and lower total-family income were more likely to be multiple offenders. Multivariate analysis also indicated that multiple offenders had significantly higher levels of depression, general assaultiveness, and problem denial. Bivariate analysis indicated that multiple offenders scored higher on measures of driving for tension reduction and resentment; these associations, however, were not statistically significant when controlling for demographic characteristics and drinking-problem severity. Contrary to a priori expectations, multiple offenders exhibited significantly lower levels of sensation seeking.

Overall, our results were generally consistent with past research, indicating that first and multiple DUI offenders vary across several potentially important dimensions. Not surprisingly, multiple offenders manifest elevated alcohol-problem severity which likely contributes to increased driving risk. Our findings also suggest that many multiple offenders have driving-related attitudes and personality characteristics that could contribute to crash risk. Unfortunately, our results are based on cross-sectional data and the temporal sequence that underlies the observed relationships cannot be unambiguously established. Longitudinal research is needed to determine if variables that distinguish first and multiple offenders are useful predictors of subsequent DUI arrests and crash involvement.

A COMPARISON OF MALE AND FEMALE DRINKING DRIVERS
A.R. Meyers, B.J. Anderson, M.W. Perrine, and M.E. Fortini, Vermont Alcohol Research Center

Recent studies, using official records, suggest that young female drivers may represent a subpopulation at increasing risk of alcohol-related crash involvement. But female drinking drivers have not been studied extensively, and comparatively little is known about their potential risk characteristics, or the ways in which they may differ from male drinking drivers.

In this study, we compared convicted male (n = 1,113) and female (n = 242) DUI offenders. Subjects were recruited from California DUI offender programs and asked to complete the comprehensive Health Attitudes and Practices Survey. Subjects were compared on a total of 23 variables, including demographic characteristics, self-reported quantity and frequency of alcohol consumption, measures of alcohol-problem severity, driving-related attitudes, and selected personality characteristics.

Not surprisingly, discriminant analysis indicated that males were significantly (multivariate $p \leq .05$) more likely to be multiple offenders than females. Additionally, males had significantly higher personal incomes, and reported both more frequent and higher quantity alcohol consumption than their female counterparts. The analysis also revealed gender differences in driving-related attitudes and selected personality characteristics. After controlling for offender status, demographic characteristics, and drinking-related behaviors, males scored significantly higher on measures of competitive driving, sensation seeking, resentment, depression, and assaultiveness. Males also exhibited a greater tendency to deny negative behaviors and personality traits. Females scored significantly higher than males on a measure of poor emotional adjustment. Standardized discriminant function coefficients indicated that personal income, assaultiveness, and emotional adjustment were the most effective discriminating variables. Compared to random assignment based on an equal probability model, the discriminant substantially improved classification results; approximately 72% of females, and 73% of males, were correctly classified.

In summary, this analysis revealed several statistically significant differences between male and female DUI offenders. Such differences may be clinically relevant and suggest a possible need for separate treatment and intervention strategies for female and male DUI offenders. Males, for example, were more likely to have attitudes and personality traits (e.g. assaultiveness, sensation seeking, driving for competitive speed) that may exacerbate driving risk. Males with such characteristics may benefit from programs that help them channel their energies into more socially acceptable outlets. Female offenders, on the other hand, tended to display poorer emotional adjustment and could potentially benefit from programs that enhance emotional stability and self-image. Clearly, much more research is needed to investigate the potential interaction effects of gender with treatment outcomes.

FACTORS RELATED TO JUDICIAL ASSIGNMENT OF DUI OFFENDERS TO TREATMENT
Robert B. Voas, A. Scott Tippetts, and M.W. Perrine, Vermont Alcohol Research Center

Research in the United States over the last three decades has made it clear that at least one-third of the drivers responsible for alcohol-related crashes and of the drivers arrested for drunken driving are likely to be "problem drinkers"; that is, individuals whose drinking is producing negative life consequences and who can

presumably profit from an effective intervention program This finding has led to the establishment of procedures by the lower courts in the United States for the referral of drunk driving offenders to education and/or treatment programs. Aside from the availability of quality programs, a number of problems arise for the courts in placing drunk driving offenders in treatment facilities. An adequate "presentence" system must be in place to identify those most in need and most likely to profit from treatment.

This paper reports on a study conducted in Prince George's County, Maryland, in the USA, of the process by which drunk driving offenders were assigned to a special residential facility constructed specifically for handling drinking drivers. The principle issue for this research was to determine whether the offenders who were ultimately assigned to the facility were those who could most profit from the experience or whether the judicial process resulted in biases based on income, education, gender, or ethnic origin which resulted in the assignment of individuals for whom the treatment program was inappropriate. To determine the background characteristics of those assigned to the facility, 745 multiple drunk-driving offenders processed through the Prince George's County courts between July 1987, and December 1990 were interviewed to collect in-depth information on their drinking, on their driving, on their educational, vocational and family histories.

Four domains were investigated: (1) drinking quantity and frequency; (2) driving infractions and criminal record; (3) socioeconomic and employment status; and (4) demographic factors including gender, age, and ethnicity. A discriminant analysis of these data found, as might be expected, that offenders with records of heavy drinking and high scores on the Mortimer-Filkins psychometric device were more frequently assigned to the treatment center. However, individuals with certain types of significant symptomology, such as frequent drinking to intoxication and frequent blackouts were more likely to be assigned to jail than to the treatment facility. When the total number of drunk driving offenses on an offender's record was held constant, factors such as age, marital status, family income, education, and employment did not appear to discriminate between those who were assigned to treatment and those who received more traditional sanctions such as jail. The appropriateness of initial assignments to treatment are related to the completion of treatment and recidivism rates of offenders studied.

THE FIELD SOBRIETY TESTS: VALIDITY AND INTER-RATER RELIABILITY

M.W. Perrine, R.D. Foss, R.B. Voas, and A.R. Meyers, Vermont Alcohol Research Center

The field sobriety tests (FSTs) were enlisted to provide a standardized procedure for identifying suitable candidates for further, in-depth examination as part of a large-scale study of high alcohol tolerance. During the course of nocturnal roadside surveys, the FSTs were administered by research staff trained according to National Highway Traffic Safety Administration (NHTSA) standards. Drivers with a breath alcohol concentration (BAC) of 0.10g/dl or higher who did not fail (i.e., who "passed") the FSTs were to be provisionally categorized as high tolerant.

The need for the present study emerged from problems with predictive validity and inter-rater reliability encountered in field use of these tests. In addition to high tolerance, the present study examined the predictive validity of the FSTs across the full range of BACs obtained at roadside, using hand-held evidentiary breath testers. The three FSTs -- horizontal gaze nystagmus (HGN), walk-and-turn (WAT), and one-leg stand (OLS) -- were administered to 480 persons, at the roadside, by three different types of testers: NHTSA-certified expert trainers, specially trained research staff, and police officers. To assess inter-rater reliability, staff and officers administered the FSTs while the FST experts observed and assigned scores independently. In the second part of the study, experts also administered FSTS.

Bivariate analyses indicated that across testers with varying expertise, only the HGN was consistently useful for identifying persons above three per se BACs (0.05, 0.08, 0.10%). The less experienced FST administrators were generally less effective using the HGN, resulting in modest reliability and lower predictive validity. Both psychomotor tasks (OLS and WAT) also predicted BAC, though much less strongly and less consistently. Multivariate logistic regression analyses indicated that neither the WAT nor the OLS added significantly to the predictive power of the HGN.

Conclusions: (1) The two psychomotor tests (WAT and OLS) have little apparent value for detecting legally intoxicated drivers (at 0.05, 0.08, 0.10%), whereas (2) the oculomotor test (HGN) appears to be basically sound if administered and scored properly by someone with sufficient training and experience.