Patient Navigation for Former Prison Inmates: A Pilot Randomized Controlled Trial

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Background: Many states are releasing prison inmates early to address budget constraints, but prior research has demonstrated high mortality rates during the transition from prison to the community. Little is known about how to prevent poor health outcomes in former inmates. The objective of this study was to test the feasibility of a randomized controlled trial (RCT) of patient navigation to reduce barriers to healthcare and hospitalizations during the transition from prison to the community.

Methods: Forty former prison inmates 18 and older were recruited into an RCT within 15 days of release from prison. Eligible individuals had a history of a drug related offense or endorsed 3/7 symptoms of substance dependence; could understand study procedures in English; did not plan to leave the area for 6 months; and were not living in a locked halfway house. Recruitment took place at a re-entry center, a program for returning prison inmates sponsored by the prison system. Participants were randomized to 3 months of patient navigation with facilitated enrollment into an indigent care discount program (intervention) or facilitated enrollment into an indigent care discount program alone (control). Structured interviews were conducted at baseline and 3 months which addressed the number of barriers to healthcare and the number of emergency department/urgent care visits and hospitalizations. Outcomes were measured as a change in number of self-reported barriers to care and change in the rate of health service use per 100 person days from baseline to 3 months.

Results: We recruited 40 participants in 2.5 months. There were no significant differences between intervention and control participants in days since release, age, race/ethnicity, and educational attainment. Participants were enrolled an average of 7 days after release. The mean age was 42. Overall, 18% were women and 30% reported being Latino. In terms of race, 58% were white, 20% were African American, 5% were American Indian, and 18% did not report a race. At 3 months, 21(52.5%) had completed the follow-up interview. Fourteen (35%) participants were not available to be interviewed due to re-arrrest, 3 (7.5%) had absconded from the criminal justice system, 1 (2.5%) could not be located, and 1 (2.5%) had withdrawn. The mean number of reported barriers to care was reduced at 3 months in both groups (intervention: -1.8± 2.7; control: -1.1±2.4). The change in rate of emergency department/urgent care visits per 100 person-days from baseline was 1.1±0.9 among intervention participants and 0.5±0.5 among control participants. The change in rate of hospitalization per 100 person-days from baseline was 0.1±0.3 in intervention participants and 0.8±1.5 in control participants.

Conclusions: Our intervention feasibility work suggests that recruitment of former inmates into RCT of patient navigation was highly feasible, but follow-up was limited by re-arrests and individuals who absconded from the criminal justice system. Preliminary results suggest a trend towards lower hospitalization rates among navigation participants at 3 months, but that the rate of emergency room or urgent care visits was not improved, perhaps due to the high use of these services to access routine care. Given high recidivism, an adequately powered RCT should allow for follow-up in prison and repeated episodes of navigation at re-release. Future research will examine the effect of patient navigation on poor health outcomes and costs of care in former prison inmates.
HIV Status is an Independent Predictor of Receiving Opioid Analgesics


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Background: Opioid analgesics are increasingly prescribed. HIV-infected patients may be particularly vulnerable to the toxicities and risks associated with opioid analgesics, yet limited data about receipt of opioids comparing HIV-infected and uninfected patients exist.

Methods: We conducted a cross-sectional analysis of the Veterans Aging Cohort Study – Virtual Cohort (VACS-VC), using data from October 1, 2005 to September 30, 2006 of 40,594 HIV-infected and 81,188 age/race/ethnicity/site-matched uninfected patients. We excluded patients who had an ambiguous HIV status; a cancer diagnosis other than non-epithelial skin cancers; no inpatient or outpatient visit in FY2006; or unclear opioid pharmacy data. Clinical characteristics, including pain diagnoses, and alcohol and substance use disorders, were determined based on ICD-9 codes. Using pharmacy data, we defined: opioid receipt as at least one outpatient prescription for an opioid; high dose opioid therapy as an average daily dose of at least 120 mg of morphine equivalents; and long-term therapy as 90 consecutive days of opioids. Descriptive statistics for all variables by HIV status and opioid receipt were performed. We constructed multivariate models, adjusting for demographics, site of care based on urbanicity, Hepatitis C virus (HCV) status, pain diagnosis (acute, chronic), serious mental illness, and alcohol and substance use disorder, to determine factors independently associated with opioid receipt.

Results: Our sample (N=78,748) was 97% male, with a mean age of 46 years, diverse (39% white, 48% black, 8% Hispanic), with 86% receiving care in urban settings. Thirty-one percent of HIV-infected and 28% of uninfected patients (p<0.001) received any opioids. Among patients who received opioids, HIV-infected patients, were less likely to have a pain diagnosis (60.7% vs. 73.8%), but more likely to have depression (8.7% vs. 7.6%), Hepatitis C infection (40.8% vs. 19.1%), and an alcohol (13.0% vs. 11.2%) or substance use disorder (17.3% vs. 10.4%) than uninfected patients. Median average daily morphine equivalent dose was 20.0mg (Interquartile range (IQR) 13.5, 36.0) among HIV-infected patients and 20.6mg (IQR 14.6, 36.8) among uninfected patients, with 6.1% vs. 4.9% (p<0.001) receiving high doses. Median number of days of opioids supplied was 44 days (IQR 14, 189) among HIV-infected and 60 days (IQR 17, 212) among uninfected patients, with 38% vs. 42% receiving long-term opioid therapy. HIV status was associated with receipt of opioids unadjusted (OR 1.17, 95% CI 1.13, 1.21) and adjusted (AOR 1.40, 95% CI 1.35, 1.46) analyses. HCV infection, pain (acute or chronic), PTSD, and depression were positively associated, while non-White race/non-Hispanic ethnicity, schizophrenia, and alcohol abuse were negatively associated with receipt of opioids.

Conclusions: Though HIV-infected patients may be particularly vulnerable to the toxicities and risks associated with opioid analgesics, they are 40% more likely than uninfected patients to receive opioids after controlling for pain and other factors.
Comparative Overdose Death Rates between Illicit and Prescribed Substances

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Background: Overdose death rates in the United States (US) vary significantly by drug type. Cocaine and heroin were historically considered leading causes of overdose death in the US. In 2000, prescription opioid overdose deaths surpassed cocaine overdose deaths and are rising at an alarming rate. This trend has been attributed to the widespread use of pain scales, “pain as the 5th vital sign,” and heavy prescribing for non-malignant pain. We aimed to describe the death rate from prescription opioid pain relievers as compared to the death rates of other commonly abuse substances, and describe the demographic characteristics of overdose deaths by substance.

Methods: Using the CDC Wonder Database, we reviewed all cocaine (T40.5), heroin (T40.1), psychostimulant (i.e. methamphetamine, T43.6), and prescription opioid poisoning (overdose) deaths (T40.2-T40.4) among 15-64 year olds in the US from 1999-2008. We calculated age-adjusted death rates (number of deaths/100,000 person-years [p-y] and 95% confidence interval [CI]) for those who died using substance specific ICD-10 codes listed among their causes of death. We calculated death rates by age, gender, and race/ethnicity. We identified the most common underlying causes of death among those who died. Lastly, we categorized all deaths by autopsy status during 2003-2008 to help support the validity of the listed causes of death.

Results: By 2008, prescription opioid overdose deaths were more common than cocaine, heroin, and psychostimulant overdose deaths combined. Deaths increased significantly for heroin, psychostimulants, and prescription opioids from 1999 to 2008. Prescription opioid overdose deaths increased more than three-fold from 1999 to 2008 (2.24/100,000 p-y [95% CI 2.17-2.31] to 7.34/100,000 p-y [95% CI 7.22-7.45]). Psychostimulant overdose deaths doubled from 1999 to 2008 (0.37/1000 p-y [95% CI 0.34-0.39] to 0.78/100,000 p-y [95% CI 0.74-0.82]). Cocaine overdose deaths peaked in 2006 (4.29/100,000 p-y [95% CI 4.20-4.38]), but declined in 2008 (2.84/100,000 p-y [95% CI 2.77-2.92]). Overdose death rates were higher overall in men than woman, and peak death rates were frequently observed among 35-44 year olds. African Americans had the highest death rate due to cocaine (8.00/100,000 p-y [95% CI 7.88-8.11]), American Indians/Alaska Natives had the highest death rate due to psychostimulants (1.45/100,000 p-y [95% CI 1.26-1.64]) and prescription opioids (6.42/100,000 p-y [95% CI 6.03-6.82]), closely followed by non-Hispanic whites, (6.17/100,000 p-y [95% CI 6.12-6.21]). After combining cocaine, heroin, prescription opioid, and psychostimulant overdose deaths, “accidental poisonings” (X40-49) was the most frequently listed cause of death. Autopsies were performed on 80% of overdose deaths.

Conclusions: While overall overdose death rates due to heroin, cocaine, and psychostimulants have risen since 1999, overdose deaths due to prescription opioids have increased more than three-fold in the last decade. Practice-based interventions to reduce the rising risk of overdose deaths should be tested as a method to decrease the death rates of all substances, not only prescription opioids.
Determinants of Readiness for Primary Care-Mental Health Integration (PC-MHI) in the VA Health Care System

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Background: Substantial evidence demonstrates the value of primary care-mental health integration (PC-MHI) to improve patient outcomes. While several evidence-based models exist, the readiness of practices to adopt them has not been well-studied. In 2006, the VA endorsed three different PC-MHI approaches: (1) co-located collaborative care, where mental health services are offered in PC, (2) a care manager-based depression collaborative care intervention called TIDES, and (3) a computer-assisted screening intervention for depression/alcohol/anxiety called Behavioral Health Laboratory (BHL).

Methods: We examined variations in the adoption rates for these PC-MHI approaches in relationship to organizational readiness factors in VA clinics. In this cross-sectional study of the 2007 VA Clinical Practice Organization Survey (n=225), we assessed adequacy of resources, motivation for change, staff attributes, and organizational climate for each clinic. The survey included the level of implementation for each PC-MHI approach. We performed bivariate analyses for each readiness variable by each PC-MHI approach. We then constructed separate multivariate models for PC-MHI approaches with sufficient sample size.

Results: By 2007, 107 (47.5%) clinics had implemented co-located clinics, 39 (17.3%) had implemented TIDES, and 17 (7.6%) had implemented BHL. In bivariate analyses, PC clinics with psychologists or psychiatrists, greater financial sufficiency and greater spatial sufficiency were significantly more likely to implement BHL. Multivariate analyses largely confirmed bivariate results: clinics with established processes for quality improvement (OR 2.30, 95% CI [1.36, 3.87], p=0.002) or a depression clinician champion (OR 2.36, [1.14, 4.88], p=0.02) were more likely to adopt co-location. Clinics with greater IT sufficiency (OR 1.61, [0.97, 2.67], p=0.07) or located in VA regional networks that had endorsed TIDES (OR 8.42, [3.69, 19.26], p<0.001) were more likely to adopt TIDES.

Conclusions: Adoption of each PC-MHI approach was associated with different readiness factors. Better understanding of local readiness factors may be used to improve the match between PC-MHI approaches and local site resources.
Prevalence and Correlates for Nonmedical Use of Prescription Opioids Among Urban and Rural Residents

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Background: Nonmedical use of prescription opioids and its complications are increasing in the United States. Concurrently, there has been an increase in unintentional overdose deaths related to prescription opioids, in particular within rural areas. Little is known about the differences in prevalence and correlates of nonmedical use of prescription opioids among urban and rural residents.

Methods: We analyzed data from 2008–2009 National Survey on Drug Use and Health. We examined prevalence, type of opioid, and correlates of nonmedical use of prescription opioids among residents in large and small metropolitan (urban) compared with nonmetropolitan (rural) counties. We then examined bivariate and multivariate associations between nonmedical use of prescription opioids and sociodemographic and clinical characteristics, including age of first use of cigarettes, alcohol and illicit drugs and current (past year) use of these substances, stratified by urban and rural counties.

Results: Among our study population (n= 75964), prevalence of nonmedical use of prescriptions opioids was similar among residents in urban and rural counties (4.7% vs. 4.3%, p = 0.15). Rural residents with nonmedical use of prescription opioids were more likely than urban residents with nonmedical use to be white, have an income under $20,000 per year, report nicotine and stimulant use and less likely to have a high school education, be employed, report a good health status, or alcohol use (p<.05 for all comparisons). Among those with nonmedical use of prescription opioids, rural residents were also more likely than urban residents to use acetaminophen with propoxyphene (61.1% vs. 55.8%, p=0.02), methadone (14.8% vs. 9.1%, p=0.003) and acetaminophen with codeine (3.5% vs. 1.9%, p=0.05). Among urban and rural residents, those with severe mental illness, age of first use of illicit drugs before the age of 18, nicotine use, and nonmedical use of other prescription drugs were more likely to report nonmedical use of prescription opioids. Among urban residents only, those whose age of first use of illicit drugs between age of 18-25 (AOR 1.53, CI 1.11-2.11) and those with alcohol use (AOR 1.60, CI 1.20-2.13) were more likely to report nonmedical prescription use. Black and Hispanic urban residents were less likely to use prescription opioids nonmedically compared to white urban residents (Black AOR 0.62, CI 0.50-0.76; Hispanic AOR 0.68, CI 0.54-0.87). Rural residents reporting good health status were less likely to use prescription opioids nonmedically than residents reporting poor health status (AOR 0.62, CI 0.39-1.00).

Conclusions: Specific opioids and correlates of nonmedical use of prescription opioids differ between urban and rural counties. As characteristics differ by level of rurality, prevention and treatment interventions to address these problems may need to be tailored for specific communities.
The Ability of Single Screening Questions For Unhealthy Alcohol and Other Drug Use to Identify Substance Dependence In Primary Care

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Background: Single Screening Questions (SSQs) are recommended to identify unhealthy alcohol and other drug use (spectrum of risky use through dependence). But SSQs may also provide information on severity necessary to inform brief intervention thought to be obtainable only from longer questionnaires. We assessed SSQ accuracy for identifying patients with dependence.

Methods: In a cross sectional study in an urban primary care practice, subjects were administered the SSQs asking about heavy drinking and drug use [“How many times in the past year have you had 5 (4 for women) or more drinks in a day?” & “How many times in the past year have you used an illegal drug or used a prescription medication for nonmedical reasons?”], the Alcohol Use Disorders Identification Test-Consumption items (AUDIT-C), the Drug Abuse Screening Test (DAST), & the Composite International Diagnostic Interview reference standard for current dependence. All possible cutoffs were evaluated by receiver operating characteristic (ROC) curve. Sensitivity (Ss), specificity (Sp), positive predictive value (PPV) and likelihood ratios positive and negative (LR+, LR- along with 95% confidence intervals [CIs]) were assessed at cut points maximizing the sum of Ss and Sp (alcohol screening tests for alcohol dependence (AD), drug screening tests for drug dependence (DD)).

Results: Of 286 patients, 9% had AD and 12% DD; 31% reported heavy drinking ≥3 times, 22% ≥8 times in the past year; 30% reported drug use ≥3 times, 22% ≥8 times in the past year. The area under the ROC curve (AUC), the probability of distinguishing those with and without dependence, was high for all tests. The optimal cut points were ≥8 times for the alcohol SSQ, score ≥3 for the 3-item AUDIT-C, ≥3 times for the drug SSQ, and ≥4 for the 10-item DAST. Test characteristics appear in the table.

Conclusions: Single screening question (SSQ) results appear consistent with moderate to large changes in pre- to post-test probability of alcohol and other drug dependence (LR+ 5-10 and LR- 0.1-0.2 generate moderate changes in pre-to post-test probability (approximately +/-30-45%); LRs >10 or <0.1 may generate larger, clinically important changes). SSQs can identify alcohol and other drug dependence, with test characteristics similar to, or in the case of alcohol, possibly better than longer screening tools (based on positive likelihood ratio CIs). If confirmed in other studies SSQs may be useful for both screening and for severity assessment (to identify substance dependence), providing information needed and overcoming a barrier (lengthy questionnaires) to dissemination of screening and brief intervention in primary care settings.

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