# Abstract Session F2: Mental Health/Substance Abuse

**Drug-Related Risk Factors for Death after Release from Prison: A Nested Case Control Study** Ingrid A Binswanger [1]; Patrick J Blatchford [1]; Traci E Yamashita [1]; Marc F Stern[2]. [1]University of Colorado Denver, Aurora, Colorado ; [2]University of Washington, Tumwater, Washington . (Proposal ID # 10117)

**BACKGROUND:** International studies have shown former prisoners to be at high risk for death after release from prison, particularly from drug-related causes such as overdose. Despite this, little is known about whether substance use-related factors, identified in prison, are associated with death after release from prison. Thus, the objective of this study was to examine the substance use-related risk factors for all-cause and overdose death after release from prison.

**METHODS:** We conducted a case control study nested within a retrospective cohort study of inmates released from the Washington Department of Corrections from 1999-2003. Cases (n=443) were individuals who died after release from prison, based on matching with the National Death Index. Controls (n=443) were selected using risk set sampling (i.e. at risk at the time the case died relative to release), and matched to cases by age and gender. Correctional medical, pharmacy, and substance abuse records were abstracted using a structured data abstraction tool. We compared cases and controls in the following factors, as recorded in prison charts prior to the release: lifetime substance dependence based on DSM-IV criteria, history of injection drug use, narcotic prescriptions received in the 60 days prior to release, and known HIV or AIDS. Data were analyzed using conditional logistic regression. Analyses were adjusted for race/ethnicity and length of incarceration (factors previously shown to be associated with mortality), and having children and marital status (measures of social support). A separate model examined overdose cases (n=103) compared with controls (n=103) with the same covariates.

**RESULTS:** Together, cases and controls were predominantly male (88%) and had an average age of 41 years. Substance dependence was recorded in 53%, injection drug use in 41%, narcotic prescriptions in 5%, and HIV/AIDS in 1%. Injection drug use (odds ratio [OR] 1.84, 95% confidence interval [95% CI] 1.34, 2.52) and HIV/AIDS (OR 10.02, 95% CI 1.24, 81.01) were associated with increased odds of all-cause mortality. Substance dependence (OR 0.90, 95% CI 0.67, 1.22) and narcotic prescriptions (OR 1.13, 95% CI 0.59, 2.17) were not associated in the adjusted model. Having children was protective (OR 0.70, 95% CI 0.51, 0.95) but marital status was not associated. The only substance use-related factor associated with overdose mortality was injection drug use (OR 7.28, 95% CI 2.84, 18.68).

**CONCLUSION:** Injection drug use history was an independent risk factor for all cause and overdose mortality after release from prison and HIV/AIDS was a risk factor for all-cause mortality. We were surprised that substance dependence was not independently associated with either outcome. Substance dependence, as ascertained by correctional staff, may be insufficiently sensitive to identify high-risk groups of inmates given its high prevalence in this population. The lack of association of pre-release narcotic prescriptions with mortality may provide some reassurance to correctional physicians who treat pain. Further work to identify risk factors for death which can be easily ascertained in prison and more narrowly define the population at risk is necessary, but, in the meantime, injection drug users may be considered a target group for interventions to reduce mortality after release from prison.

**A POSITIVE PHQ-2 DEPRESSION SCREEN AMONG HOSPITALIZED HEART FAILURE PATIENTS IS ASSOCIATED WITH LOWER LEVELS OF QUALITY OF LIFE AND PREDICTS ELEVATED 12-MONTH MORTALITY RISK**

Bruce L. Rollman [1]; Bea Herbeck Belnap [1]; Fanyin He [1]; Sati Mazumdar [1]; Herbert C Schulberg [2]; Charles F. Reynolds[1]. [1]University of Pittsburgh, Pittsburgh, Pennsylvania ; [2]Weill Cornell Medical College, White Plains, New York . (Proposal ID # 10413)

**BACKGROUND:** Heart failure (HF) affects over 5.7 million Americans, with over 660,000 newly diagnosed cases, 290,000 deaths, and $37 billion in treatment costs incurred yearly. One potential contributor to poor outcomes is unrecognized depression. An American Heart Association (AHA) Science Advisory has advocated routine screening of cardiovascular disease patients for depression to identify those who may require further assessment and treatment with use of the two-item Patient Health Questionnaire (PHQ-2) 'at a minimum' (Circulation, 2008; 118:1768). Yet, the value of a positive PHQ-2 screen among HF patients is unknown.

**METHODS:** We administered the PHQ-2 to HF patients (ejection fraction (EF) < 40%) with NYHA class II-IV symptoms prior to discharge from 4 Pittsburgh-area hospitals. We defined a positive depression screen as one or both PHQ-2 items endorsed affirmatively (In the past two weeks have you: (a) had little interest or pleasure doing things; or (b) felt down, depressed or hopeless; PHQ-2 (+)), and a negative screen as both items endorsed negatively (PHQ-2 (-)). According to prespecified sample size calculations, we oversampled PHQ-2 (+) to PHQ-2 (-) patients. Then, at baseline, we collected sociodemographic and clinical data, and later contacted patients or their designated secondary contacts (e.g., spouse, adult child) via telephone to ascertain vital status. Later, a study physician blinded as to subjects' baseline PHQ-2 status reviewed each report of death, including hospitalization records and death certificate, and assigned a cause of death. We evaluated differences between study cohorts defined by PHQ-2 status for statistical significance using t- and chi-squared tests for baseline data, and log-rank tests for 12-month incidence of all-cause and cardiovascular mortality calculated from Kaplan-Meier analyses with Cox models to adjust for baseline covariates.

**RESULTS:** Over a 16-month period ending 4/09, 610 HF patients consented to our screening procedure; 526 (86%) were both NYHA and PHQ-2 eligible; and 473 (90%) met all other study requirements. Compared to PHQ-2 (-) patients (n=101), PHQ-2 (+) patients (n=372) were younger (65 vs. 70), more likely to have NYHA III/IV symptoms (67% vs. 39%), and reported lower levels of physical (SF-12 PCS: 30.7 vs. 34.3) and mental health-related quality of life (SF-12 MCS: 44.4 vs. 58.5) (all $p < 0.002$). However, they were similar on other baseline clinical and sociodemographic characteristics (e.g., 65% male, 85% White, 41% diabetic, 25% mean EF). We confirmed vital status on all 473 study patients (100%) as of 12/31/09 and identified 83 deaths, including 55 (66%) for cardiovascular causes. At 12-months follow-up, 20% of PHQ-2 (+) vs. 8% of PHQ-2 (-) patients had died (p=0.007), and PHQ-2 (+) status remained associated with both increased all-cause (hazard ratio (HR): 3.0 (95% CI: 1.4-6.4); p=0.004) and cardiovascular mortality (HR: 2.6 (1.1-6.3); p=0.03) even after adjustment for age, gender, EF, NYHA class, diabetes, hyponatremia, ACE-I/ARB use, antidepressant use, and a variety of other baseline covariates.

**CONCLUSION:** Among hospitalized HF patients, a positive PHQ-2 depression screen prior to discharge home is associated with lower levels of HRQoL and elevated mortality risk at 12-month follow-up. While our findings support the AHA Science Advisory for HF patients, clinical trials remain necessary to determine whether effective depression treatment can improve health-related quality of life and reduce mortality in this medically ill population.

**ANTICOAGULATION OUTCOMES IN ATRIAL FIBRILLATION: IMPACT OF MENTAL ILLNESS**

Susan M. Frayne [1]; Minang Turakhia [1]; Rudolf Moos [1]; Sarah A. Friedman [1]; Susan Schmitt [1]; Dan Berlowitz [2]; Ciaran Phibbs[1]. [1]VA Palo Alto Health Care System, Menlo Park, California ; [2]VA Bedford, Bedford, Massachusetts . (Proposal ID # 11045)

**BACKGROUND:** Warfarin anticoagulation can reduce stroke risk in atrial fibrillation (AF), but can harm patients with difficulty adhering to its rigorous monitoring requirements and complex dosing regimen. While clinicians often perceive patients with mental health conditions (MHC) as being at risk for non-adherence, little empiric evidence guides anticoagulation clinical decision-making in this population. We examined whether presence of comorbid MHC is associated with adverse anticoagulation outcomes: stroke, major hemorrhage, or death.

**METHODS:** Using the Veterans Health Administration (VA) National Patient Care Database linked to Medicare data, we identified 77,431 non-institutionalized patients with AF at the start of the observation period (FY2004) receiving warfarin from VA. We considered patients to have MHC Yes if they had an MHC ICD9 code (derived from AHRQ Clinical Classifications Software algorithm) both at baseline and in the observation period. Patients were MHC No if they had no MHC ICD9 code in FY02-FY04. The 12,701 with ambiguous MHC status (ICD9 code at baseline or in the observation period, but not both) were excluded from main analyses, leaving N=64,730 in the main analytic cohort. The primary outcome was the composite of stroke, major hemorrhage and death. Admissions for strokes and major hemorrhage were identified from ICD9 codes in inpatient VA and Medicare records, using established algorithms. Death was identified from VA Vital Status file (derived from VA and non-VA sources). Logistic regressions estimated adjusted odds ratios of MHC on the primary outcome and on its components, first controlling for age (AOR1), then also controlling for sex, race/ethnicity and CHADS2 stroke risk index (AOR2).

**RESULTS:** Comparing the 10,731 MHC Yes versus the 53,999 MHC No, mean (SD) age was 72 (9.8) versus 75 (7.7) and mean (SD) CHADS2 was 3.0 (1.5) versus 2.9 (1.5). 20.4% versus 16.0% had the primary (composite) outcome, 5.1% versus 4.3% died in FY04, 2.4% versus 1.3% had a stroke, and 14.4% versus 11.4% had a major hemorrhage. Patients with MHC Yes were more likely than those with MHC No to have the composite outcome in unadjusted and adjusted analyses (Table). This was true for each specific MHC as well; those with psychotic disorders and alcohol use disorders did particularly poorly. Examining components of the composite outcome, for stroke, AOR2 was 1.41; for hemorrhage, AOR2 was 1.27; and for death, AOR2 was 1.18 ($p<.05$ for each AOR2).

**CONCLUSION:** Warfarin-treated AF patients with MHC had significantly higher risk of stroke, hemorrhage, and death, even after adjustment for covariates. This effect was most pronounced for patients with psychotic or alcohol use disorders, pointing to the possibility that these represent high-risk subgroups. Identification of mediators of this relationship could inform efforts to improve AF-related outcomes in this vulnerable population, such as intensifying oversight of warfarin treatment or evaluating safety and efficacy of alternative stroke prevention therapies.

**SCREENING, BRIEF INTERVENTION AND REFERRAL TO TREATMENT (SBIRT) FOR OPIOID ABUSE IN AN URBAN HOSPITALIZED POPULATION: A PILOT STUDY**

Richard Gil [1]; Nancy L Sohler [2]; Mia Brisbane [1]; Gabriela Ordonez Llanos [3]; Chinazo O Cunningham[4]. [1]Montefiore Medical Center, Bronx, New York ; [2]The City College of New York, NY, New York ; [3]Foundation Minga, Bronx, New York ; [4]Albert Einstein College of Medicine, Bronx, New York . (Proposal ID # 11197)

**BACKGROUND:** Numerous studies demonstrate the deleterious health outcomes associated with substance abuse and dependence. To intervene early in the course of substance use, Screening, Brief Intervention, and Referral to Treatment (SBIRT) has been advocated by many. In primary care settings and emergency departments, SBIRT has been successful in screening for and identifying populations with problematic alcohol use, providing brief interventions to them and referring them for treatment, leading to improved outcomes. Although substance use disorders are common among hospitalized patients, few studies have examined the feasibility of or outcomes associated with conducting SBIRT in hospitalized patients. Although data regarding SBIRT for drug use has been sparse, with the rise in opioid use, abuse, and dependence, many advocate for SBIRT specifically for drug use. We sought to test the feasibility of conducting SBIRT for problematic opioid use targeting patients hospitalized on the medical wards of a large urban academic medical center.

**METHODS:** On 22 days between October 2009-2010, we identified all adult patients who were admitted within 24 hours to four different floors of the medical wards of a large urban academic medical center in the Bronx. A research assistant attempted to reach all admitted patients who were 18-75 years old, fluent in English or Spanish, and alert and oriented. Patients who were intubated, restrained, or on contact isolation were excluded. We administered audio computer-assisted self-interviews (ACASI) to patients, collecting sociodemographic information and risk of problematic opioid use (using the Alcohol, Smoking, Substance Involvement Screening Test [ASSIST] questionnaire, developed by the World Health Organization [WHO]). According to the WHO criteria, patients were categorized as having no opioid use, or low, moderate, or high risk of problematic opioid use. Those who had moderate or high risk problematic opioid use received a brief computer-based intervention in which they were informed about their risk and opioid addiction treatment options, and invited to receive additional information and referrals to treatment. We conducted simple frequencies to describe patients' sociodemographic and clinical characteristics.

**RESULTS:** Of the 231 patients who were newly admitted to the medical wards, we were unable to reach 42 (18.2%) (they were already discharged, not in their rooms, or otherwise occupied with health care providers) and 42 (18.2%) refused to participate. Of the remaining 147 patients, 61 (41.5%) were ineligible for the following reasons: age >75 years (n=37), on contact isolation (n=12), disoriented (n=8), in severe pain (n=2), blind (n=1), and not fluent in English or Spanish (n=1). In addition, computer issues resulted in incomplete interviews in 3 patients. Of the 75 patients included in this analysis, the mean age was 48.6 years, and the majority were women (65.3%), Hispanic (49.3%) or black (38.7%), had a high school education (68.0%), and had public insurance (66.7%). In terms of opioid use in the prior 3 months, 42 (56.0%) reported no opioid use, 4 (5.3%) low risk, 26 (34.7%) moderate risk, and 3 (4.0%) high risk of problematic opioid use. Of the 29 patients with moderate or high risk, 19 (65.5%) were interested in referral to treatment and 27 (93.1%) reported that the brief computerized intervention was useful.

**CONCLUSIONS:** In a large urban academic medical center, we found moderate or high risk of problematic opioid use in 39% of patients hospitalized on the medical wards. Our data suggest that in the inpatient medical setting, ample opportunity exists to identify patients with problematic opioid use, to provide a brief intervention, and to refer them to treatment. In fact, of those with moderate or high risk of problematic opioid use, over half were interested in referral to treatment, and nearly all reported usefulness of the brief intervention. Despite this, we question whether a model of conducting SBIRT like ours--with a dedicated person outside of the team delivering health care--is feasible. Of all patients newly admitted to the hospital, only one-third were screened for problematic opioid use, as approximately one-fifth were unable to be contacted, one-fifth refused to be screened, and one-fourth were ineligible. Because moderate or high risk of problematic opioid use appears to be common in hospitalized patients on medical wards and has substantial consequences, further research examining SBIRT related to problematic opioid use in hospitalized patients is warranted.

**Lifetime exposure to traumatic psychological stress is associated with greater increases in inflammatory activity over time in patients with cardiovascular disease: Prospective findings from the Heart and Soul Study**

Beth Cohen [1]; Aoife O'Donovan [1]; Thomas Neylan [1]; Thomas Metzler [2]; Mary Whooley[1]. [1]University of California San Francisco/San Francisco VA Medical Center, San Francisco, California ; [2]San Francisco VA, San Francisco, California . (Proposal ID # 11976)

**BACKGROUND:** A history of exposure to traumatic psychological stress increases risk for adverse events and early mortality in patients with cardiovascular disease (CVD). While the biological mechanisms of these effects are not known, inflammatory activity may play a key role as it is both elevated by psychological stress and involved in the progression of CVD. However, no studies have examined if lifetime exposure to traumatic psychological stress is associated with inflammatory activity in patients with CVD. In the present study, we assessed if CVD patients with high levels of trauma exposure differed from comparison patients in baseline levels and rate of change of inflammatory markers over time.

**METHODS:** Patients with stable CVD who participated in the Heart and Soul Study (*n* = 1,019) reported history of exposure to 18 traumatic events from the Computerized Diagnostic Interview Schedule for DSM-IV. Patients in the highest quartile for traumatic events were classified as having high levels of trauma exposure (*n*= 256 who reported 8 or more events). Body mass index (BMI) was measured, and demographics and health behaviors were assessed by self-report. Markers of inflammatory activity including interleukin-6 (IL-6), tumor necrosis factor-alpha (TNF-alpha), C-reactive protein (CRP) and resistin were measured in fasting blood samples at baseline and at five-year follow up (*n* = 665). We constructed linear regression models with baseline, year 5, or change in inflammatory biomarker levels adjusted for factors that differed at $p < .20$ between groups, including age, gender and statin use. We then adjusted for potential mediating variables, including sleep quality and the health behaviors smoking, physical activity and illicit drug use, as well as PTSD and depression.

**RESULTS:** Patients reporting high levels of trauma exposure were not significantly different from comparison patients on markers of inflammatory activity at baseline. However, this high trauma exposure group exhibited significantly greater increases in IL-6 ($Î² = .08$, $p = .047$), TNF-Î± ($Î² = .11$, $p = .006$) and resistin ($Î² = .09$, $p = .03$) from baseline to 5-year follow up, adjusting for age, sex and statin use. In addition to demonstrating greater increases in these markers over time, patients with high levels of trauma exposure also had greater absolute levels of TNF-Î± and resistin ($p < .05$) and a trend towards greater absolute levels of IL-6 ($p = .11$) at 5-year follow up. There were no group differences in CRP. Conclusions were similar after additional adjustments for smoking, physical activity, illicit drug use, sleep quality, PTSD and depression.

**CONCLUSION:** This first large-scale demonstration of an association between traumatic psychological stress and inflammatory activity links a history of traumatic psychological stress with a mechanism of accelerated CVD progression. The psychological, behavioral and biological sequelae of traumatic psychological stress may persist across the lifespan, influencing inflammatory activity and potentially CVD morbidity and mortality late in life.

**USING ELECTRONIC HEALTH RECORD REGISTRIES TO INCREASE USE OF TELEPHONE QUITLINE SERVICES AMONG VULNERABLE PRIORITY POPULATIONS**

Steven Fu [1]; Diana Burgess [2]; Michelle Van Ryn [3]; Scott Sherman [4]; Siamak Noorbaloochi [2]; Barbara Clothier [2]; Alicia Sandberg [2]; Sean Nugent [2]; Christina Robert [3]; Anne Joseph[3]. [1]CCDOR, Minneapolis, Minnesota ; [2]Minneapolis VA Health Care System, Minneapolis, Minnesota ; [3]University of Minnesota, Minneapolis, Minnesota ; [4]VA NY Harbor Healthcare System, New York, Minnesota . (Proposal ID # 12049)

**BACKGROUND:** Currently the reach of evidence-based telephone quitline services is 1%-2% of smokers and particularly low among vulnerable priority populations including racial/ethnic minorities and Veterans. The Veterans Victory over Tobacco study is currently in progress to evaluate the effects of a theory-driven intervention combining proactive outreach with offer of choice of telephone care or face-to-face care for treatment of tobacco dependence (proactive care, PRO) compared to reactive/usual care (UC). The purpose of this analysis was to examine the effects of the proactive care intervention on increasing utilization of evidence-based tobacco cessation treatments among smokers assigned to the intervention.

**METHODS:** In this prospective randomized controlled study, we identified a population-based registry of current smokers using the Veterans Health Administration computerized patient record system (CPRS) tobacco use clinical reminder system. A total of 6400 smokers from four VA medical centers were randomly assigned to PRO or UC. The proactive care intervention combines: (1) proactive outreach and (2) offer of choice of smoking cessation services (telephone or face-to-face). Proactive outreach included a mailed invitation packet followed by a telephone outreach call (with up to 6 call attempts) to motivate smokers to seek treatment with choice of services. A baseline survey was administered after randomization using a multiple-wave mailed questionnaire protocol. The process outcomes for this analysis were 1) enrollment in the Veterans Victory program, and 2) initiation of medication treatment.

**RESULTS:** Across the four sites, nearly all patients in primary care had their tobacco use status documented using the electronic clinical reminder. Within site, 3200 current smokers as identified by the electronic reminder were randomly assigned to the proactive care intervention and mailed a baseline survey. The sample was diverse; 27% African American, 60% Caucasian, 3% other race, and 10% unknown race. Six percent were of Hispanic ethnicity. At the time of the baseline survey, 7% refused to participate in the study, 12% were no longer smoking or using other tobacco products (e.g., cigar, pipe or smokeless tobacco) and 7% could not be reached due to bad contact information. Only 1% had used telephone smoking cessation counseling in the past year. Subsequently, 2500 Veteran smokers were mailed outreach invitation packets. During telephone outreach, 1744 (70%) were successfully contacted. Of the participants mailed an outreach invitation packet, 404 (16%) enrolled in telephone coaching and 78 (3%) enrolled in in-person smoking services at their VA medical center. Among smokers who participated in telephone coaching, 234 (58%) initiated guideline recommended tobacco cessation medications during the telephone coaching.

**CONCLUSION:** These findings indicate that proactive outreach with offer of choice of services dramatically increases the reach of telephone quitline services to vulnerable priority populations including racial/ethnic minorities and Veterans.