



Health Care for the Homeless
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Bibliography #18

**Treatment Compliance
Among People Who are Homeless**

September 2004

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2004

Bogart L, Bird S, Walt L, Delahanty D, Figler J. **Association of stereotypes about physicians to health care satisfaction, help-seeking behavior, and adherence to treatment.** *Social Science and Medicine* 58(6): 1049-1058, 2004.

This article discusses three studies done to examine the role of patients' stereotypes about health care providers in the health care decision process. The first study examined the association of stereotypes to health care satisfaction and helpseeking behavior among a low-income clinic sample. The second study examined the relationship of stereotypes to satisfaction and adherence to treatment among low-income individuals living with HIV. The third study examined the association of stereotypes to satisfaction and help-seeking among a sample of homeless individuals. The authors assert that individuals who held more negative stereotypes about physicians sought care less often when sick, were less satisfied with the care that they did obtain, and were less likely to adhere to physician recommendations for treatment. The article also states that African Americans, but not whites, with more positive stereotypes reported better adherence in the second study and were more satisfied with their health care in the third study. The authors conclude that these findings point to the need to better understand the role of patients' beliefs about health care in predicting health care satisfaction and health behaviors (authors).

Gilmer T, Dolder C, Lacro J, Folsom D, Lindamer L, Garcia P, Jeste D. **Adherence to treatment with antipsychotic medication and health care costs among Medicaid beneficiaries with schizophrenia.** *American Journal of Psychiatry* 161(4): 692-699, 2004.

In this article, the authors evaluate the relationship between adherence to treatment with antipsychotic medication and health expenditures, as well as identify risk factors predictive of nonadherence. Medicaid eligibility and claims data from 1998 to 2000 for San Diego County and pharmacy records were used to assess adherence to treatment with antipsychotic medication. The authors assert that forty-one percent of Medicaid beneficiaries with schizophrenia were found to be adherent to treatment with their antipsychotic medications. The article states that the rates of both psychiatric and medical hospitalization were lower for those who were adherent than for those who were nonadherent, partially adherent, or had excess fills. The article also states that those who were adherent had significantly lower hospital costs than the other groups; pharmacy costs were higher among those who were adherent than among those who were nonadherent or partially adherent and were highest for excess fillers. The authors conclude that despite the widespread use of atypical antipsychotic medications, alarmingly high rates of both underuse and excessive filling of antipsychotic prescriptions were found in Medicaid beneficiaries with schizophrenia, and that the high rates of antipsychotic nonadherence and associated negative consequences suggest interventions on multiple levels (authors).

Giordano TP, Guzman D, Clark R, Charlebois ED, Bangsberg DR. **Measuring adherence to antiretroviral therapy in a diverse population using a visual analogue scale.** *HIV Clin Trls* 5(2):74-9, 2004.

PURPOSE: To examine the performance of an instrument to assess adherence based on a visual analogue scale, compared to an instrument based on 3-day recall, using unannounced pill counts in the place of residence as the gold standard. **METHOD:** We prospectively assessed adherence to antiretroviral therapy in 84 marginally housed indigent HIV-infected patients who were receiving stable antiretroviral therapy

in San Francisco, California, with three adherence assessments over no more than 4 months. RESULTS: Mean adherence using the visual analogue scale, 3-day recall, and unannounced pill count methods were 82.5%, 84.2%, and 75.9%, respectively. The correlation between visual analogue scale and unannounced pill count was high and was not statistically different from that between 3-day recall and unannounced pill count. Both methods were also similarly inversely correlated with HIV viral load. The visual analogue scale correlation with unannounced pill count was stable over time and remained high in all subpopulations examined. CONCLUSION: A visual analogue scale to assess adherence was performed as well as a more complicated 3-day recall instrument in this diverse population. Given its simplicity, the visual analogue scale adherence instrument will be useful in research and may be useful in routine patient care.

Tulsky JP, Hahn JA, Long HL, Chambers DB, Robertson MJ, Chesney MA, Moss AR. **Can the poor adhere? Incentives for adherence to TB prevention in homeless adults.** Int J Tub Lng Dis 8(1):83-91, 2004.

SETTING: Community-based population of homeless adults living in San Francisco, California. OBJECTIVE: To compare the effect of cash and non-cash incentives on adherence to treatment for latent tuberculosis infection, and length of time needed to look for participants who missed their dose of medications. DESIGN: Prospective, randomized clinical trial comparing a five-dollar cash or a five-dollar non-cash incentive. All participants received directly observed preventive therapy and standardized follow-up per a predetermined protocol. Completion rates and amount of time needed to follow up participants was measured. RESULTS: Of the 119 participants, 102 (86%) completed therapy. There was no difference between the cash and non-cash arms. Completion was significantly higher among males and persons in stable housing at study entry. No substance use or mental health measures were associated with completion. Participants in the cash arm needed significantly less follow-up to complete therapy compared to the non-cash arm. In multivariate analysis, non-cash incentive, use of crack cocaine, and no prior preventive therapy were associated with more follow-up time. CONCLUSION: Simple, low cost incentives can be used to improve adherence to TB preventive therapy in indigent adults.

Wagner G, Kanouse D, Koegel P, Sullivan D. **Correlates of HIV antiretroviral adherence in persons with serious mental illness.** AIDS Care 16(4): 501-506, 2004.

In this article, the authors discuss HIV antiretroviral adherence and its correlates among persons diagnosed with serious mental illness. The article states that ninety-six percent of participants completed a two-week study in which their adherence to antiretroviral medication was measured using electronic monitoring caps, and there were several correlates of adherence among background and medical characteristics, physical symptoms and side effects, cognitive and psychosocial functioning, and treatment-related attitudes and beliefs. The authors also state, however, that in a forward stepwise regression, attendance at recent clinical appointments was the sole predictor that entered the model--accounting for forty-nine percent of the variance in adherence, thus using attendance at recent clinic appointments as the criterion, adherence readiness was correctly determined for seventy-two percent of the sample. The article asserts that although not sufficient to serve as the basis for treatment decision making, review of appointment-keeping records may provide clinicians with a simple, cost-effective method for predicting adherence to ongoing treatment, as well as for evaluating adherence readiness to inform the decision of whether to prescribe or defer treatment (authors).

2003

Bangsberg DR, Charlebois ED, Grant RM, Holodniy M, Deeks SG, Perry S, Conroy KN, Clark R, Guzman D, Zolopa A, Moss A. **High levels of adherence do not prevent accumulation of HIV drug resistance mutations.** AIDS 17(13):1925-32, 2003.

OBJECTIVES: To assess the relationship between development of antiretroviral drug resistance and adherence by measured treatment duration, virologic suppression, and the rate of accumulating new drug resistance mutations at different levels of adherence. **METHODS:** Adherence was measured with unannounced pill counts performed at the participant's usual place of residence in a prospective cohort of HIV-positive urban poor individuals. Two genotypic resistance tests separated by 6 months were obtained in individuals on a stable regimen and with detectable viremia. The primary resistance outcome was the number of new HIV antiretroviral drug resistance mutations occurring over the 6 months between G1 and G2. **RESULTS:** High levels of adherence were closely associated with greater time on treatment and viral suppression in 148 individuals. In a subset of 57 patients with a plasma viral load of less than 50 copies/ml on stable therapy, the accumulation of new drug resistance mutations was positively associated with the duration of prior treatment and pill count adherence. Assuming fully suppressed individuals do not develop resistance, it was estimated that 23% of all drug resistance occurs in the top quintile of adherence, and over 50% of all drug resistance mutations occur in the top two quintiles of adherence. **CONCLUSION:** Increasing rates of viral suppression at high levels of adherence is balanced by increasing rates of drug resistance among viremic patients. Exceptionally high levels of adherence will not prevent population levels of drug resistance.

Clarke S, Delamere S, McCullough L, Hopkins S, Bergin C, Mulcahy F. **Assessing limiting factors to the acceptance of antiretroviral therapy in a large cohort of injecting drug users.** HIV Med 4(1): 33-37, 2003.

OBJECTIVE: A comprehensive questionnaire was designed to assess the knowledge and understanding of injecting drug users (IDUs) regarding their HIV disease, and to determine any factors that may increase the acceptance of antiretroviral therapy (ART) by this group. **RESULTS:** Twenty percent of the total IDU cohort attending the GUIDE (GenitoUrinary Medicine and Infectious Diseases) clinic participated in the study. Fifty-two percent had been homeless in the past 5 years and 84% are unemployed. Seventy-two percent of patients did not complete second level education and 10% were illiterate. Fifty-one percent had siblings or parents with a history of injection drug misuse, and 25% had at least one sibling also HIV positive. Forty-seven percent started using drugs before the age of 13 years, and the most common initial drug was heroin (44%). Ninety-five percent had attended for methadone maintenance therapy (MMT), with 39% currently attending for daily therapy. The majority of patients were unable to simply explain or interpret CD4 cell counts (54%) and 'viral loads' (65%). Fifty-seven percent of patients were receiving highly active antiretroviral therapy (HAART). There was a statistically significant association between patients receiving HAART and both attendance at a primary care physician for methadone maintenance therapy ($P = 0.005$), and weekly take-outs of methadone ($P = 0.005$). There was also an association between adherence to HAART and attendance at a methadone maintenance clinic ($P = 0.04$). **CONCLUSIONS:** This study highlights the chaotic lifestyle and complex social background of the IDU. Such factors were not, however, associated with acceptance of HAART. The primary factor associated with both the acceptance of and adherence to HAART was regular and stable attendance for methadone therapy.

Compton SN, Swanson JW, Wagner HR, Swartz MS, Burns BJ, Elbogen EB. **Involuntary outpatient commitment and homelessness in persons with severe mental illness.** Ment Hlth Serv Res 5(1): 27-38, 2003.

This study took preliminary steps to explore the relationship between involuntary outpatient commitment (OPC) and the risk of homelessness among individuals with severe mental disorders. Involuntarily hospitalized patients were randomly assigned to be released or maintained under OPC following hospital discharge. Multivariate analyses demonstrated that involuntary OPC was associated with a significant decrease in the risk of homelessness during the first 4 months following hospital discharge for participants with severe functional impairment at baseline. OPC did not appear to affect risk of homelessness among participants with mild-to-moderate functional impairment. Co-occurring substance abuse, treatment nonadherence, and outpatient services intensity were found to be strongly associated with episodes of homelessness. This study suggests that involuntary OPC may provide a short-term reduction in the risk of homelessness among a subgroup of treatment-reluctant individuals with severe mental disorders combined with severe functional impairment.

Menzin J, Boulanger L, Friedman M, Mackell J, Lloyd J. **Treatment adherence associated with conventional and atypical antipsychotics in a large state Medicaid program.** Psychiatric Services 54(5): 719-723, 2003.

In this article, the authors assessed the rates of medication adherence in outpatients with schizophrenia, over a one-year period, who initiated therapy with conventional or atypical antipsychotic agents. The article is based on data drawn from paid medical and pharmacy claims for a random sample of 10 percent of all California Medicaid recipients. Outpatients with schizophrenia who were aged 18 and older and who initiated monotherapy with a conventional or atypical antipsychotic medication in the last quarter of 1997 were identified. The percentages of patients who discontinued antipsychotic therapy or who had a switch in medications over a one year period were determined. The use of selected concomitant medications was also assessed. The authors conclude that compared with the use of conventional antipsychotics, the use of atypical antipsychotic medications are associated with significantly less treatment switching and less use of concomitant medications (authors).

Miller LG, Liu H, Hays RD, Golin CE, Ye Z, Beck CK, Kaplan AH, Wenger NS. **Knowledge of antiretroviral regimen dosing and adherence: A longitudinal study.** Clin Inf Dis 36(4):514-518, 2003.

In a cohort of 128 human immunodeficiency virus-infected patients, we found that patients' knowledge of antiretroviral dosing was suboptimal at regimen initiation but improved with time. Poor medication knowledge 8 weeks after regimen initiation was associated with lower adherence and with a lower level of literacy in a multivariate model. Because knowledge deficits are common after antiretroviral regimen initiation, clinicians should assess patients' understanding of medication dosing soon after regimen initiation or change.

Pulvirenti JJ, Glowacki R, Muppiddi U, Surapaneni N, Gail C, Kohl B, Jezisek T. **Hospitalized HIV-infected patients in the HAART era: A view from the inner city.** AIDS Patient Care STDS 17(11):565-73, 2003.

To evaluate hospitalizations of HIV-infected patients in the highly active antiretroviral therapy (HAART) era, we analyzed 2736 admissions of 1562 HIV-infected patients to Cook County Hospital from September 20, 1999 to July 10, 2002. Patients were predominantly African American, male, and active substance abusers. Only 48% of patients with a prior HIV diagnosis were taking HAART and 37% of

them had a viral load less than 1000 copies per milliliter. Patients on protease inhibitor (PI)-sparing regimens more frequently achieved a viral load less than 1000 copies per milliliter than those on a PI-containing regimens. For patients with CD4 cell counts less than 200 cells per milliliter, those not taking HAART were more likely African American, homeless, active substance abusers, female, new to the hospital system, or not recently seen in the outpatient clinic. In our population, active substance abuse was prevalent and only a minority of patients was taking HAART. Women were receiving HAART less often, independent of race and substance abuse. Aggressive programs are needed in high-risk populations to address substance abuse issues and to improve patient use of HAART.

Velligan D, Lam F, Ereshefsky L, Miller A. **Perspectives on medication adherence and atypical antipsychotic medications.** *Psychiatric Services* 54(5): 665-667, 2003.

In this article, the authors detail the abysmal compliance level of a group of patients in Texas, some of whom were living in supervised residences, and were receiving atypical antipsychotics. The authors describe their experiences with the first 68 patients recruited for participation in a five-year study of treatment and adherence and outcomes in schizophrenia, funded by the National Institutes of Health. Preliminary findings and clinical observations were sufficiently worrisome that the authors wanted to share them sooner rather than later. The article describes this data on adherence to the atypical antipsychotic medications and suggest ways to improve adherence. The authors suggest that compliance is a complex issue and needs more attention than is now devoted to it (authors).

2002

Aloisi MS, Arici C, Balzano R, Noto P, Piscopo R, Filice G, Menichetti F, d'Arminio Monforte A, Ippolito G; Italian Cohort Naive Antiretrovirals Behavioral Epidemiology Study Group. **Behavioral correlates of adherence to antiretroviral therapy.** *J Acquir Immun Def. Syn* 31(3): 145-148, 2002.

The objective of this study was to analyze the relationships between adherence to treatment and sexual and drug-taking behaviors among persons with HIV, who started combination antiretroviral therapy as their first regimen. The authors analyzed data from 366 patients enrolled in a multicenter observational cohort study conducted in infectious disease hospital units in Italy. Adherence measurement was based on responses to a self-administered questionnaire regarding following HIV physician advice on taking medications and missed appointments. Questions on sexual and drug-taking behaviors were also included in the questionnaire. The median time since starting antiretroviral therapy was 11.8 months; 37.4% of patients were on a two-drug regimen and 62.6% were on a three-drug regimen. Overall, 68 patients could be classified as nonadherent. The proportion of patients with viral load \leq 500 copies/mL was significantly higher among adherent patients compared with nonadherent patients. In multivariable analysis, age and current use of injection were significantly associated with nonadherence. No significant association was found between adherence and sexual behaviors. The data do not support the hypothesis that among HIV-infected person on antiretroviral therapy, poor adherence is associated with high-risk sexual behaviors that may further spread the infection.

Amonkar MM, Madhavan S. **Compliance rates and predictors of cancer screening recommendations among Appalachian women.** *J Health Care Poor Underserved* 13(4): 443-460, 2002.

High rates of morbidity and mortality in the Appalachian region of the country warrant examination of the preventive care behavior of its residents. This study determined compliance rates for breast and cervical cancer screening recommendations for women residing in Appalachian states and identified predictors of such compliance using the Behavioral Risk Factor Surveillance System data (1995-97). Healthy People 2000 goals were used as benchmarks for progress. Appalachian women have made good progress toward goals pertaining to breast and cervical cancer screening. Compliance with other preventive services, having insurance coverage, residing in urban areas, better self-reported health, and higher education were independently associated with increased odds of compliance with annual-screening recommendations. Risk factors of obesity and smoking were associated with decreased odds of compliance. Findings should be useful to health care providers, policy makers, and researchers in their efforts to educate, encourage, and promote preventive care behavior among residents of Appalachia.

Hinkin CH, Castellon SA, Durvasula RS, Hardy DJ, Lam MN, Mason KI, Thrasher D, Goetz MB, Stefaniak M. **Medication adherence among HIV+ adults: Effects of cognitive dysfunction and regimen complexity.** *Neurology* 59(12): 1944-1950, 2002.

BACKGROUND: Although the use of highly active antiretroviral therapy in the treatment of HIV infection has led to considerable improvement in morbidity and mortality, unless patients are adherent to their drug regimen, viral replication may ensue and drug-resistant strains of the virus may emerge. **METHODS:** The authors studied the extent to which neuropsychological compromise and medication regimen complexity are predictive of poor adherence in a convenience sample of 137 HIV-infected adults. Medication adherence was tracked through the use of electronic monitoring technology. **RESULTS:** Two-way analysis of variance revealed that neurocognitive compromise as well as complex medication regimens were associated with significantly lower adherence rates. Cognitively compromised participants on more complex regimens had the greatest difficulty with adherence. Deficits in executive function, memory, and attention were associated with poor adherence. Logistic regression analysis demonstrated that neuropsychological compromise was associated with a 2.3 times greater risk of adherence failure. Older age was also found to be associated with significantly better adherence. HIV-infected adults with significant neurocognitive compromise are at risk for poor medication adherence, particularly if they have been prescribed a complex dosing regimen. As such, simpler dosing schedules for more cognitively impaired patients might improve adherence.

Wilk T, Mora PF, Chaney S, Shaw K. **Use of an insulin pen by homeless patients with diabetes mellitus.** *J Am Acad Nurs Pract* 14(8): 372-379, 2002.

PURPOSE: To assess the impact of an insulin delivery system, the NovoPen, on diabetes treatment for the homeless. **DATA SOURCES:** Homeless patients with diabetes and using insulin were identified from a registry of patients with diabetes maintained at the Homeless Outreach Medical Services clinical sites. Baseline evaluations included glycosylated hemoglobin measurements and a questionnaire about the patient's current treatment practices. Patients were instructed in the use of the NovoPen; HbA1c measurements and questionnaires were repeated after 3 and 6 months of participation. **CONCLUSIONS:** Reductions of HbA1c were observed at 3 and 6 months. The authors concluded that use of the pen improved patient compliance and thus glycemic control. **IMPLICATIONS FOR PRACTICE:** Patients had improved quality of life after using the pen to administer insulin. Nurse practitioners should recognize quality of life issues when treating patients with chronic diseases. Nurse practitioners who care for homeless diabetes patients can promote better care for this population by educating homeless shelter staff about diabetes and its management.

2001

Bangsberg DR, Hecht FM, Clague H, Charlebois ED, Ciccarone D, Chesney M, Moss A. **Provider assessment of adherence to HIV antiretroviral therapy.** *J Acq Imm Defic Syndr*, 26(5):435-42, 2001.

BACKGROUND: Adherence assessment is an essential component of monitoring HIV antiretroviral therapy. Prior studies suggest that medical providers frequently estimate individual patient adherence inaccurately. **OBJECTIVE:** We compared provider estimates of nonadherence to antiretroviral therapy with unannounced pill counts and structured patient interviews to determine the accuracy of adherence information obtained by providers and patients. **DESIGN, SETTING, AND PARTICIPANTS:** Comparison of three adherence measures in homeless or marginally housed persons receiving HIV antiretroviral therapy and their providers. **MEASUREMENTS:** Provider estimate of percentage of pills taken; three successive patient structured reports of number of doses missed in the last 3 days; and three successive unannounced pill counts. **RESULTS:** 13% of patients were not following their regimen as directed. Provider-adherence estimate explained only 26% of the variation in pill count adherence, whereas patient report explained 72%. The sensitivity and specificity of provider estimates of nonadherence, defined as <80% of pills taken by pill count, were 40% and 85%, respectively. The sensitivity and specificity of patient interview were 72% and 95%, respectively. **CONCLUSIONS:** Provider estimate of adherence was inaccurate whereas structured patient report was more closely related to pill count. Structured assessment over several short intervals may improve accuracy of adherence assessment in clinical practice.

Kushel MB, Vittinghoff E, Haas JS. **Factors associated with the health care utilization of homeless persons.** *JAMA*, 2285(2):200-6, 2001.

Homeless persons face numerous barriers to receiving health care and have high rates of illness and disability. Factors associated with health care utilization by homeless persons have not been explored from a national perspective. To describe factors associated with use of and perceived barriers to receipt of health care among homeless persons. A total of 2974 currently homeless persons interviewed through homeless assistance programs throughout the United States in October and November 1996. Overall, 62.8% of subjects had 1 or more ambulatory care visits during the preceding year, 32.2% visited an emergency department, and 23.3% had been hospitalized. However, 24.6% reported having been unable to receive necessary medical care. Of the 1201 respondents who reported having been prescribed medication, 32.1% reported being unable to comply. After adjustment for age, sex, race/ethnicity, medical illness, mental health problems, substance abuse, and other covariates, having health insurance was associated with greater use of ambulatory care, inpatient hospitalization, and lower reporting of barriers to needed care and prescription medication compliance. Insurance was not associated with emergency department visits. In this nationally representative survey, homeless persons reported high levels of barriers to needed care and used acute hospital-based care at high rates. Insurance was associated with a greater use of ambulatory care and fewer reported barriers. Provision of insurance may improve the substantial morbidity experienced by homeless persons and decrease their reliance on acute hospital-based care.

Sension MG, Farthing C, Shaffer AG, Graham E, Siemon-Hryczyk P, Pilson RS. **Challenges of antiretroviral treatment in transient and drug-using populations: The SUN study.** *AIDS Patient Care*, 15(3):129-36, 2001.

This is an open-label, single-arm, phase 3b study (part of phase 3 development) to evaluate the efficacy and safety of Fortovase-soft gelatin formulation, combined with zidovudine (ZDV) and lamivudine, human immune deficiency virus type 1 in -positive, antiretroviral-naive individuals. Forty-two HIV-1-positive adults with plasma HIV RNA >10,000 copies per milliliter and CD4 cell count >100 cells/mm³ were treated with SQV-SGC, 1200 mg three times per day; ZDV, 300 mg; and 3TC, 150 mg each twice per day for 48 weeks. High proportions were drug users, demonstrated psychiatric disorders, or were inadequately housed. At 48 weeks, 50% of patients achieved viral suppression X400 copies per milliliter with 43% <20 copies per milliliter using an intent-to-treat analysis. Corresponding proportions for patients remaining on therapy at 48 weeks were 91% <400 copies per milliliter and 78% <20 copies per milliliter. Most adverse events were mild. Saquinavir-SGC combined with ZDV and 3TC, achieved potent and durable HIV RNA suppression and was well tolerated over 48 weeks in an antiretroviral-naive population including high proportions of individuals considered difficult to treat, such as drug users, people with psychiatric problems and homeless individuals.

Torrey EF, Zdanowicz M. **Outpatient commitment: What, why, and for whom.** *Psychiatr Serv*, 52(3):337-41, Mar 2001.

The authors describe studies showing the effectiveness of involuntary outpatient commitment in improving treatment compliance, reducing hospital readmission, and reducing episodes of violence among persons with severe psychiatric illnesses. They point out that because of its role in enhancing compliance with treatment, outpatient commitment can be regarded as a form of assisted treatment, such as assertive case management, representative payeeship, and mental health courts. The authors argue that such assisted treatment is necessary for persons with severe psychiatric illnesses who are noncompliant with their medication regimens because many lack awareness of their illnesses because of biologically based cognitive deficits. They recommend outpatient commitment for any individual with a severe psychiatric disorder who has impaired awareness of his or her illness and is at risk of becoming homeless, incarcerated, or violent or of committing suicide, and they provide case examples. The authors conclude by addressing eight of the most common objections to outpatient commitment by mental health professionals and civil liberties groups that oppose outpatient commitment.

1999

Alvidrez J. **Ethnic variations in mental health attitudes and service use among low-income African American, Latina, and European American young women.** *Community Mental Health Journal* 35(6): 515-529, 1999.

This article examines the predictors of mental health service use among patients in an ethnically diverse public-care women's clinic. While waiting for their clinic appointments, 187 Latina, African American and White women were interviewed about their attitudes towards mental illness and mental health services. White women were much more likely to have made a mental health visit in the past than the ethnic minority women. Having a substance use problem, use of mental health services by family or friends, and beliefs about causes of mental illness were all predictors of making a mental health visit.

Bock NN; Metzger BS; Tapia JR; Blumberg HM. **A tuberculin screening and isoniazid preventive therapy program in an inner-city population.** Am J Respir Crit Care Med, 159(1):295-300, 1999.

As tuberculosis transmission decreases, case rates decline and an increasing proportion of cases arises from the pool of persons with latent infection. Elimination of tuberculosis will require preventing disease from developing in infected persons. From 1994 to 1996 the Atlanta TB Prevention Coalition conducted a community-based tuberculin screening and isoniazid preventive therapy project among high-risk inner-city residents of Atlanta, Georgia. We established screening centers in outpatient waiting areas of the public hospital serving inner-city residents, the city jail, clinics serving the homeless, and with outreach teams in neighborhoods frequented by drug users. All services were provided free. A total of 7,246 persons participated in tuberculin testing; 4,701 (65%) adhered with skin test reading, 809 (17%) had a positive test, 409 (50%) fit current guidelines for isoniazid preventive therapy, 84 (20%) we intended to treat completed therapy. The major limitations of this community-based tuberculin screening and preventive therapy project were the low proportion of infected individuals who were eligible for isoniazid preventive therapy and the poor adherence with a complete regimen among those we intended to treat. For community-based programs to be efficacious, preventive therapy regimens that are of shorter duration and safe for older persons will need to be implemented.

1998

Lash SJ. **Increasing participation in substance abuse aftercare treatment.** Am J Drug Alcohol Abuse, 24(1):31-36, 1998.

Increasing the length of participation in alcohol and drug treatment is associated with improved outcomes (1). The present study was designed to increase substance abuse aftercare participation following completion of inpatient treatment. We compared the effect of a 20-minute aftercare orientation session to a minimal treatment condition on aftercare group therapy participation. The orientation session was conducted by an aftercare group therapist, who met with the participant to encourage him to attend aftercare, to explain why aftercare is helpful, and to have him sign an aftercare participation contract. Participants in the minimal treatment condition watched a videotape on motivation to reach goals. Participants were 40 males in an inpatient substance abuse treatment program at a Veterans Affairs Medical Center (VAMC). Ninety percent were alcohol dependent; 35% were cocaine dependent; 10% were marijuana dependent; and 10% were polysubstance dependent. Participants who received the aftercare orientation were more likely to attend aftercare than those who received the minimal treatment. Additionally, the former group attended more sessions than those who were not oriented to aftercare. The utility and limitations of a brief orientation session on aftercare adherence are discussed.

Malotte C K; Rhodes F; and Mais K. **Tuberculosis screening and compliance with return for skin test reading among active drug users.** Am J of Public Health, 88(5): 792-796, May 1998.

OBJECTIVES: This study assessed the independent and combined effects of different levels of monetary incentives and a theory-based educational intervention on return for tuberculosis (TB) skin test reading in a sample of active injection drug and crack cocaine users. Prevalence of TB infection in this sample was also determined. **METHODS:** Active or recent drug users (n=1004), recruited via street outreach techniques, were skin tested for TB. They were randomly assigned to one of two levels of monetary incentive (\$5 and \$10) provided at return for skin test reading, alone or in combination with a brief motivational educational session. **RESULTS:** More than 90% of those who received \$10 returned for skin test reading, in comparison with 85% of those who received \$5 and 33% of those who received no

monetary incentive. The education session had no impact on return for skin test reading. The prevalence of a positive tuberculin test was 18.3%. **CONCLUSIONS:** Monetary incentives dramatically increase the return rate for TB skin test reading among drug users who are at high risk of TB infection.

Malow R; McPherson S; Klimas N; et al. **Adherence to complex combination antiretroviral therapies by HIV-positive drug abusers.** *Psychiatric Services*, 49(8): 1021-2, August 1998.

An important current issue in the efficacy of the new combination antiretroviral therapies for treating HIV-positive individuals is the ability of recovering drug abusers who are IV-positive and living in poverty to adhere to these new complex and demanding regimens. Less than excellent adherence can have serious consequences, not only for the individual but for the community as well, due to the transmission of drug-resistant HIV by nonadherent persons and the increased virulence of the mutated strains. This article reviews two preliminary adherence studies, conducted in 1997: (1) designed to understand barriers to adherence and (2) examined the effects of a brief intervention to enhance adherence. These studies may guide efforts to develop a brief intervention to enhance adherence to combination antiretroviral therapies among predominantly poor drug-abusing men.

1997

Buchanan R. **Compliance with tuberculosis drug regimens: Incentives and enablers offered by public health departments.** *Am J Public Health*, 87(12): 2014-7, December 1997.

OBJECTIVES: This research examined incentives implemented by public health departments to encourage tuberculosis (TB) patients to comply with TB drug regimens. **METHODS:** A questionnaire addressing incentives was mailed to the directors of each state's health department during May 1995. All 50 states and the District of Columbia returned questionnaires. **RESULTS:** The survey results indicate that public health departments in almost all states are implementing the incentives advocated by TB experts. **CONCLUSIONS:** The implementation of these incentives may help to explain why the incidence of TB resumed its long-term decline in the U. S. during 1993 after a decade of resurgence.

Dixon L; Weiden P; Torres M; Lehman A. **Assertive community treatment and medication compliance in the homeless mentally ill.** *American Journal of Psychiatry* 154(9): 1302-1304, 1997.

This article describes a study that examined medication compliance rates among a group of homeless mentally ill subjects who received assertive community treatment. Medication compliance of 77 homeless persons referred to an assertive community treatment program was evaluated at baseline and quarterly for one year. Results indicated that 29% of the cohort was compliant at entry into the program. Compliance increased after three months to 57% and remained high throughout the year. Medication compliance was also found to be associated with fewer psychiatric symptoms but not with better housing placements or fewer days in the hospital. The authors conclude the results of this study to suggest that assertive community treatment intervention rapidly improves medication compliance rates among homeless persons.

Lyons C. **HIV drug adherence: Special situations.** J Assoc Nurses AIDS Care, 8 Suppl:29-36, 1997.

Among the highly diverse population of persons living with HIV/AIDS are individuals with particularly challenging life circumstances that can be called "special situations." Substance abuse and homelessness are examples of special situations that require additional consideration when attempting to determine the appropriateness of prescribing complex antiretroviral regimens. When individual cases are examined in the context of relevant models of care and the principles of those models applied, such clinical decisions can be made with the patient. Withholding protease inhibitors from an entire population group, it is argued, is the epitome of practicing bad medicine.

Mangura BT; Passannante MR; Reichman LB. **An incentive in tuberculosis preventive therapy for an inner city population.** Int J Tuberc Lung Dis, 1(6):576-578, 1997.

SETTING: Measures known to improve adherence such as short course chemoprophylaxis and directly observed therapy can be enhanced to a significant extent/by the use of incentives. Adherence to tuberculosis therapy is influenced by several factors, including the health care system, complexity of therapeutic regimens and patient's characteristics. Individual factors that negatively influence patient's adherence are the most difficult to counter. Preventive tuberculosis therapy is doubly challenging because the benefit of treatment is not felt, while toxicity from the medication, when it occurs, is experienced immediately. Ingenious incentives therefore have to make it worth the patient's while. During a study on preventive regimens, a request for an incentive, Sustacal, was observed to help completion of preventive regimens. Components of individual TB programs may help in patient adherence; it is important for health care staff to identify these aspects and, if they are successful, utilize these as an incentive to complete treatment.

Nageotte C; Sullivan G; Duan N; Camp PL. **Medication compliance among the seriously mentally ill in a public mental health system.** Social Psychiatry and Psychiatric Epidemiology, 32(2):49-56, 1997.

The authors explain that medication non-compliance, a pervasive problem among persons with serious mental illness, has been linked to increased inpatient resources use in public mental health systems. The objective of this analysis was to determine which factors are associated with medication compliance in this population so that more appropriate screening and intervention programs can be designed. Using knowledge gained from clinical research on compliance in schizophrenia and research testing the Health Belief Model as a conceptual framework in studying compliance behavior, the authors conducted a secondary analysis of data collected in the Mississippi public mental health system in 1988. The study objects were patients who have schizophrenia, the majority of whom were low-income African-American males. Results show receipt of consistent outpatient mental health treatment and belief that one had a mental illness were significantly associated with higher levels of medication compliance in this population. Results suggest that screening programs to identify those at highest risk for non-compliance might be more productive if they included a review of inpatient and outpatient mental health service utilization patterns, in addition to formal assessment of patients' attitudes and beliefs about their illness.

Pablos-Mendez A; Knirsch CA; Barr RG; Lerner BH; Frieden TR. **Nonadherence in tuberculosis treatment: Predictors and consequences in New York City.** Am J Med, 102(2):164-170, 1997.

BACKGROUND: Poor adherence to antituberculosis treatment is the most important obstacle to tuberculosis (TB) control. PURPOSE: To identify and analyze predictors and consequences of nonadherence to antituberculosis treatment. PATIENTS AND METHODS: Retrospective study of a citywide cohort of 184 patients with TB in New York City, newly diagnosed by culture in April

1991-before the strengthening of its control program-and followed up through 1994. Follow-up information was collected through the New York City TB registry. Nonadherence was defined as treatment default for at least two months. RESULTS: Eighty-eight of the 184 patients were nonadherent. Greater nonadherence was noted among blacks, injection drug users, homeless, alcoholics, and HIV-infected patients; also, census-derived estimates of household income were lower among nonadherent patients. Only injection drug use and homelessness predicted nonadherence, yet 46 of 117 patients who were neither homeless nor drug users were nonadherent. Nonadherent patients took longer to convert to negative culture, were more likely to acquire drug resistance, required longer treatment regimens, and were less likely to complete treatment. There was no association between treatment adherence and all-cause mortality. CONCLUSIONS: In the absence of public health intervention, half the patients defaulted treatment for two months or longer. Although common among the homeless and injection drug users, the problem occurred frequently and unpredictably in other patients. Nonadherence may contribute to the spread of TB and the emergence of drug resistance, and may increase the cost of treatment. These data lend support to directly observed therapy in TB.

Porat H; Marshall G; Howell W. **The career beliefs of homeless veterans: Vocational attitudes as indicators of employability.** *Journal of Career Assessment* 5(1): 47-59, 1997.

This article analyzes homeless veterans' attitudes toward employment. Using the Career Beliefs Inventory (CBI) the vocational attitudes of 279 homeless veterans were compared to those of two control groups: one employed, and the other unemployed. Even though the three groups had significant demographic, medical, and social differences, there were remarkable similarities in how they viewed employment, including having a high interest in achieving and improving their socioeconomic conditions; desire to excel over others within the workplace; interest in learning new job skills; and believing that obstacles can be overcome, undermining the common notion that homeless veterans are unwilling to take active, positive steps to improve their employability.

Satel S; Reuter P; Hartley D; Rosenheck R; Mintz J. **Influence of retroactive disability payments on recipients' compliance with substance abuse.** *Psychiatric Services* 48(6): 796-799, 1997.

This article examines whether substance abusers who received large retroactive payments from Social Security disability programs were more likely to terminate residential treatment precipitously than those who did not receive payments. The records of 43 patients of a long-term residential treatment facility who received disability payments at some point during their treatment stay were blindly examined. Twenty-six of these patients received a large one-time retroactive payment representing money that accumulated during processing of the claims. To test the hypothesis that receipt of such a payment would lead to abrupt discharge, a survival regression model was used. A control group of nonrecipient patients was sampled at a comparable point in treatment. Subjects in the recipient group were significantly more likely to have unplanned discharges than those in the comparison group. These preliminary data suggest that large cash infusions can be disruptive to the course of treatment for substance abusers.

Twaite JA; Lampert DT. **Outcomes of mandated preventive services programs for homeless and truant children: A follow-up study.** *Social Work*, 42(1):11-18, 1997.

This study examined factors predicting favorable outcomes for families participating in mandated preventative services (MPS) programs, which included a truancy diversion program and a program for adolescents from homeless families. Case records of 100 families referred out of the program between 1989 and 1994 were reviewed to ascertain social workers' ratings of five factors predicting successful outcomes. Criterion measures included compliance with the termination plan and ratings of the child's

adjustment six months after MPS termination. Results indicated that the criterion measures were related significantly to four predictive factors: severity of the child's pathology, intensity of parental involvement in treatment, parental attendance, and parental understanding of the child's pathology.

Weis SE. **Universal directly observed therapy. A treatment strategy for tuberculosis.** Clin Chest Med, 18(1):155-163, 1997.

Patient adherence to prescribed TB regimens must be assured to prevent relapse, acquired resistance, and transmission. Directly observed therapy (DOT), an outpatient management strategy designed to ensure adherence, is not widely used because it is perceived to be inordinately expensive. This article discusses universal (observed therapy for all patients), as opposed to selective (observed taking medications only if certain selection criteria are satisfied), DOT in the treatment of TB patients. Topics addressed include cost, efficacy, nonadherence, and implementation guidelines.

1996

Baier M; Murray R; North C; Lato M; Eskew C. **Comparison of completers and noncompleters in a transitional residential program for homeless mentally ill.** Issues Ment Health Nurs, 17:337-52, July-August 1996

Two groups of clients in a transitional residential program, designated as completers and noncompleters, were compared to evaluate program effectiveness. Clinical records of 228 former clients were examined for demographics, needs on admission, participation in activities, length of stay, psychiatric diagnosis, and type of discharge. This program discharged 48% (110) of the residents according to the contract established on admission. Mean length of stay for program completers was 143 days; length of stay varied for noncompleters. Subjects who completed the program were more likely to obtain permanent housing than noncompleters. Participation in at least two activities while in residence was significantly related to program completion. Type of discharge or length of stay did not vary significantly by Axis I psychiatric diagnosis, including chemical dependence, or gender.

Greenberg WM; Moore-Duncan L; Herron R. **Patients' attitudes toward having been forcibly medicated.** Bulletin of the American Academy of Psychiatry Law 24(4): 513-524, 1996.

The authors explain that forced medication procedures are generally perceived to be clinically necessary options. Previous studies have explored forcibly medicated patients' attitudes concerning these procedures, but as patients were interviewed while still in the hospital, this may have affected their responses. The authors interviewed consecutively forcibly medicated patients after their discharge by a clinician not involved with their treatment. Of those who were successfully interviewed, 47% had received forced injections, the remainder had accepted oral medication under duress. Recollecting their experiences, 57% professed fear of side effects, 17% fear of addiction, 17% objected to others controlling them, 40% felt angry, 33% felt helpless, 23% fearful, 13% embarrassed, but 23% were relieved. Sixty percent retrospectively agreed to having been coerced, 53% stating they were more likely to take medication in the future. Other forcibly medicated patients had poorer outcomes, such as rapid readmission or discharge to a state hospital.

Klinkenberg WD; Calsyn RJ. **Predictors of receipt of aftercare and recidivism among persons with severe mental illness: A review.** *Psychiatric Services*, 47(5): 487-496, 1996.

This paper provides a comprehensive review of research predicting receipt of aftercare and recidivism (rehospitalization) among individuals who have serious mental illness. In general, variables related to system responsiveness were no more consistent predictors of recidivism than variables related to either client vulnerability or community support. Assertive community treatment and receipt of aftercare were also associated with lower rates of rehospitalization. Five main conclusions are drawn including: (1) system responsiveness variables are more consistent predictors of receipt of aftercare than client vulnerability and community support variables; (2) client vulnerability variables as a group have not been consistent predictors of receipt of aftercare; (3) lack of medication compliance and previous psychiatric hospitalization are the only two client vulnerability variables that have consistently been shown to predict greater recidivism; (4) most, but not all, of the informal support variables have been found to be associated with reduced recidivism; and (5) case management is associated with less recidivism.

Owen RR; Fischer EP; Booth BM; Cuffel BJ. **Medication noncompliance and substance abuse among patients with schizophrenia.** *Psychiatric Services* 47(8): 853-858, 1996.

The study examined the effect of medication noncompliance and substance abuse on symptoms of schizophrenia. Short-term inpatients with a diagnosis of schizophrenia were enrolled in a longitudinal outcomes study and continued to receive standard care after discharge. At baseline and six-month follow-up, Brief Psychiatric Rating Scale scores and data on subjects' reported medication compliance, drug and alcohol abuse, usual living arrangements, and observed side effects were obtained from medical records.

Pilote L; Tulskey JP; Zolopa AR; Hahn JA; Schechter GF; Moss AR. **Tuberculosis prophylaxis in the homeless. A trial to improve adherence to referral.** *Arch Intern Med*, 156(2):161-5, January 22, 1996.

BACKGROUND: Adherence to tuberculosis evaluation is poor in a high-risk population such as the homeless. **OBJECTIVE:** To test two interventions aimed at improving adherence to tuberculosis evaluation and to identify predictors of adherence. **METHODS:** We conducted a randomized clinical trial in shelters and food lines in the inner city of San Francisco, Calif. We randomized 244 eligible subjects infected with tuberculosis to (1) peer health adviser, (2) monetary incentive, or (3) usual care. The primary outcome of the study was adherence to a first follow-up appointment at the tuberculosis clinic, where subjects were evaluated for active tuberculosis and the need for isoniazid prophylaxis. **RESULTS:** Of the subjects assigned to a monetary incentive, 69 completed their first follow-up appointment, compared with 62 subjects assigned to a peer health adviser and 42 subjects assigned to usual care. Adherence was higher in the monetary incentive and peer health adviser groups than in the usual care group. Patients not using intravenous drugs and patients 50 years of age or older were more likely to adhere to a first follow-up appointment. Among the 173 tuberculosis-infected subjects who completed their appointment, isoniazid therapy was started for 72 individuals, and three cases of active tuberculosis were identified. **CONCLUSION:** A monetary incentive or a peer health adviser is effective in improving adherence to a first follow-up appointment in homeless individuals infected with tuberculosis. A monetary incentive appears to be superior. Intravenous drug users and young individuals are at high risk for poor adherence to referral.

1995

Clark RE; Drake RE; McHugo GJ; Ackerson TH. **Incentives for community treatment: Mental illness management services.** Medical Care, 33(7):729-738, 1995.

The authors explain that serving people with mental and other chronic illnesses in community settings may improve compliance and satisfaction with treatment, but existing payment mechanisms often favor office-based treatment. This article describes a study examining the effect of a change in Medicaid payment on the location and amount of service provided by case managers. Amounts of service given by treatment providers to 185 of their clients in community settings and in mental health centers were compared before and after reimbursement changed from an all-inclusive prospective rate to a mixed prospective/retrospective payment. Clients were enrolled in two different treatment programs: continuous treatment teams with extensive training in in vivo treatment, and a case management program that emphasized office-based treatment. Results show that mixed prospective and retrospective reimbursement can remove financial barriers to in-community treatment, but the mix works best in combination with a training program. The authors suggest further research to determine the precise financial impact of such changes.

Fawcett J. **Compliance: Definitions and key issues.** J Clin Psychiatry, 56 Suppl 1:4-8, 1995.

Issues surrounding treatment compliance can be considered for a number of clinical situations. For clinicians, compliance usually means "the extent to which the patient takes the medications as prescribed." Instead of "compliance," it has been suggested that the term adherence be used, which puts more of a burden on the clinician to form a therapeutic alliance with the patient, which thereby increases behavioral compliance and possibly enhances the therapeutic effect of the medication administered. The trend toward placing more responsibility on the clinician to obtain compliance or adherence to the prescribed treatment has resulted in several strategies. These include explaining the illness and the rationale for the use of medication for its treatment, inquiring into the patient's hesitation and fears concerning medication, and using various educational approaches with the patient and the patient's significant other concerning possible side effects. Different clinical settings and situations also may modify the emphasis needed to maximize compliance. The situation of continuation and maintenance treatment may require a different treatment procedure for maximum success. The emphasis must vary quite a bit from the patient who improves and needs education to be convinced to continue maintenance treatment to the patient who has a treatment-resistant depression and needs close support and maintenance of hope to continue treatment that, up until the present, has not yielded positive results. Shifting the focus of compliance from the patient to the skill of the clinician refocuses the issue from a patient variable back to the art and science of good medicine.

1994

Centers for Disease Control and Prevention, Div. of Tuberculosis Elimination. **Improving patient adherence to tuberculosis treatment**, U.S. Dept. of Health and Human Services, CDC, 1994.

This booklet describes strategies and perspectives for improving adherence to TB treatment. These strategies are geared toward the concept of providing individualized services that are sensitive to the health, social, cultural, and economic needs of persons with TB. The booklet covers the following topics: basic assumptions underlying the care of persons with TB; getting to know your patient; predicting and assessing adherence; strategies for improving adherence; problem solving; adherence by children and adolescents; and legal remedies for ensuring adherence. This information is intended for health care workers who provide TB. AVAILABLE FROM: CDC Voice Information System (404) 639-1819. CDC Fax Information System (404) 332-4565.

Draine J; Solomon P. **Explaining attitudes toward medication compliance among a seriously mentally ill population**. *The Journal of Nervous and Mental Disease* 182(1):50-54, 1994.

This article explores how social relations, activities and networks affect attitudes toward medication compliance. Data were collected as part of a randomized clinical study of the efficacy of services provided by a team of case managers composed primarily of mental health service consumers. The results indicate that building social relations and increasing social activity as a strategy to expand a client's social network contributes to improved attitudes toward medication compliance.

Francell, EG. **Medication: The foundation of recovery**. *Innovations and Research* 3(4):31-40, 1994.

For many consumers, proper medication management can provide the necessary foundation for recovery from mental illness. This article discusses issues surrounding medication management including: compliance; coercion; rehabilitation opportunities; education and support; and medication effectiveness. The authors suggest that a collaborative approach to medication management involving both the consumer and the mental health professional maximizes medication effectiveness and compliance.

Sachs-Ericsson; Ciarlo JA; Tweed D; Dilts S; Casper E. **Brief report: The Colorado homeless mentally ill. Users and nonusers of services: An empirical investigation of 'difficult to treat' characteristics**. *Journal of Community Psychology*, 22(4):339-345, 1994.

This study examined the mental health problems of a selected case sample of homeless men and women who have mental illnesses in Colorado. The sample was selected to compare homeless people who have mental illnesses and use mental health services with those who do not. Findings show that although the homeless people with mental illnesses are slightly more dysfunctional than the non-users, the rates of serious disorders are high among both groups. Current users of mental health services, particularly voluntary users, were found to have fewer "difficult to treat" characteristics than the nonusers.

Warner L.A; Silk K; Yeaton WH; Bargal D; Janssen J; Hill EM. **Psychiatrists' and patients' views on drug information sources and medication compliance.** Hosp Comm Psych 45(12):1235-1237, 1994.

This study compared the specific sources of information about medication that persons with mood disorders report they use with the sources psychiatrists believe their patients use. The study also assessed whether psychiatrists and patients had the same perception about the frequency that patients ask psychiatrists about medications. Because knowledge of medications is likely to affect adherence to treatment protocols, beliefs about compliance factors were also examined. Data was gathered from a larger exploration that focused on the effects of self-help groups on the course of affective illness.
