

Editorial

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Homelessness, Mental Illness, Substance Abuse, and HIV: An Insidious Syndemic

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Mahatma Gandhi once said that the measure of a country's greatness is in how it treats its least fortunate members. In his last public speech, Hubert Humphrey echoed the same sentiment when he said "...the moral test of government is how that government treats those who are in the dawn of life, the children; those who are in the twilight of life, the elderly; those who are in the shadows of life; the sick, the needy and the handicapped" (Remarks at the dedication of the Hubert H. Humphrey Building, November 1, 1977, Congressional Record, November 4, 1977, vol 123, p. 37287). The obligation of a civilization to care for the sick and downtrodden goes back in history at least to Aristotle.

Homelessness and precarious housing environments have been shown to be associated with chronic conditions, poor physical and mental health, greater risk for HIV infection, inadequate health care, and early death.¹ It is clear that homelessness amplifies other risk factors and puts particular groups at greater risk for infection including women, youth, and racial and sexual minorities.^{2,3} Homelessness and unstable housing is an important indicator of extreme poverty, and is thought to be both causal and a result of the AIDS epidemic in the United States. Rates of HIV among homeless and unstably housed people are as much as 16 times higher than in the general population,³⁻⁵ and several investigators have found that more than half of People Living With HIV and AIDS (PLWHA) report experiencing homelessness or housing instability after learning about their diagnosis.^{6,7}

Homeless persons with Serious Mental Illness (SMI) are at increased risk for contracting and transmitting HIV.⁸⁻¹⁰ This increased vulnerability to HIV is thought to be due to risky sexual behavior, prostitution, vulnerability to sexual victimization, Injection Drug Use (IDU) and high rates of alcohol use as well as other substances. Others have found that adherence to HIV treatment regimen is poorer among homeless persons and persons with SMI. This creates a threat to individual health as well as constituting a public health threat due to higher viral loads and a greater potential for developing treatment resistant virus strains. Therefore, homeless persons with SMI can serve as a vector of HIV transmission. Methods for improving continuity of care between identification of people engaging in high risk behaviors, testing for their HIV status, improving their access to infectious disease care, and reinforcing linkage and adherence to care over time is of great public health significance. These patterns of co-occurring chronic conditions have been described as a syndemic.¹¹ Syndemics occur when two or more diseases or health conditions interact synergistically, and interact to contribute to excess burden of disease in a population. Syndemics arise when co-occurring health-related problems cluster by person, place, or time. This often occurs in persons with SMI who experience rates of other chronic conditions and high risk behaviors such as smoking, obesity, and drug use. Syndemics models have often included broad measures of physical and mental health, often referred to as Health-Related Quality of Life (HRQOL) to assess alternative interventions and health reform strategies.¹²

Recent efforts have produced some of the most comprehensive studies yet that establish the increased risk for individuals who are SMI, substance abusers, and HIV+. For example, our team first conducted a cross-sectional study¹³ using Medicaid claims data in Philadelphia as well as welfare eligibility files to estimate the prevalence of SMI and HIV

and the probability receiving an HIV diagnosis in the presence and absence of a co-occurring SMI. The results indicated that the treated period prevalence of HIV among persons without an SMI diagnosis was .3% compared to .8% of those with a schizophrenia diagnosis and 1.7% of those diagnosed with an affective disorder, for a total risk among those with SMI of 1.6%. The odds of having an HIV diagnosis given a diagnosis of schizophrenia was 1.52 after controlling for age, race, and length of time on welfare; the odds given a diagnosis of affective disorder was 3.87 after controlling for the same variables. We concluded that the rate of HIV was significantly elevated among persons diagnosed with SMI and that the risk for those with affective disorder was even higher than for schizophrenia.

The addition of substance abuse into the syndemic mix markedly raises the risk of co-morbid SMI and HIV seropositives. Several studies using convenience samples found high rates of HIV infection among persons newly admitted to New York City inpatient psychiatric facilities (5-8%), among homeless men with SMI (19%) and among those persons dually diagnosed with an SMI and substance abuse (23%).¹⁴ A large multi-site study of HIV prevalence that was conducted with psychiatric inpatients and outpatients in Connecticut, New Hampshire, Maryland and North Carolina found rates of 3.1%, or approximately ten times the rate observed in the general population.¹⁵ A large sample of persons with schizophrenia spectrum disorders treated through the Veterans Administration found an important interaction where people with schizophrenia and co-morbid substance abuse were much higher risk for HIV, but in the absence of any substance use diagnosis, people with schizophrenia alone were actually at substantially lower risk for HIV than the general VA population.¹⁶ Comprehensive screening for HIV risk among psychiatric inpatients should include a substance abuse screen. A recent study conducted in Philadelphia and Baltimore showed that persons in treatment for mental illnesses in inpatient and outpatient clinical settings were about 4 times as likely to be infected with HIV as others living in those cities, and about 16 times the rate in the general US population.¹⁷

People who are homeless, mentally ill, and impaired by substance use or abuse may also be non-adherent to HIV treatment. For those who do get tested and know their HIV positive status, consistent adherence to ART has resulted in significant reductions in viral loads and CD4 counts.^{18,19} Increasing linkage to care and adherence to treatment can result in more global health benefits due to reductions in community viral load as well more efficient use of infectious disease care and greater utilization of substance abuse and mental health.²⁰ Unfortunately, current estimates are that 45% to 55% of those who test positive for HIV infected never enter treatment.²¹⁻²³ Perhaps even more alarming are those who manage to enter treatment but are not retained²⁴⁻²⁷ since those people are at increased risk for developing treatment resistance.²⁸ The timing of treatment is also important. Standard of care has changed since research has shown that early initiation of ART has a potent effect on reduction of viral load.²⁹

Particularly concerning is the finding that persons engaged in injection drug use are disproportionately non-adherent and they also represent one of the most potent transmission vectors if they share needles.³⁰

As with any innovation in public health, questions regarding the cost effectiveness of integrative mental health, substance abuse, and infectious disease services. Costs associated with the service utilization of SMI with HIV is an area of interest and one in which our investigational team has demonstrated considerable experience. Rothbard, Blank and colleagues studied the economic costs associated with inpatient and outpatient care for persons with SMI and HIV³¹ and found that together, persons with SMI, HIV/AIDS or both made up only 6.2% of the Medicaid population but used 36% of the total expenditures. The SMI were 5.7% of the Medicaid population but used 30% of the total costs (7.9 times the costs of controls). Persons with HIV/AIDS were 0.3% of the population but used 2.5% of the costs (12.2 times the costs of controls), and persons with both SMI and HIV/AIDS made up only 0.2% of the population but used 3.0% of the resources (22.1 times the costs of controls). Clearly the group with co-occurring SMI and HIV/AIDS had the highest costs.

In order to better understand undetected metabolic and infectious disease in persons with SMI admitted to psychiatric inpatient care and to consider the potential benefits of initiating screening in these settings our team designed a remnant blood study.⁸ The study sample included 600 adult psychiatric patients with a diagnosis of serious mental illness admitted to two inpatient facilities. The subjects were primarily Medicaid recipients at high risk for metabolic illness and infectious diseases. We used an observational/naturalistic research design to gather evidence of the rates and types of undetected metabolic and infectious diseases in the inpatient population that would require interventions. Individual patient charts were abstracted to obtain data on diagnoses, demographics, treatment histories and pharmacological history prior to admission. Lab results from tests ordered by the unit were combined with lab results using discarded blood samples to obtain test results for blood glucose, cholesterol, triglycerides, HIV, hepatitis B and C, and hemoglobin A1c. Once information was entered and coded, all individual identifiers, other than the study ID was dropped from the files and data was linked. The final data set demographic information, prior treatment history, current treatment, pharmacologic history and lab results. The lab results showed that over 10% were HIV infected, 32% had Hepatitis B, 21% had Hepatitis C, 22% had high cholesterol levels and over 59% had Body Mass Indices (BMIs) above 25. The high incidence of somatic co-morbidities has been consistently documented in persons with psychiatric conditions. Perhaps because persons with long-term and persistent psychiatric disorders such as schizophrenia are more likely to suffer multiple chronic social and behavioral deficits, the majority of medical conditions do not receive adequate follow-up care. Next, we designed and demonstrated the effectiveness of an individually tailored treatment for syndemic persons called

Preventing AIDS Through Health (PATH).³²⁻³⁵ The PATH intervention utilized Nurse Health Navigators (NHNs) who were integrated into the model because of prior research which found improved outcomes for persons with HIV/AIDS with their involvement. HIV positive participants were recruited from among those already in treatment and if they also had a case manager for a serious mental illness, they were eligible for the study. We randomly assigned participants to the PATH intervention or control groups. PATH participants received an integrated intervention tailored to their own communication and comprehension needs which we describe as an “intervention cascade”. The intervention cascade included memory aid devices, education regarding side effects and other treatment aspects, and active community outreach provided by a nurse who delivered community-based care management at a minimum of one visit/week and coordinated their medical and mental healthcare for one year. In a Randomized Controlled Trial (RCT) 238 community-dwelling HIV- positive subjects with SMI who were in treatment at urban public mental health clinics from 2004-2008 were sampled. The main outcome measures were viral load and CD4 count at baseline and 12 months, and costs. Longitudinal models for continuous log viral load showed that the intervention group exhibited a significantly greater reduction in log viral load than did the control group at 12 months ($d = -0.384 \log_{10} \text{copies/mm}^3$ (95% CI = $-0.165, -0.606, p < 0.05$). Parallel process latent growth curve analyses demonstrated robust effects for biomarkers as well as indicators of mental health symptoms and health related quality of life through 24 months.³³ The PATH project tested the effectiveness of an individually tailored, community-based intervention delivered by a nurse health navigator to improve outcomes of individuals with HIV/SMI, and it demonstrated that persons with mental illnesses can be taught to adhere to HIV treatment successfully. This study demonstrated that persons with an SMI and HIV can achieve undetectable viral loads with appropriate supportive services.

In sum, delivery of comprehensive and individually tailored health care to homeless persons with HIV, mental illness, and substance abuse or dependence is complex and costly. However, to not provide that comprehensive care to people with these complex co-occurring conditions is very likely to be even costlier, both in terms of morbidity and mortality to those individuals, but also to the larger community where they live and with whom they interact. Not only is it the right thing to do, it is probably less costly in the long run than not providing adequate care.

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