

## **BHRCS's Research Experience in Impaired Driving**

**Revised 1/01/2008**

PAST WORK: The Behavioral Health Research Center of the Southwest (BHRCS), a Center of the Pacific Institute for Research and Evaluation, has considerable experience conducting research on impaired driving, having published over 40 peer-reviewed articles and abstracts focusing on driving while impaired/driving under the influence (DWI/DUI). Previous and ongoing research in this alcohol-abuse/dependent sample exemplifies our ability to work with this traditionally difficult-to-follow population. Dr. Lapham and her team at BHRCS have been engaged in a series of studies aimed at 1) investigating the epidemiology of DWI/DUI, with a particular focus on female offenders;<sup>1-11</sup> 2) methods and instruments for screening offenders;<sup>12-16</sup> 3) predicting recidivism;<sup>17-19</sup> 4) investigating the prevalence of psychiatric comorbidity among female and male impaired-driving offenders;<sup>6,20-23</sup> 5) evaluating alcohol policies and their effects on alcohol-related traffic crashes,<sup>10,11,24-26</sup> and 6) conducting clinical trials to assess effects of court-based interventions and pharmacotherapies on alcohol consumption among DWI/DUI offenders.<sup>27-32</sup>

This experience includes the development of the Lovelace Comprehensive Screening Program (LCSP), a screening, referral, and compliance monitoring program developed for first-time DWI/DUI offenders adjudicated in Bernalillo County Metropolitan Court, New Mexico, and the studies resulting from a NIAAA-funded, 5-year follow-up study of these DWI/DUI offenders. The database for the LCSP contains demographic and assessment data for over 13,000 referrals, interview data, and a scheduling and tracking program developed in-house to monitor referrals and compliance with court sanctions.<sup>12</sup> Other subsequent programs of research have expanded the work conducted as part of the LCSP from epidemiology to intervention. Five years after referral to the LCSP a sample of offenders from this cohort was located and re-interviewed. For this follow-up study [R01 AA0962003], Dr. Lapham, PI, interviewed 1,396 convicted DWI/DUI offenders, and ascertained lifetime and 12-month diagnoses of substance use and other psychiatric disorders using the Diagnostic Interview Schedule. Findings of this study bear substantial public safety and treatment implications and demonstrate the value of public-use data sets, such as the National Comorbidity Survey.<sup>6</sup> The data generated from this project indicate that convicted DWI/DUI offenders have high rates of comorbidity and should be evaluated for the presence of psychiatric disorders as well as substance use disorders.<sup>6,20</sup> Using this database we currently are conducting an NIAAA-funded 15-year follow-up study to investigate long-term patterns of recovery and exacerbation of mental health disorders, drug and alcohol use, and impaired driving behavior in this population (1 R01 AA014750).

Our team has pioneered clinical trials methodology for treatment of DWI/DUI offenders within the criminal justice system. A recently completed study (R01AA12791-01) is a partnership between BHRCS staff and program staff of the Circuit Court for Multnomah County, Portland, Oregon. The database developed for this study successfully merged court records, psychiatric screening data, treatment outcomes, incarceration data, national law enforcement data, and statewide driving files.<sup>30,31</sup> This intervention project was a prospective, randomized comparison of the efficacy of four intervention strategies for sanctioning 477 repeat DWI/DUI offenders arraigned in the Circuit Court and entering the DUI Intensive Supervision Program (DISP). An analysis investigated this problem-solving court's ability to improve recidivism rates, including traffic violations and criminal behavior, and substance abuse behavior among repeat DWI/DUI offenders. BHRCS scientists were able to show that participants in the DISP had a significantly lower risk of subsequent traffic violations, including DWI/DUI citations and traffic crashes, compared to the general population of DWI/DUI offenders in Multnomah County,

Oregon.<sup>30</sup> For the randomized study subjects were recruited between April, 2001 and October, 2003 and were randomized to one of four sanctioning conditions: full sanctions, full sanctions without mandatory vehicle sales, full sanctions without mandatory electronic monitoring (EM), and full sanctions without mandatory vehicle sales and without EM. Our study found that mandatory vehicle sales caused a persistent decrease in recidivism risk, while mandatory EM induced a marked short term decrease in recidivism risk, which dissipated once the defendant was removed from EM.<sup>31</sup> Interviews with these offenders at the time of adjudication confirm the high rates of psychiatric comorbidity found in the New Mexico convicted offender cohort.<sup>22</sup> Review of treatment records for these individuals found that psychiatric disorders other than substance use were frequently overlooked--adjusted rates of under-diagnosis were commonly high: 97.2% of bipolar, 67.5% of major depression, 100% of obsessive-compulsive, and 37.3% of drug use disorders remained undiagnosed during treatment. Rates of over-diagnosis were low for all disorders, with the exception of drug use disorders.<sup>23</sup> These data indicate missed opportunities to improve treatment outcomes among repeat DWI/DUI offenders.

In the treatment arena, Dr. Lapham has been conducting clinical efficacy trials over the past decade. She was site PI for two national, multi-site clinical trials of injectable naltrexone formulations.<sup>29,33</sup> In several studies, her site was the top enrolling site with the highest patient retention rates. In one trial subjects with DSM-IV alcohol dependence were randomized to receive a long-acting injectable form of naltrexone (long-acting naltrexone) or placebo injections. All subjects received a manualized intervention using motivational psychotherapy to enhance abstinence from alcohol.<sup>29</sup> In the second trial subjects were randomized to receive either a high dose or low dose of long-acting naltrexone or placebo for 6 months. They also received motivational therapy aimed at changing patterns of behavior around alcohol use. Forty-six patients were randomized into this trial at the Albuquerque site, 627 nationally. Results showed an overall 25% reduction in heavy drinking days among those receiving high-dose medication. Among males in the high-dose group, there was nearly a 50% reduction in heavy drinking days.<sup>33</sup> BHRCS also was a top-enrolling site for a study of topiramate for the treatment of alcohol dependence.<sup>32</sup> Finally Dr. Lapham was site PI for a study of oral naltrexone and baclofen for treating alcohol dependence.

**PRESENT WORK:** Currently BHRCS is conducting several studies on impaired driving. An ongoing study at BHRCS is a pilot test of long-acting naltrexone as an adjunct to ignition interlock in the management and treatment of DWI/DUI. Subjects are being recruited from the interlock provider. We will investigate the extent to which this combination of sanctions and treatment will significantly decrease attempts to drive after drinking among repeat offenders.

Dr. Cathleen Willging is PI on a contract with NHTSA to evaluate successful DWI/DUI interventions with American Indian tribes.

Dr. Elizabeth Lilliot has for two years served as local evaluator for the New Mexico Strategic Prevention Framework State Incentive Grant (SPF-SIG), which seeks to implement environmental strategies to prevent alcohol-related traffic crashes among 15-26 year olds. She based this hands-on evaluation in the southwest part of the state upon insight gained from ethnographic research with substance-abusing and help-seeking youth. Since July 2007, she became part of the new PIRE New Mexico SPF SIG evaluation team. She has been coordinating local evaluators and state program efforts to implement and measure SPF SIG grant efforts.

**FUTURE WORK:** Six programs of research are envisioned: 4 in the treatment/court intervention arena and 2 alcohol policy studies.

A proposed NIAAA R01 project, Janet C'de Baca PI, is a partnership between the Albuquerque Veteran's Administration Hospital and BHRCS. This study aims to reduce recidivism among underage

drinking drivers. Impaired driving is a serious public health problem among those under age 21, as survey data indicate that about 40% of youth have driven after drinking, and young drinking drivers are at particularly high risk for fatal crashes after drinking. We planned and pilot-tested a randomized comparison of the efficacy of a brief motivational intervention (BMI) strategy for preventing re-arrest among first-time DWI/DUI offenders arrested in Bernalillo County, NM and booked into jail. For the proposed project participants will be randomized to 1 of 2 conditions: 1) BMI or 2) an Educational protocol. Both interventions will be provided prior to the offender's release from jail. We will conduct 1- and 2 year follow-up interviews, and compare traffic records between conditions. We will test hypotheses addressing the differential impacts of BMI among ethnic groups and the theoretical pathway proposed to account for recidivism outcomes. This intervention, if successful, could be implemented nationally as a strategy to prevent recidivism among young offenders.

Dr. Garnett McMillan will be submitting a PIRE multi-center R01 proposal to investigate Sunday Sales legislation in the United States, and the effects that this legislation has had on public health and public safety. Dr. McMillan has an R01 under review at NIH to evaluate the impacts of a police initiative, the party patrol, to reduce underage alcohol use. Drs. McMillan and Lapham also will be conducting a long-term evaluation of the effects on recidivism of an intensive surveillance program for repeat DWI/DUI offenders funded by NHTSA.

Dr. Lapham also plans another program of research to be submitted in February 2008 that will build on previous work by teaming with investigators from the MIND Institute, Albuquerque New Mexico, to investigate the effect of medications used to treat alcohol dependence on specific brain regions among repeat DWI/DUI offenders as measured by functional magnetic resonance imaging (fMRI), compared to a no-treatment control. The major aims of the proposed study are to identify the brain's response to alcohol-related and non alcohol-related taste cues (i.e. craving responses), and to determine differences between the two study groups in responses to these cues. We also plan to determine how neural responses to alcohol-related cues within each experimental group are affected by polymorphisms in the dopamine D4 receptor gene, determine how polymorphisms of other genes proposed to play a role in alcoholism influence craving responses in the brain, and to determine decision making abilities in individuals who are at high risk for DWI/DUI by alcohol.

The proposed R-21 proposal to be submitted as part of this P20 application is a natural extension of BHRCS's work in the impaired-driving field. This project will develop a novel treatment program for convicted DWI/DUI offenders for whom the usual community-based treatment has not been successful in helping them achieve sobriety. This intervention will combine oral naltrexone therapy with a mindfulness practice for treating alcohol dependence.

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