHTSA study (2005) suggest that a fear arousal approach with youth may be effective. Many respondents in that study felt that scare tactics are more effective, or, at least should also be used for DUI awareness programs. Some experts have expressed concerns about appeals for behavioral change to include any message that focuses on the negative consequences of a particular behavior. However, people need to be made aware of

threats to their health if the information is new to them. They may need occasional reminders of the facts. This is especially important when the audience has a low anxiety about a problem.

Albert Bandura's major premise is that we can learn by observing others (Social Learning Theory, 2006). He considers vicarious experience to be the most common way that human beings change. Bandura's theory is beyond behaviorism and believes that the ability to use symbols sets humans apart from animals. He states that humans not only respond to stimuli but also interpret them (Social Learning Theory, 2006). Bandura states we store events through visual images and verbal codes and the more we exercise the image, the stronger the memory will be in the future (Social Learning Theory, 2006).

The social learning theory has several implications for classroom use (Educational implications of social learning theory, 2006).

1. Students often learn a great deal by observing others (Educational implications, 2006)
2. Describing the consequences of behavior can effectively increase appropriate behaviors and decrease inappropriate ones (Educational implications, 2006)
3. Modeling provides an alternative to shaping for teaching new behaviors (Educational implications, 2006).
4. Teachers and parents must model appropriate behaviors (Educational implications, 2006).

5. Students must believe they are capable of accomplishing the task and develop a sense of self-efficacy (Educational initiatives, 2006).

Several aspects of social psychology as related to persuasion have been adopted during the development of The Hard Truth program. People are more persuaded by high credibility communicators as opposed to those with low credibility. Experts are typically more persuasive than non-expert sources. All speakers with The Hard Truth program either have credentials in the emergency health-care field, and/or have direct experience with DUI.

5.0 THE HARD TRUTH PROGRAM

The Hard Truth program uses high-fear arousal techniques, but also clearly states the solutions throughout the program e.g. use a designated driver, call a friend or family member, stay where you are, call a cab, choose not to use intoxicants.

The 1-½ hour program designed for teenagers, but also appropriate for college students and adults. It outlines the events leading to an accident involving young people and alcohol, and presents the perspectives of the offender (drunk driver), accident victims, paramedics, police, and hospital emergency room staff involved. The program is segmented into ten distinct areas:

1. As the students enter the auditorium they are greeted with a slide displaying the title of the program, “The Hard Truth”. A narrator opens the program by introducing photographs of several victims who have been killed by drunk drivers which are displayed along with their names and the date they were killed.

At the top of each photograph is the statement, “killed by a drunk driver”. The narrator then displays a photo of a man surrounded by his grandchildren. It is revealed that this man is a father whose son was killed by a drunk driver. The narrator describes his personal relationship with the father and dedicates the program in his name, asking the audience to support the dedication with applause. This opening begins to lay the foundation of the program, which is personalization of the experience.

2. The goals of the program are then shared with the audience, which include the importance of preserving families, securing futures, and saving lives through DUI awareness. The audience is shown a blank slide with a question mark superimposed on the face, and implored not to become a statistic to be used on the slide. Again, the program is personalized by coaxing the audience to consider their own mortality related to drinking and driving.
3. The final goal is controversial amongst school administrators, as the narrator states that he would prefer that the audience not use drugs or alcohol but also realizes that some will choose to do so. The narrator then states, “if you choose to use drugs or alcohol then we ask that you also choose not to drive.” This statement is important, as we have chosen to focus on reducing drunk driving and not to attempt solving the myriad of problems that alcohol cause, as doing so cannot possibly be done in a 75-minute program.
4. Brief mortality and morbidly statistics are presented, 16,000 killed and 500,000 injured (NHTSA, 2005) but not dwelled on.

5. A collage of victims killed by drunk drivers is shown and the narrator then reminds the audience that death in a motor-vehicle crash is horrific. This statement is then followed by several slides depicting victims severely injured and/or maimed. It is the intent of our program at this juncture to convince the audience that injury and/or death in a motor vehicle crash is a painful experience with long-term consequences. The narrator personalizes the experience by describing a young woman known personally to him who was severely injured by a drunk driver. Photos of the victim prior to her crash are shown revealing a beautiful, physically active young woman, followed by a detailed description of the crash and photos of her injuries which are substantial. The parallel of a young, active, physically attractive woman, who is now obviously physically disabled, is meant to remind teenagers how vulnerable they really are and that physical injury can often result in permanent disability.
6. The narrator then reminds the audience that many victims are killed. A photo of a young victim of a DUI fatality is shown followed by the introduction of her mother who describes in detail the death of her daughter in a DUI crash, and the irreparable damage done to both the victim and offender's families. During her talk, photos of her daughter, the family, and the crash are shown. The speaker takes them through the events leading to the crash, the knock on the door by the police officers, and being told, "Laurie is dead." The speaker concludes by stating, "when I look out at the audience I see Laurie"...Laurie had a future and you do as well. Don't waste your future in one night by drinking and driving." The speaker reveals the BAC level of her daughter on autopsy and the BAC of

the drunk driver following arrest. Although the driver's BAC was above the legal limit, it was not significantly higher which reinforces the message that any amount of alcohol can impair driving skills. In addition, the victim's mother suggests that although her daughters BAC was within the legal range for age 21 (.08) perhaps she would not have risked riding with a drunk driver had her judgment not been impaired by alcohol.

7. The narrator then describes the process of a typical DUI arrest and conviction as well as the average sentence for DUI manslaughter focusing on the chance of receiving a significant sentence. The audience is reminded that in Connecticut, the law is zero tolerance (0.02).
8. A DUI offender whose victim was killed then describes life prior to the crash, the event, the prison experience, and the psychological impact of taking a life. The offender focuses not on the prison experience, but on the broad impact his/her actions have caused. The emphasis here is on personal liability rather than the penalties as studies have found that scare tactics related to punishment are ineffective. One offender talks about how it feels to know that each Christmas, Thanksgiving, or major family holiday, her victim's family is suffering. Another offender describes having suicidal ideation for years after killing his best friend.
9. The narrator then tells the story of Jacqui Saburido, a young victim of a DUI who was burned over 60% of her body. Jacqui's story is told in great detail beginning with her life in Venezuela, followed by her visit to the United States to learn English as an exchange student. Photos of Jacqui are displayed during the

narration, which shows a beautiful, vibrant young woman. The details of her DUI crash are recounted and the narrator emphasizes that the offender was a high school senior and football star who was returning home intoxicated after celebrating a game win with friends. Photos of Jacqui after the crash are shown along with a description of the painful convalescence she must endure for the remainder of her life. The most stunning aspect of Jacqui's injuries is the burns to her face which have left her unrecognizable relative to her previous photos.

10. The narrator challenges the audience to make a pledge not to drink and drive and lists straightforward alternatives to DUI such as using a designated driver, calling a parent, taking a cab or staying at the event or calling a parent.
11. The audience members are invited to engage the speakers. Often, the students will approach the stage to embrace and talk to the speakers. 15-20 minutes is allowed for this activity.

Total program time lasts approximately 75 minutes.

6.0 THE HARD TRUTH PILOT STUDY

6.1 Purpose

A pilot study was designed to determine whether the Hard Truth was successful in modifying students' attitudes and behaviors regarding drunk driving. Specifically, the study tested the hypotheses that students attending the program would relative to the controls:

- Have more negative attitudes towards drinking and driving;
- Be more likely to refuse riding in a car with a drunk driver; and

- Have a better understanding of the dangers of drunk driving.

6.2 Methods

The pilot study of The Hard Truth program was conducted in early September 2005 at a private high school in Connecticut. A pre-post test design was used to assess the short-term impact of The Hard Truth presentation on junior and senior high school students. The study targeted upperclassmen because they would be most likely to be new drivers or about to obtain a driver's license.

Sixty-nine students were recruited from a local private high school in Waterbury, Connecticut. The students were randomized into two groups: one experimental and the other as control. The experimental group was exposed to The Hard Truth presentation, while the control group was not. Both groups were surveyed immediately before the presentation and then again 4 weeks after the presentation. The students who did not attend the program as part of the experimental group did so after the post-evaluation had been completed.

The school administration collaborated in conducting the study. An initial letter was sent by the administration to all parents of 11th and 12th grade students telling them about the study and giving them the option to refuse their child's participation. A subset of students whose parents did not refuse their participation was chosen at random by the high school administration via computerized student records to participate in the study. All students were told that their participation was voluntary, and that all responses would be kept confidential.

All subjects participated in the Hard Truth Survey on a strictly voluntary basis. No one was compensated for participation. Choosing not to participate in the survey did

not result in any negative consequences. The surveys did not collect any personal identifying information such as names, date of birth, address, or phone number. Once collected, all data were stored in a secure and locked location at Waterbury Hospital.

On the day of the pre test administration the study was explained to participating students by the evaluator (Ralph Miro) including the following points:

- Participation was purely voluntary and students could leave at any time
- Students could skip any questions they felt uncomfortable answering
- All responses would be kept confidential
- The study was anonymous and they should not affix their names to the survey
- Aggregate results would be shared once the data had been analyzed
- Completion and return of the survey to the evaluator would imply consent
- To facilitate matching of the pre- and post-presentation surveys, each respondent constructed a unique identification code based on letters from the student's name and telephone number.
- All students who agreed to participate completed the survey and then half of the students were randomly chosen to attend The Hard Truth immediately following the survey. The other half were excused and returned to their regularly scheduled class. Only one student opted out of the study.
- Four weeks later, all the participating students were administered the post-test instrument.

6.3 Survey Instrument

The Hard Truth questionnaire was designed to measure attitudes, behavior, and knowledge among the students relevant to The Hard Truth Program. In addition, we also assessed the effects of peer pressure. The principal investigator developed the instrument in collaboration with Stacey Friedman and Joy Kaufman of The Consultation Center at Yale, based upon existing literature on DUI measures and related attitudes and behavior.

The 36 questions in the survey assess the following domains with regard to DUI:

- ☐ Demographics
- ☐ Social responsibility
- ☐ Making the right choices and choosing the right activities
- ☐ Knowledge of appropriate and inappropriate behaviors
- ☐ Exposure to DD consequences and outcomes
- ☐ Avoiding mishaps

The survey contained mainly closed ended questions including Likert-scales, and a few open-ended questions.

6.4 Analysis

It was hypothesized that the students would experience changes in attitudes and behavior regarding the use of alcohol, especially paired with driving an automobile, after the intervention. The analysis focused on changes within the areas of attitude, behavior, and susceptibility to peer pressure between the experimental and control groups following the presentation. The variables measured in the survey consisted of categorical, ordinal, and interval data types, and the statistical analysis to test these data

were determined accordingly. Chi-square test was performed for categorical data, and t-tests were used with numerical data types. A parametric test, the Wilcoxon signed rank test, was performed to analyze the differences in the medians of responses between the pre- and post-presentation for each respondent. Lastly, the McNemar test was used.

Students who had missing or not applicable responses were removed from the item-specific calculations, therefore the analysis reflects the responses of those who answered the given question, and not the total number of respondents who participated in the survey.

7.0 FINDINGS

7.1 Description of the Study Group

A total of 69 students participated in The Hard Truth study including 32 in the experimental group at baseline. A total of 60 students completed both the pre and post surveys with 28 in the experimental group at follow up. The study group was disproportionately female (60%). Their ages ranged from 15 to 18 with the mean age 16 years. Sixty-five percent were juniors.

7.2 Baseline Characteristics of the Experimental vs. Control Groups

A comparison of the students in the experimental and control groups showed that there were some important differences between the groups despite the randomization process. At baseline, the control group comprised more females than the experimental group (62% vs. 56%) and there were more 16 yr olds in the intervention group than in the control group (69% vs. 57%). For the entire school population the gender

distribution is 377 males and 385 females. The Junior and Senior gender distribution is 176 males and 165 females. With respect to driving, the experimental group reported more access to a car compared to the control group (66% vs. 57%) which was consistent with their older age. The students in the experimental group were also more likely to report that their friends drank and drove. Forty-seven percent of the experimental students said that 50% or more of their classmates drank and drove compared to 11% of the control group. With respect to drinking behavior at baseline, however, there was no difference between the two groups. Approximately two-thirds of the students in each group reported drinking in the past 12 months (66% of the experimental and 68% of the control group). While 11% of the control group students were regular drinkers (i.e., 1-2 days a week or more), 16% of the experimental group were.

7.3 Comparison of Outcomes for the Experimental vs. Control Groups

The first set of outcome analyses focused on changes in the students' attitudes about drinking and driving behavior. When asked, "How important to health and safety is it that people never drive after drinking alcohol?" 94% of the experimental group and 92% of the control group ranked its importance as 6 or higher on the 10-point scale, indicating that they felt it was important. We re-coded for the McNemar test using 1 as the most favorable value and 0 representing all other values. In other words, if 5 was the highest value and a respondent went from 4 to 5 the response was coded as a 1. If the respondent shifted below 5 the response was coded as 0.

TABLE 7.1. Importance of Not Drinking and Driving**Q24 Post * Q24 Pre * COND Crosstabulation**

COND				Q24 Pre		Total
				.00	1.00	
EXP	Q24 Post	.00	Count	7	5	12
			% within Q24 Post	58.3%	41.7%	100.0%
			% within Q24 Pre	46.7%	35.7%	41.4%
	1.00		Count	8	9	17
			% within Q24 Post	47.1%	52.9%	100.0%
			% within Q24 Pre	53.3%	64.3%	58.6%
	Total		Count	15	14	29
			% within Q24 Post	51.7%	48.3%	100.0%
			% within Q24 Pre	100.0%	100.0%	100.0%
CONTROL	Q24 Post	.00	Count	8	6	14
			% within Q24 Post	57.1%	42.9%	100.0%
			% within Q24 Pre	100.0%	26.1%	45.2%
	1.00		Count	0	17	17
			% within Q24 Post	.0%	100.0%	100.0%
			% within Q24 Pre	.0%	73.9%	54.8%
	Total		Count	8	23	31
			% within Q24 Post	25.8%	74.2%	100.0%
			% within Q24 Pre	100.0%	100.0%	100.0%

The McNemar test does not show any significance thereby saying that the number of respondents going from unfavorable to favorable responses is no more frequent than the number of respondents going from favorable to unfavorable ($p=.581$). The control group did show a significant change ($p=.031$) as there were no changes from 0-1. As the overall baseline response to this question was already shifted to the right, it is clear that both groups agreed that never drinking and driving was important. It seems from this result, that awareness of the correct behavior is present prior to intervention. This does not however necessarily translate into correct behavior.

The students were also asked about their level of agreement with the statement *“People should not be allowed to drive if they have been drinking any alcohol at all.”*

TABLE 7.2. Attitudes About People Being Allowed to Drive After Drinking**Q25 Post * Q25 Pre * COND Crosstabulation**

COND				Q25 Pre		Total
				.00	1.00	
EXP	Q25 Post	.00	Count	11	1	12
			% within Q25 Post	91.7%	8.3%	100.0%
			% within Q25 Pre	55.0%	11.1%	41.4%
	1.00		Count	9	8	17
			% within Q25 Post	52.9%	47.1%	100.0%
			% within Q25 Pre	45.0%	88.9%	58.6%
	Total		Count	20	9	29
			% within Q25 Post	69.0%	31.0%	100.0%
			% within Q25 Pre	100.0%	100.0%	100.0%
CONTROL	Q25 Post	.00	Count	16	5	21
			% within Q25 Post	76.2%	23.8%	100.0%
			% within Q25 Pre	76.2%	50.0%	67.7%
	1.00		Count	5	5	10
			% within Q25 Post	50.0%	50.0%	100.0%
			% within Q25 Pre	23.8%	50.0%	32.3%
	Total		Count	21	10	31
			% within Q25 Post	67.7%	32.3%	100.0%
			% within Q25 Pre	100.0%	100.0%	100.0%

The McNemar statistic shows significant changes in the experimental group ($p=.021$) from pre to post presentation in the positive direction. In other words, the experimental group saw more respondents in the post presentation survey who strongly agreed to NOT allowing people to drive after drinking than the pre-presentation survey. This change is seen only in the experimental group and not in the control group. The large change seen in the experimental group for this question relative to the opposite findings in question 24 was surprising, as both questions ask virtually the same thing. We believe that the difference lies in the wording of the questions. Q-24 refers to “health and safety” which is not as directly related to THT message as Q-25, which specifies, “Should not be allowed to drive”.

The next question asked: *“If you are involved in a crash while driving after you have had too much to drink, how likely is it that you or someone else would be*

seriously injured or killed in a crash?” As with the prior question, the majority in both groups expected serious injury or death to result from an alcohol-related accident. Eighty-four percent of the control group and 75% of the experimental group said at baseline that injury or death was very likely or almost certain.

TABLE 7.3. Change in Attitudes about the Consequences of Drinking and Driving

Q26b Post * Q26b Pre * COND Crosstabulation						
COND				Q26b Pre		Total
				.00	1.00	
EXP	Q26b Post	.00	Count	16	0	16
			% within Q26b Post	100.0%	.0%	100.0%
			% within Q26b Pre	69.6%	.0%	55.2%
		1.00	Count	7	6	13
			% within Q26b Post	53.8%	46.2%	100.0%
			% within Q26b Pre	30.4%	100.0%	44.8%
	Total		Count	23	6	29
			% within Q26b Post	79.3%	20.7%	100.0%
			% within Q26b Pre	100.0%	100.0%	100.0%
CONTROL	Q26b Post	.00	Count	25	2	27
			% within Q26b Post	92.6%	7.4%	100.0%
			% within Q26b Pre	92.6%	50.0%	87.1%
		1.00	Count	2	2	4
			% within Q26b Post	50.0%	50.0%	100.0%
			% within Q26b Pre	7.4%	50.0%	12.9%
	Total		Count	27	4	31
			% within Q26b Post	87.1%	12.9%	100.0%
			% within Q26b Pre	100.0%	100.0%	100.0%

The McNemar statistic shows significant changes in the experimental group ($p=.016$) from pre to post presentation in the positive direction. In other words, the experimental group saw more respondents in the post presentation survey who were almost certain that they would seriously injure or kill someone if they drive after drinking. This change is seen only in the experimental group and not in the control group. This finding was expected, as THT focus in this area is on serious injury or death, not the likelihood of a crash.

A set of questions were included in the instrument to determine if students thought there were any conditions under which it would be acceptable to drive under the influence. Specifically, they were asked if “It might be okay for me to drive under the influence of alcohol if”: *a. I had no other choice. b. I did not drive far. c. I only drove on back streets. d. No one else was around. e. I did it only a few times. f. I drove slowly. g. I had coffee.*

TABLE 7.4. Change in Attitudes about Conditions for Drinking and Driving

Q31e Post * Q31e Pre * COND Crosstabulation

COND				Q31e Pre		Total
				.00	1.00	
EXP	Q31e Post	.00	Count	28	1	29
			% within Q31e Post	96.6%	3.4%	100.0%
			% within Q31e Pre	100.0%	100.0%	100.0%
	Total		Count	28	1	29
			% within Q31e Post	96.6%	3.4%	100.0%
			% within Q31e Pre	100.0%	100.0%	100.0%
CONTROL	Q31e Post	.00	Count	29	0	29
			% within Q31e Post	100.0%	.0%	100.0%
			% within Q31e Pre	96.7%	.0%	93.5%
		1.00	Count	1	1	2
			% within Q31e Post	50.0%	50.0%	100.0%
			% within Q31e Pre	3.3%	100.0%	6.5%
	Total		Count	30	1	31
			% within Q31e Post	96.8%	3.2%	100.0%
			% within Q31e Pre	100.0%	100.0%	100.0%

7.5 Feel Free to Drink

Q31f Post * Q31f Pre * COND Crosstabulation

COND				Q31f Pre		Total
				.00	1.00	
EXP	Q31f Post	.00	Count	23	4	27
			% within Q31f Post	85.2%	14.8%	100.0%
			% within Q31f Pre	100.0%	66.7%	93.1%
	1.00		Count	0	2	2
			% within Q31f Post	.0%	100.0%	100.0%
			% within Q31f Pre	.0%	33.3%	6.9%
	Total		Count	23	6	29
			% within Q31f Post	79.3%	20.7%	100.0%
			% within Q31f Pre	100.0%	100.0%	100.0%
CONTROL	Q31f Post	.00	Count	28	0	28
			% within Q31f Post	100.0%	.0%	100.0%
			% within Q31f Pre	96.6%	.0%	90.3%
	1.00		Count	1	2	3
			% within Q31f Post	33.3%	66.7%	100.0%
			% within Q31f Pre	3.4%	100.0%	9.7%
	Total		Count	29	2	31
			% within Q31f Post	93.5%	6.5%	100.0%
			% within Q31f Pre	100.0%	100.0%	100.0%

We have concluded that both the experimental and the control groups are changing in the same way on all these questions. As the overall baseline response to this question was already shifted to the right, it is clear that both groups agreed that was never “okay” to drive under the influence. We found this to be an interesting finding as our expectations were that most respondents would find some of the choices offered acceptable.

A series of questions were included in the survey instrument to measure students’ resistance to peer pressure for drinking and driving behavior. These items were:

“You are at a party where people are drinking alcohol, including you. At the end of the night, a friend needs a ride home and asks you for a ride. How confident are you that you could refuse to drive”? (Q33)

“If asked to drive after drinking alcohol or using drugs in the next 6 months, how likely is it that you would refuse”? (Q35)

“If offered a ride from someone who had been drinking alcohol or using drugs in the next 6 months, how likely is it that you would refuse the offer”? (Q36)

The students were asked to rank their confidence in refusing each request on a scale from 1 (“not at all confident”) to 10 (“very confident”).

7.6 Confidence in Refusing Drinking and Driving Requests from Peers

Q33_post * Q33_pre * COND Crosstabulation

COND				Q33_pre		Total
				.00	1.00	
EXP	Q33_post .00	Count		13	4	17
		% within Q33_post		76.5%	23.5%	100.0%
		% within Q33_pre		61.9%	50.0%	58.6%
	1.00	Count		8	4	12
		% within Q33_post		66.7%	33.3%	100.0%
		% within Q33_pre		38.1%	50.0%	41.4%
	Total	Count		21	8	29
		% within Q33_post		72.4%	27.6%	100.0%
		% within Q33_pre		100.0%	100.0%	100.0%
CONTROL	Q33_post .00	Count		21	1	22
		% within Q33_post		95.5%	4.5%	100.0%
		% within Q33_pre		84.0%	16.7%	71.0%
	1.00	Count		4	5	9
		% within Q33_post		44.4%	55.6%	100.0%
		% within Q33_pre		16.0%	83.3%	29.0%
	Total	Count		25	6	31
		% within Q33_post		80.6%	19.4%	100.0%
		% within Q33_pre		100.0%	100.0%	100.0%

7.7 Refuse to Drink and Drive in the Next Six Months

Q35_post * Q35_pre * COND Crosstabulation

COND				Q35_pre		Total
				.00	1.00	
EXP	Q35_post	.00	Count	11	3	14
			% within Q35_post	78.6%	21.4%	100.0%
			% within Q35_pre	61.1%	27.3%	48.3%
		1.00	Count	7	8	15
			% within Q35_post	46.7%	53.3%	100.0%
			% within Q35_pre	38.9%	72.7%	51.7%
	Total	Count	18	11	29	
		% within Q35_post	62.1%	37.9%	100.0%	
		% within Q35_pre	100.0%	100.0%	100.0%	
CONTROL	Q35_post	.00	Count	11	4	15
			% within Q35_post	73.3%	26.7%	100.0%
			% within Q35_pre	64.7%	28.6%	48.4%
		1.00	Count	6	10	16
			% within Q35_post	37.5%	62.5%	100.0%
			% within Q35_pre	35.3%	71.4%	51.6%
	Total	Count	17	14	31	
		% within Q35_post	54.8%	45.2%	100.0%	
		% within Q35_pre	100.0%	100.0%	100.0%	

7.8 Refuse a Ride in the Next Six Months

Q36_post * Q36_pre * COND Crosstabulation

COND				Q36_pre		Total
				.00	1.00	
EXP	Q36_post	.00	Count	8	3	11
			% within Q36_post	72.7%	27.3%	100.0%
			% within Q36_pre	53.3%	21.4%	37.9%
		1.00	Count	7	11	18
			% within Q36_post	38.9%	61.1%	100.0%
			% within Q36_pre	46.7%	78.6%	62.1%
	Total		Count	15	14	29
			% within Q36_post	51.7%	48.3%	100.0%
			% within Q36_pre	100.0%	100.0%	100.0%
CONTROL	Q36_post	.00	Count	11	3	14
			% within Q36_post	78.6%	21.4%	100.0%
			% within Q36_pre	78.6%	17.6%	45.2%
		1.00	Count	3	14	17
			% within Q36_post	17.6%	82.4%	100.0%
			% within Q36_pre	21.4%	82.4%	54.8%
	Total		Count	14	17	31
			% within Q36_post	45.2%	54.8%	100.0%
			% within Q36_pre	100.0%	100.0%	100.0%

We can conclude that both the experimental and the control groups are changing in the same way. This question focuses on peer pressure, which we have found is difficult to affect.

7.9 Confidence to Refuse a Ride from Boyfriend/Girlfriend

Q34_post * Q34_pre * COND Crosstabulation

COND				Q34_pre		Total
				.00	1.00	
EXP	Q34_post .00	Count		12	2	14
		% within Q34_post		85.7%	14.3%	100.0%
		% within Q34_pre		70.6%	16.7%	48.3%
	1.00	Count		5	10	15
		% within Q34_post		33.3%	66.7%	100.0%
		% within Q34_pre		29.4%	83.3%	51.7%
	Total	Count		17	12	29
		% within Q34_post		58.6%	41.4%	100.0%
		% within Q34_pre		100.0%	100.0%	100.0%
CONTROL	Q34_post .00	Count		23	2	25
		% within Q34_post		92.0%	8.0%	100.0%
		% within Q34_pre		95.8%	28.6%	80.6%
	1.00	Count		1	5	6
		% within Q34_post		16.7%	83.3%	100.0%
		% within Q34_pre		4.2%	71.4%	19.4%
	Total	Count		24	7	31
		% within Q34_post		77.4%	22.6%	100.0%
		% within Q34_pre		100.0%	100.0%	100.0%

The McNemar statistic shows that the change is occurring both in the control and the intervention groups. We believe that adding the boyfriend/girlfriend scenario makes change more difficult.

8.0 DISCUSSION

The objective of this pilot study was to evaluate the short-term efficacy of The Hard Truth DUI awareness program. As expected, there was an overall shift in attitudes about drinking and driving in the positive direction for the students exposed to The Hard Truth, confirming most of the hypotheses.

Knowledge of the potentially devastating consequences of drinking and driving is the area most covered by The Hard Truth program. The consequences are made clear through the use of visual aids and personal stories from victims who have lived through a DUI crash. We believe that consequences paired with personalization of them are key ingredients to coaxing lasting changes in attitudes and intentions towards DUI, especially when images of family are invoked. Alternatives to DUI are revealed by each and every speaker and highlighted at the programs conclusion. In addition to covering drinking and driving, the risks of riding with an impaired driver are also discussed in The Hard Truth. Two victims in the program were riding with impaired drivers. Students are reminded that peer pressure will be the most difficult obstacle to refusing a ride with an impaired driver. Mortality and morbidly statistics are revealed and reinforced with personal experiences.

Although each speaker with The Hard Truth conveys the same message that “drinking and driving is deadly,” the experiences and perspectives of the speakers are distinct (i.e., a victim, an offender, and a health-care professional). In addition, several speakers with The Hard Truth openly share their youthful indiscretions with alcohol, and convey the message that experimentation while young is normal and expected. The core message of the program is not total abstinence, but abstinence when driving. Evidence that this message was heard is found in the results for the question: “Do you strongly, somewhat agree, somewhat or strongly disagree with the statement “People should not be allowed to drive if they have been drinking any alcohol at all”. The question is framed as more of an imperative than a public health issue. After receiving The Hard

Truth program, the intervention group showed a significant positive shift toward disapproval of drinking and driving while the control group showed no change.

No significant change occurred when asked if the chance of being involved in a crash when drinking and driving was likely. This was not so surprising when one considers that the chance of serious injury or death is the primary focus of the program, and there was a significant change in the risk perception in the intervention group in the expected direction when asked the question regarding this probability.

A significant change in the risk perception of the intervention group was also seen when asked if driving under the influence was acceptable if “I only did it a few times” and “I drove slowly”. These two myths were covered explicitly in The Hard Truth program, while the other conditional situations, (i.e., I had no choice, did not drive far, drove only on back streets, no one else was around, and had coffee) are not. This result seems to suggest that when working with teenagers, behavior changes we wish to see occur must be addressed explicitly regardless of how obvious the answer appears to be.

When assessing the subject’s ability to refuse driving after drinking, the positive shift for the intervention group was significant with a net positive change of 33% versus the control group at 13%. In addition, when assessing the ability to refuse driving after drinking in the next 6 months, and refusing to ride with an impaired driver within the next 6 months, these assessments showed significance within the intervention group.

Overall, the core message of The Hard Truth that driving after drinking alcohol should not occur under any circumstances appears to have been understood by the experimental group. We believe that The Hard Truth is successful because the template

for the program closely parallels suggestions for a school based DUI initiative mentioned previously (Elder, et al., 2005)

Despite the encouraging findings of this pilot study, the study group (n=68) was small to moderate, and the gap between pre and post assessment was brief (3 weeks) both of which may have affected the changes we have seen. Nevertheless, the results are very encouraging and support the need to embark on a larger study utilizing a rigorous study. We are also concerned that “bleed-over” occurred as changes to more positive responses were seen in the control group at the second assessment. We believe that some of the control group learned of THT program’s messages from members of the experimental group. In a future study, we would consider a design that would have experimental subjects in one school and controls in a separate school.

One area in particular that needs to be explored is changing the cultural norms of youth regarding drinking and driving if we are to realize long-term success. We believe, that The Hard Truth program can begin to encourage this paradigm shift but cannot sustain it within a 75-minute program. In order to change cultural attitudes and beliefs within the teenage cohort, the teenagers themselves must initiate the shift, as peer pressure to conform is virtually impenetrable.

A concern regarding repetition resulting in dilution of the programs impact remains. If incoming freshman attend The Hard Truth, they will be exposed to the same program four times. Although the speakers rotate, the content and theme remains virtually unchanged. It is unclear at this writing if repetition is efficacious or deleterious to the programs impact. Substantial research demonstrates that familiarity based on repetition increases liking (Taylor, et al., 1994). This general finding infers that

repetition generally should increase attitude change, however, repetition appears to increase attitude change up to a point (Taylor, et al., 1994). The reason for this is that repetition may have two distinct effects, to increase the opportunity for consideration of the message, but also it may increase tedium thus diluting the message. One way to deal with the tedium is to vary the content of the message. In addition, longer messages have a more persuasive impact than short messages, but only among those who are uninformed, who presumably give those messages little thought (Taylor, 1994).

We are currently seeking funding to conduct a large-scale study utilizing a similar but more focused questionnaire. The number of subjects will be much larger, as we intend to evaluate all juniors and seniors from four schools, two as experimental and two as control. The time gap from initial evaluation to follow-up will be approximately three months which should improve our confidence in the long-term efficacy of The Hard Truth.

Appendix

THE HARD TRUTH

Driving Under the Influence Questionnaire

This questionnaire is part of a study designed to better understand individual feelings and attitudes towards drinking alcohol in combination with driving a motor vehicle. The study is being conducted and coordinated by Ralph Miro with support from Waterbury Hospital. The answers you give us will help us learn more about how to prevent death and injury due to drinking and driving. This is your chance to be heard and we want to hear what you have to say.

Following completion of the questionnaire, half of the class will remain to view a program entitled “The Hard Truth”, and half will leave and not see the program. The entire class will return in approximately 3 weeks to retake the identical questionnaire. All students of Holy Cross HS will be invited to see The Hard Truth in the month of October 2005.

DO NOT WRITE YOUR NAME ANYWHERE ON THIS FORM. This survey is completely ANONYMOUS. This way no one will know how you answered. You may skip any question you are uncomfortable answering but remember this survey is ANONYMOUS.

In order to ensure that you cannot be identified, please construct your own code (directions at the bottom of this page).

THIS IS NOT A TEST. There are no right or wrong answers. Please work as quickly as you can and answer the questions honestly. If you don't find and answer that fits exactly, choose one that comes closest. Answer all questions as best you can.

When you have finished, put the survey in the large envelope. This envelope will be sealed in front of you.

This survey is COMPLETELY VOLUNTARY AND CONFIDENTIAL. If you do not wish to take part, please return your survey blank and work quietly at your desk.

Constructing your own survey code instructions:

Choose the first and second letters of your mother's FIRST name

- If the letter is A, B, C, enter '1'
- If the letter is D, E, F, enter '2'
- If the letter is G, H, I, enter '3'
- If the letter is J, K, L, enter '4'
- If the letter is M, N, O enter '5'
- If the letter is P, Q, R enter '6'
- If the letter is S, T, U enter '7'
- If the letter is V, W, X enter '8'
- If the letter is Y, Z enter '9'

EXAMPLE: Mary will be the number 51

Write the result in the upper **LEFT** hand corner of the first page

Choose the LAST 2 digits of your phone number

Write the results in the upper **RIGHT** hand corner of the page

THANK YOU for being an important part of this project!

HARD TRUTH PRE-POST QUESTIONNAIRE -REVISED*(Revised August 2005 for Miro Thesis Project)*

Please DO NOT write your name on this survey.

- 1 Have you ever seen the "Hard Truth" presentation about drunk driving?
- 1 ☐ Yes
 - 2 ☐ No
 - 3 ☐ Don't know

Background Information

- 2 Your gender: 1 ☐ Male 2 ☐ Female
- 3 How old are you? _____ years old
- 4 What grade are you in? 1 ☐ Freshman 2 ☐ Sophomore 3 ☐ Junior 4 ☐ Senior
- 5 Do you have access to a car?
- 1 ☐ Yes
 - 2 ☐ No
 - 3 ☐ Don't know
- 6 How often do you usually drive a car or other motor vehicle?
- 1 ☐ Never
 - 2 ☐ Only certain times a year
 - 3 ☐ Once a week or less
 - 4 ☐ Several days a week
 - 5 ☐ Every day
- 7 During the *last 12 months*, how often did you drink any alcoholic beverages
(including beer, light beer, wine, wine coolers, or liquor)?
- 1 ☐ Never drank alcohol in the last 12 months
 - 2 ☐ Once a month or less
 - 3 ☐ Two or three days a month
 - 4 ☐ One or two days a week
 - 5 ☐ Three or four days a week
 - 6 ☐ Nearly every day
 - 7 ☐ Every day
-

- 8 In the past **30 days**, have you been involved in a crash while driving a car or other motor vehicle in which there was damage to your vehicle or another vehicle?
1 ☐ Yes 2 ☐ No
- 9 Was anyone injured (in any of these crashes)?
1 ☐ Yes 2 ☐ No
- 10 Did you use alcohol or drugs within 2 hours before the crash?
1 ☐ Yes 2 ☐ No
- 11 In the past *two years*, have you been in a crash where you were a passenger?
1 ☐ Yes 2 ☐ No
- 12 Was anyone injured (in any of these crashes)?
1 ☐ Yes 2 ☐ No
- 13 Do you think the driver had drank alcohol or used drugs within 2 hours before getting behind the wheel?
1 ☐ Yes 2 ☐ No 3 ☐ Unsure
- 14 About how many times in the past **6 months** have you driven a car or other motor vehicle soon after drinking alcohol or using drugs?
1 ☐ Never
2 ☐ 1-2 times
3 ☐ 3-5 times
4 ☐ 6-9 times
5 ☐ More than 10 times
- 15 About how many times in the past **30 days** have you driven a car or other motor vehicle soon after drinking alcohol or using drugs?
1 ☐ Never
2 ☐ 1-2 times
3 ☐ 3-5 times
4 ☐ 6-9 times
5 ☐ More than 10 times
- 16 In the past **30 days**, did you ever ride in a car or other motor vehicle with a driver you thought might have drank too much alcohol or used too much drugs to drive safely?
1 ☐ Yes 2 ☐ No
- 17 In the *past 30 days*, were you ever with a friend, family member, or acquaintance who had too much to drink to drive safely?
1 ☐ Yes 2 ☐ No

- 18 In the **past 30 days**, have you ever tried to stop someone from driving when they had were high from drinking or taking drugs?
1 ☐ Yes 2 ☐ No
- 19 In the past **30 days**, have you ever avoided driving a motor vehicle because you felt you probably had too much to drink to drive safely?
1 ☐ Yes 2 ☐ No
- 20 In the past **30 days**, have you ridden anywhere with someone else who had agreed to be the *designated driver*?
1 ☐ Yes 2 ☐ No
- 21 Have you been a designated driver for other passengers in the past **30 days**?
1 ☐ Yes 2 ☐ No
- 22 Thinking of any times in the past **30 days** when you knew alcohol would be available at some event, how often, if ever, did you plan ahead before going to an event to avoid drinking and driving afterward?
1 ☐ Never had a time where knew alcohol would be available
2 ☐ Never planned ahead before event
3 ☐ Rarely (a few times)
4 ☐ Occasionally
5 ☐ Frequently or almost every time
- 23 Among your classmates, what percent do you think drink and drive? (CHECK ONE)
1 ☐ less than 25%
2 ☐ 25-49%
3 ☐ 50-75%
4 ☐ more than 75%
- 24 How important to health and safety is it that people never drive after drinking alcohol? (Circle one number)

Low					Very Great				
Importance					Importance				
1	2	3	4	5	6	7	8	9	10

- 25 Do you strongly agree, somewhat agree, somewhat disagree, or strongly disagree with the following statement? (Circle one number):

	Strongly Disagree	Somewhat Disagree	No Opinion	Somewhat Agree	Strongly Agree
People should not be allowed to drive if they have been drinking any alcohol at all?	1	2	3	4	5

- 26 How likely is it that each of the following events will happen if a person such as yourself drove after having too much to drink?

	Very unlikely	Somewhat unlikely	Somewhat likely	Very likely	Almost certain
How likely are you to be involved in a crash while drinking after you have had too much to drink?	1	2	3	4	5
If you are involved in a crash while driving after you have had too much to drink, how likely is it that you or someone else would be seriously injured or killed in the crash?	1	2	3	4	5

- 27 What is the greatest number of drinks (12-ounce regular beers, 12-ounce light beers, 5ounce glasses of wine, drinks or shots of hard liquor) you think you can drink within a 1hour period and still drive a car safely? _____ drinks
(please write in a number)
- 28 Please think about the most recent time that you drove within two hours of drinking alcohol. How many drinks did you have? _____ drinks (please write in a number)
- 29 This most recent time, do you think you were...?
 1 ☐ Well below the legal limit
 2 ☐ Just below the legal limit
 3 ☐ Just over the legal limit
 4 ☐ Well over the legal limit

- 30 How much do you agree/disagree with the following statements? (Circle one number for each statement).

	Strongly Disagree	Somewhat Disagree	No Opinion	Somewhat Agree	Strongly Agree
a. My friends would definitely disapprove if they found out I drove a car soon after having two or more drinks.	1	2	3	4	5
b. People my age should be allowed to make their own decisions about drinking and driving.	1	2	3	4	5
c. If you don't drink or use drugs, I will feel left out of a group.	1	2	3	4	5

- 31 It might be okay for me to drive under the influence of alcohol if... (Circle one number for each statement)

	Strongly Disagree	Somewhat Disagree	No Opinion	Somewhat Agree	Strongly Agree
a. I had no other choice.	1	2	3	4	5
b. I did not drive far.	1	2	3	4	5
c. I only drove on back streets.	1	2	3	4	5
d. No one else was around.	1	2	3	4	5
e. I did it only a few times.	1	2	3	4	5
f. I drove slowly.	1	2	3	4	5
g. I had coffee.	1	2	3	4	5

- 32 Below are situations that people sometimes find themselves in. For each one, how much should a person in that situation feel free to drink?

	No Drinking	1 or 2 Drinks	More Than 2 Drinks, But Don't Feel Effects	Fee Effects, But Not Drunk	Getting Drunk Is Sometimes All Right
a. At a party, at someone else's home.	1	2	3	4	5
b. When with friends at their own home.	1	2	3	4	5
c. When getting together with friends after school before going home.	1	2	3	4	5
d. When going to drive a car.	1	2	3	4	5

- 33 You are at a party where people are drinking alcohol, including you. At the end of the night, a friend needs a ride home and asks you for a ride. How confident are you that you could refuse to drive?

Not At All Confident									Very Confident
1	2	3	4	5	6	7	8	9	10

- 34 You are at a party with your boyfriend/girlfriend and both of you have been drinking alcohol. At the end of the night, your boyfriend/girlfriend insists on driving you both home. How confident are you that you could refuse the ride?

Not At All Confident									Very Confident
1	2	3	4	5	6	7	8	9	10

- 35 If asked to drive after drinking alcohol or using drugs in the next *6 months*, how likely is it that you would refuse?

Not At All Likely									Very Likely
1	2	3	4	5	6	7	8	9	10

- 36 If offered a ride from someone who had been drinking alcohol or using drugs in the next *6 months*, how likely is it that you would refuse the offer?

Not At All Likely									Very Likely
1	2	3	4	5	6	7	8	9	10

References for The Hard Truth Questionnaire

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