Assessing the STIRR Model of Best Practices for Blood-Borne Infections of Clients With Severe Mental Illness

Stanley D. Rosenberg, Ph.D.
Richard W. Goldberg, Ph.D.
Lisa B. Dixon, M.D., M.P.H.
George L. Wolford, Ph.D.
Eric P. Slade, Ph.D.
Seth Himelhoch, M.D., M.P.H.
Gerard Gallucci, M.D.
Wendy Potts, M.S.
Stephanie Tapscott, M.S.
Christopher J. Welsh, M.D.

Objectives: **People with co-occurring severe mental illness and a substance use disorder are at markedly elevated risk of infection from HIV, hepatitis B virus (HBV), and hepatitis C virus (HCV), but they generally do not receive basic recommended screening or preventive and treatment services. Barriers to services include lack of programs offered by mental health providers and client refusal of available services. Clients from racial-ethnic minority groups are even less likely to accept recommended services. The intervention tested was designed to facilitate integrated infectious disease programming in mental health settings and to increase acceptance of such services among clients.** ***Methods:*** **A randomized controlled trial (N=236) compared enhanced treatment as usual (control) with a brief intervention to deliver best-practice services for blood-borne diseases in an urban sample of clients with co-occurring disorders who were largely from racial-ethnic minority groups. The "STIRR" intervention included Screening for HIV and HCV risk factors, Testing for HIV and hepatitis, Immunization against hepatitis A and B, Risk reduction counseling, and medical treatment Referral and support at the site of mental health care.** ***Results:*** **Clients randomly assigned to the STIRR intervention had high levels (over 80%) of participation and acceptance of core services. They were more likely to be tested for HBV and HCV, to be immunized against hepatitis A virus and HBV, and to increase their knowledge about hepatitis and reduce their substance abuse. However, they showed no reduction in risk behavior, were no more likely to be referred to care, and showed no increase in HIV knowledge. Intervention costs were $541 per client (including $234 for blood tests).** ***Conclusions:*** **STIRR appears to be efficacious in providing a basic, best-practice package of interventions for clients with co-occurring disorders. (*Psychiatric Services* 61:885–891, 2010)**

Dr. Rosenberg is affiliated with the Departments of Psychiatry and of Community and Family Medicine, Dartmouth Medical School, 1 Medical Center Dr., Lebanon, NH 03756 (e-mail: stanley.rosenberg@dartmouth.edu). Dr. Goldberg, Dr. Dixon, Dr. Slade, Dr. Himelhoch, Ms. Potts, Ms. Tapscott, and Dr. Welsh are with the Department of Psychiatry, University of Maryland University College, Baltimore. Dr. Wolford is with the Department of Psychological and Brain Sciences, Dartmouth College, Hanover, New Hampshire. Dr. Gallucci is with the Department of Psychiatry, Johns Hopkins University, Baltimore.

HIV-AIDS and viral hepatitis continue to represent major public health concerns, particularly among individuals at high risk of infection because of injection drug use, homelessness, and severe mental illness (1,2). Along with risk of HIV and hepatitis C virus (HCV) infection, coinfection is markedly elevated for persons with severe mental illness, which further increases their morbidity and mortality (3,4). The largest study to date found HIV prevalence of 3%, approximately nine times the overall U.S. rate, and HCV prevalence of 20%—approximately 11 times the overall population rate (5). A majority of clients who tested HIV positive (59%) were also positive for HCV. Clients with co-occurring mental illness and substance use disorders were at even greater risk. Early detection and treatment are thus crucial for clients with co-occurring disorders (6,7).

The Centers for Disease Control and Prevention (CDC), the U.S. Department of Veterans Affairs (VA), and the National Institutes of Health recommend the following key services for people at elevated risk of hepatitis and HIV-AIDS: screening for risk, testing for infection, immunization against hepatitis A and B, risk-reduction counseling, and referral and support for medical care. However, the great majority of clients with co-occurring disorders do not receive these recommended services. First, most mental health providers offer

none of these services to clients, although these providers are clients' major point of access to health care. In New York, where prevalence is high and HIV services are mandated, less than half of the psychiatric providers routinely assess for HIV risk, and only 16% offer blood testing for HIV (8,9). Mental health providers appear to be hesitant to offer core services for the following reasons: limited financial resources, reluctance to inquire about risk behaviors, reluctance to promote testing for infection, lack of knowledge about blood-borne infections, inadequate skills and confidence in dealing with positive test results, and inability to help clients access appropriate medical care (10).

Client participation and concerns also represent barriers to care. Only 17%–47% of clients with mental illness report having had HIV testing within the past year (11). Even when tested, most people in the general population do not return to the provider to receive either their test results (12) or posttest counseling for risk reduction or medical referral (13). No national data are available on testing for HCV and immunization for hepatitis strains A (HAV) and B (HBV) among clients with co-occurring mental and substance use disorders, nor are published data available on HCV prevention programs for this population. In other high-risk groups, willingness to be immunized is generally quite low. For example, in one study of urban patients receiving care in clinics for care and prevention of sexually transmitted diseases, only 23% accepted an offer of HBV immunization, and less than 10% of those returned for the necessary second dose (14). Surveys suggest multiple concerns regarding immunization among high-risk groups, including fears about vaccines; underestimation of personal risk; stigma issues; and mistrust of government agencies, drug companies, and the health care system (15,16). Members of minority groups are even less likely to receive immunizations (17). Referral to an appropriate level of care for infected clients with co-occurring disorders also seems highly problematic, even in integrated health care systems such as the VA. A recent VA study found that more than half of HCV-positive patients with a psychiatric disorder were not being treated for their infection, and 11% of the participants died during the study period without ever receiving care (18).

The STIRR intervention—which entails Screening for HIV and HCV risk factors; Testing for HIV, HBV, and HCV infection; Immunization against HAV and HBV; Reducing risk through counseling; and Referring for medical treatment persons who test positive for HIV and HCV (19)—was developed to overcome barriers to providing recommended infectious disease services to clients with co-occurring disorders by bringing services to the clients' usual source of care: publicly funded community mental health providers. To overcome provider barriers, STIRR was delivered by an external team of specialists with the knowledge, skills, and confidence to deliver these services. To overcome client barriers, STIRR is brief, requiring about one hour of client contact over three sessions. The motivational approach is health promotion and personal empowerment, which involves recruiting the client as partner and agent in improving his or her own medical well-being. An open trial of STIRR was conducted in New Hampshire, and approximately three-fourths of eligible clients agreed to participate, provided blood samples for testing, and received at least two doses of HAV-HBV vaccine. Clients also showed increased motivation to reduce risky behaviors and increased knowledge about blood-borne infections (19).

To establish efficacy for this intervention, and to ensure feasibility in an urban, ethnically diverse setting, we conducted a randomized controlled trial in urban Baltimore, Maryland. The STIRR intervention was compared with enhanced treatment as usual (the control condition, which continued existing brokered case management services and augmented them with education and referral) across four publicly funded community mental health services sites. Our primary hypothesis was that clients randomly assigned to the STIRR intervention would be more likely to be screened, tested, immunized, referred, and linked to the appropriate level of medical care than clients randomly assigned to the control condition. Our secondary hypothesis was that clients randomly assigned to STIRR would have a greater increase in knowledge about blood-borne diseases, reduced behavioral risk, and less substance abuse than clients in the control group.

Methods

Overview

Between 2006 and 2008, we recruited 236 clients with co-occurring mental illness and substance use disorders who were receiving services at one of four publicly funded community mental health programs. Clients were invited to participate by their primary therapists, directly by the research team, and through flyers in the site waiting rooms. Participants were randomly assigned to the STIRR intervention (N=118) or to the control condition (N=118). All participants were assessed at baseline and six months later. STIRR participants who tested positive for HCV, HIV, or both were also assessed at 12 months postintervention. Participants were paid for participating in the assessments but not for participating in STIRR services. [A CONSORT diagram showing participant flow through the study is available as an online supplement to this article at ps.psychiatryonline.org.]

Participants

Participants were between the ages of 18 and 65 and had one of the following psychiatric diagnoses: schizophrenia spectrum disorder (*DSM-IV* 295.10–295.70), major depressive disorder (*DSM-IV* 296.2x–.3x), or bipolar disorder (*DSM-IV* 296.0x, 296.4–296.7, 296.80, and 296.89). In addition, all participants had current or lifetime diagnoses of a substance use disorder, spoke English, and were able to give informed consent.

Procedures

Before our study commenced, local providers and cultural competence experts assessed all STIRR procedures and materials for potential cultural barriers. An ethnographer spe-

cializing in urban, African-American culture also observed pilot cases in Baltimore and conducted interviews with pilot participants from racial-ethnic minority groups. He found no significant cultural barriers to understanding STIRR materials and good acceptance of the intervention by African-American clients.

The study began with informational meetings for the clinical staff at each site. Study details were explained to potential participants before their written informed consent was obtained. Recruitment and consent procedures were approved by the institutional review boards at the University of Maryland and Dartmouth and by the boards associated with each study site. Before receiving their random assignment, participants completed a standardized baseline assessment, described below. Independently within each site, participants were then randomly assigned to receive either enhanced treatment as usual or the STIRR intervention.

Enhanced treatment as usual (control group, N=118), included information about blood-borne diseases and about referral, such as local community health sources for blood testing, immunization for HAV and HBV, and treatment as needed. Participants were directed to either their health provider (if engaged in regular medical care) or an accessible local clinic for free testing and immunization.

The STIRR intervention (N=118) provided services directly to participants at the site of mental health treatment. Those randomly assigned to receive STIRR went directly to the first intervention session, which included the following: infectious disease education, screening for level of infectious disease risk, pretest counseling, blood draw for testing (HIV, HBV, and HCV), first immunization with Twinrix HAV-HBV vaccine, personalized risk-reduction education counseling, and distribution of safety reminders (such as condoms). Blood was drawn on site and shipped out for laboratory testing. A second intervention session was scheduled approximately one month after the first to provide test results, posttest and risk-reduction counseling, medical referral and linkage (if needed), and the second Twinrix immunization. At the third and final session, which was scheduled six months after the initial dose of vaccine, risk level was reassessed, risk reduction reinforced, the final immunization provided, and medical linkage reinforced. A final research assessment was conducted after this meeting.

To monitor implementation fidelity, we randomly selected 28 records from among the three STIRR sessions and found that core intervention components (education, review of risk behaviors, and medical referrals) were delivered in virtually all instances in accordance with the STIRR manual.

Participants in the control group attended a final research assessment concurrent with the final STIRR session and were, upon exiting the study phase, offered STIRR services. We also collected data on the costs associated with STIRR. We tracked the resource costs of offering the intervention, including the costs of case management and transportation, of blood draws and tests, and of vaccines and products provided to clients. Administrative overhead costs for use of clinic space were imputed. We used provider catalogues of client encounters, client medical records, participant interview data on utilization of medical services, encounter records of blood draws and immunizations, and purchase costs of materials distributed to clients (such as condoms).

Measures and variables

Data sources for this study included self-report measures, standardized observations, laboratory reports, medical and psychiatric records, time logs, mental health center financial data, participant interview data, and cost data on materials and services. Parallel sources were used to compare outcomes across the two groups.

Self-report instruments were used to assess demographic characteristics (including age, gender, marital status, education, living situation, and history of criminal justice system involvement) and use of medical services (sources, types, and amount of care received, including infectious disease services). Medical services items were drawn from either the National Health Interview Survey (20) or the National Health and Nutrition Examination Survey (21).

Risk of blood-borne infections was assessed by the AIDS Risk Inventory (Modified) (ARI), which assesses knowledge, attitudes, and risk behaviors associated with acquiring and transmitting these infections. We added specific items on hepatitis. This scale has been reliable and valid in studies with similar populations (22–24).

Current alcohol use disorders and current drug use disorders were assessed with the Dartmouth Assessment of Lifestyle Instrument (DALI), an 18-item questionnaire developed for people with severe mental illness (25).

Clinician ratings for alcohol and drug use were also used to provide ratings of abuse (according to *DSM-IV* criteria) on the Alcohol Use Scale and the Drug Use Scale, which have demonstrated reliability in numerous studies (26–29).

In addition, we used the Substance Abuse Treatment Scale, which measures stages of substance abuse treatment (30) and has shown adequate reliability and validity in studies of clients with co-occurring disorders (31).

Chart reviews were used to assess treatment participation of infected clients, and laboratory tests were performed for HIV (enzyme-linked immunosorbent assay and Western blot for confirmation), HBV (surface Ab, HBV surface Ag antigen, and HBV core Ab), and HCV (Abbott HCV EIA 2.0) with HCV-encoded recombinant antigens. Positive HCV screens were verified by the recombinant immunoblot assay. HCV viral load was assessed with the HCV-PCR test.

Statistical analyses

We used chi square and logistic regression analyses to examine differences between the groups both for the number of participants who self-reported having been tested for infection and the number who self-reported having been immunized. We compared the two groups at baseline and then assessed the number of addi-

tional participants who were tested or immunized at the six-month assessment point to determine the effect of the STIRR intervention. We used analysis of variance (ANOVA) on difference scores (between baseline and six months) to examine the impact of STIRR on HCV knowledge, risk behaviors, and scores on the alcohol and drug use scales, with all analyses including site of treatment as an additional variable. All tests were carried out with SPSS.

Results

Randomization and retention

The consent rate (76%; 240 of 314) and follow-up rate (92%; 217 of 236) were high, and the latter did not differ across groups. Diagnosis, race-ethnicity, gender, and age did not differ between groups (Table 1). Group assignment was not associated with participation or retention.

Participant characteristics

Within the STIRR group, 25% (26 of 106) tested HCV positive and 8% (eight of 106) tested HIV positive. Of those with HIV, four (50%) were coinfected with HCV. Sixteen participants in the control group self-reported HCV infection, and eight reported HIV infection.

Participation, testing, and immunization

Hepatitis testing was defined as participant self-report of a blood test for HCV within the past year. There was no significant baseline difference between STIRR and control group clients in rates of testing (Table 1). At six months, 86% (70 of 81) of STIRR participants who had not been tested at baseline reported being tested in the interim compared with 15% (10 of 69) of participants in the control group (Table 2). Using change scores as the dependent variable in a logistic regression with treatment group and site as predictor variables, we found that treatment group was highly significant ($p<.001$) and site was not significant. The laboratory data for STIRR participants showed that 86% (102 of 118) were tested for HCV, providing credibility for the self-report data. Of the STIRR participants tested for HCV, 99% (101 of 102) returned to the second STIRR session for test results and posttest counseling. Laboratory data were not available for participants in the control group.

At baseline, STIRR and control groups reported comparable rates of immunization (Table 1). Among those not immunized at baseline, 76% (73 of 96) of STIRR participants, compared with 5% (four of 86) of control group participants, reported receiving immunization at six months. These change scores were used as the dependent variable in a logistic regression with treatment group and site as predictor variables. Treatment group was highly significant ($p<.001$) (Table 2), and site was not significant. STIRR records show that 95 of 117 STIRR participants (81%) were immunized with Twinrix, again providing validation of the self-report data.

Referral to medical care

Referral to medical care for infected participants was assessed by self-report in both groups at six months. Additional assessment was by direct observation by case managers and by chart review at the 12-month follow-up for STIRR participants. For those who self-reported HCV-positive status, 81% (17 of 21) of STIRR and 75% (12 of 16) of control group clients reported having a medical visit for HCV, but the difference between groups was nonsignificant (Table 2).

We were able collect one-year postintervention follow-up data for 54% (14 of 26) of the STIRR participants who tested HCV positive by laboratory results. The remaining

Table 1

Demographic and baseline characteristics of clients with co-occurring mental illness and substance use disorders, by group assignment

	STIRR (N=118)[a]		Control (N=118)	
Variable	N	%	N	%
Age (M±SD)	46.6±8.5		46.3± 9.3	
Female	48	41	42	36
Never married	76	64	76	64
High school graduate	72	61	66	56
Race				
Caucasian	29	25	30	25
African American	85	72	86	73
Other	4	3	2	2
Diagnostic category				
Schizophrenia	56	47	54	46
Schizoaffective	27	23	28	24
Bipolar	19	16	21	18
Major depression	16	14	15	13
Baseline characteristic[b]				
Tested for hepatitis C	22	19	27	23
Tested for hepatitis B	23	19	25	21
Tested for HIV	93	79	99	84
HCV positive (self-report)	21	18	16	14
HIV positive (self-report)	11	9	8	7
Immunizations	8	7	11	9
Hepatitis knowledge (mean % correct)		70±19		71±20
HIV knowledge (mean % correct)		78±25		79±23
DALI alcohol score[c]	–.4±1.6		.5±1.7	
Clinician-rated Drug Use Scale score[d]	1.7±1.1		1.6±1.1	
AIDS Risk Inventory score[e]	1.2±1.5		1.1±1.6	

[a] The STIRR intervention involved Screening for HIV and hepatitis C risk factors, Testing for HIV and hepatitis B and C infection, Immunization against hepatitis A and B, and Reducing risk and Referring for medical treatment persons testing positive for HIV and hepatitis C.

[b] No baseline differences approached significance.

[c] Possible scores on the Dartmouth Assessment of Lifestyle Instrument alcohol subscale range from –4 to 4, with higher numbers indicating alcohol abuse.

[d] Possible scores range from 1 to 4, with higher numbers indicating drug abuse.

[e] Possible scores range from 0 to 7 and indicate the number of risky behaviors endorsed by the client.

Table 2

Six-month outcomes for persons with co-occurring mental illness and substance use disorders who received the STIRR intervention or enhanced treatment as usual

Variable[b]	STIRR[a] Available N	STIRR[a] N	STIRR[a] %	Control Available N	Control N	Control %	Test statistic	df	p
Tested for hepatitis C	81	70	86	69	10	15	Wald χ^2=57.6	1	<.001
Tested for hepatitis B	80	69	86	73	14	19	Wald χ^2=54.3	1	<.001
Tested for HIV	21	18	86	13	6	46	Wald χ^2=6.4	1	.011
Immunized	105	82	78	97	7	7	Wald χ^2=54.9	1	<.001
Referral to medical care (for infected patients)	21	17	81	16	12	75	χ^2=.19	1	.6
Change in hepatitis knowledge (mean % correct)	107	14.02±20.04		103	1.38±22.51		F=15.68	1, 200	<.001
Change in HIV knowledge (mean % correct)	107	5.02±19.92		103	.36±17.19		F=.44	1, 200	.509
Change in DALI acohol score (M±SD)	107	–.16±1.33		103	.23±1.43		F=5.35	1, 200	.022
Change in clinician-rated Drug Use Scale score (M±SD)	107	–.12±.57		103	.05±.58		F=4.54	1, 200	.034
Change in AIDS Risk Inventory score (M±SD)	118	–.38±1.57		118	–.42±1.40		F=.61	1, 26	.44

[a] The STIRR intervention involved Screening for HIV and hepatitis C risk factors, Testing for HIV and hepatitis B and C infection, Immunization against hepatitis A and B, and Reducing risk and Referring for medical treatment persons testing positive for HIV and hepatitis C.

[b] All variables were measured as change relative to baseline. DALI, Dartmouth Assessment of Lifestyle Instrument

clients were lost to follow-up primarily because of leaving treatment services, relocating from the area, death, or incarceration. Ten of the 14 participants (71%) followed had a follow-up medical appointment, and all ten completed lab work (liver enzyme monitoring) during the follow-up period. Four of the 14 (29%) were newly identified as HCV positive on the basis of the blood draw in the STIRR intervention, and all newly identified HCV-positive clients completed a medical follow-up appointment and received liver enzyme monitoring. However, none received advanced diagnostic tests (such as viral load assessment) or treatment (such as antiviral therapy), possibly because such procedures were not medically indicated.

In the STIRR group, eight participants (8%) tested HIV positive, one of whom was newly identified from STIRR procedures. Of the six persons available for one-year postintervention follow-up data, all had a medical follow-up appointment, and CD4 cell and viral load counts were measured for all during the follow-up period.

Knowledge, risk behaviors, and substance use

Compared with the control group, STIRR clients showed greater gains in knowledge about hepatitis and its risk factors on a 12-item test. Differences in knowledge gained were submitted to an ANOVA with treatment group and site as factors. Treatment group was highly significant (p<.001), as was the effect of site. It is important to note that the interaction between treatment group and site was not significant. There was no difference between groups in HIV knowledge gained.

Groups did not differentially reduce their risk of HIV as measured by the sum of seven items from the ARI, which included needle sharing and unprotected sex. However, STIRR was associated with modest significant improvements in the DALI score for alcohol use. These changes in DALI scores were submitted to an ANOVA with treatment group and site as factors. Treatment group was significant, but neither the effect of site nor its interaction with group approached significance. In addition, STIRR participants improved compared with participants in the control group on the clinician-rated Drug Use Scale. These changes in clinicians' ratings were also submitted to an ANOVA. The effect of treatment group was significant, and neither the effect of site nor its interaction with group approached significance. Neither the DALI drug scale nor the clinician-rated Alcohol Use Scale showed a statistically significant change as a function of group.

Costs

The average cost of delivering STIRR was $541 per client. The largest component ($234, or 43%) was the cost of blood tests, followed by personnel costs ($169, or 31%), vaccine costs ($65, or 12%), training and other clinic setup costs ($50, or 9%), and other expenses (totaling 5%). Thus STIRR intervention delivery costs, which exclude the costs of vaccine and blood tests (which are necessary in all hepatitis screening programs), were approximately $240 per client. Nurse time accounted for 88% of personnel costs in STIRR, or approximately $150 per client.

Discussion

Provision of basic health services for people at high risk of blood-borne infections continues to be problematic, posing both a health risk for those individuals and a public health concern in regard to possible infection of others. Clients with co-occurring disorders represent a large and underserved group at demonstrated high risk, but no evidence-based interventions are available to provide recom-

mended assessment and medical services to this group. Currently, even simple, basic procedures, such as risk screening and testing, are not typically offered to clients, and when offered, these procedures are frequently refused. Results of the first randomized controlled trial of STIRR support its basic efficacy and feasibility in delivering these services, at a relatively modest cost and in typical community mental health settings. Moreover, the rates of adherence to the services provided in the intervention greatly exceeded previously reported results.

STIRR provided screening for about three-fourths of clients with co-occurring disorders, greatly increased rates of testing and immunization, increased knowledge of hepatitis, moderately reduced substance abuse, and achieved high levels of referral to care. Although behavioral risk did not appear to change, blood testing and immunization have tremendous importance for both primary and secondary prevention of hepatitis. The CDC has stated that immunization for HBV is by far the single most important prevention measure (32). No intervention strategy to date has been able to achieve such success in community settings. Although the rates of medical follow-up for those reporting that they were positive for HCV did not differ between groups, it is important to note that the study had very limited power to detect such differences. In addition, this comparison does not reflect the number of potential HCV-positive clients in the control group who did not know they were infected because they had not received recent testing. Our inability to determine the rate of infection of clients in the control group is a limitation of the study. However in the posttrial phase, these clients were offered STIRR services and seven of 35 clients (20%) requesting STIRR services tested positive for HCV infection, of whom five (71%) were previously unaware of their condition. If these results are indicative, rates of referral through the STIRR intervention would be superior to the rates obtained with enhanced treatment as usual.

STIRR's association with evidence of reduced problematic alcohol and drug use may be especially important given the dangers of alcohol to liver function. These findings suggest that linking substance abuse treatment and information from STIRR may influence clients' decisions about use of drugs and alcohol.

The other results regarding behavioral risk reduction were disappointing. Given the efficacy of some other more intensive risk-reduction interventions with high-risk populations, this aspect of STIRR should be reviewed for modification and possible enhancement. However, even if STIRR was not particularly effective in regard to overall behavioral risk reduction, our study has shown that it is a cost-effective intervention for increasing testing, immunization, and referral and is a possible gateway into behavioral risk-reduction interventions for clients during subsequent participation in treatment services. In order for STIRR to become an evidence-based practice, it should be replicated in other sites, with more culturally diverse populations, with interviewers blinded to control versus treatment assignment and in situations in which the STIRR team is not recruited and paid by the study team. Cost-effectiveness of the intervention should be assessed, entailing evaluation of medical outcomes over time.

Conclusions

The STIRR intervention offers the potential to greatly increase receipt of best-practice services for HIV and HCV among people with co-occurring disorders. It is designed to overcome provider- and consumer-level barriers at a modest and specified cost, allowing policy makers to consider adoption for their agencies and systems of care.

Acknowledgments and disclosures

This research was supported by grant R01 MH072556 and is registered as clinical trial NCT00316303. The authors thank Ernest Quimby, Ph.D., and Rose Jomidad for their important contributions to the STIRR trial.

The authors report no competing interests.

References

1. Glynn M, Rhodes P: Estimated HIV prevalence in the United States at the end of 2003. Abstract 595. Presented at the National HIV Prevention Conference, Atlanta, Ga, June 2005
2. Wasley A, Grytdal S, Gallagher K: Surveillance for acute viral hepatitis—United States, 2006. Morbidity and Mortality Weekly Reports Surveillance Summary 57:1–24, 2008
3. Graham CS, Baden LR, Yu E, et al: Influence of HIV infection of the course of hepatitis C virus infection: a meta-analysis. Clinical Infectious Diseases 33:562–569, 2001
4. Mohsen AH, Taylor C, Portmann B: Progression rate of liver fibrosis HIV and hepatitis C coinfected patients, UK experiences. Abstract MoOrB1057. Barcelona, Spain, Program and Abstracts of the XIV International AIDS Conference, July 7–12, 2002
5. Rosenberg SD, Goodman LA, Osher FC, et al: Prevalence of HIV, hepatitis B, and hepatitis C in people with severe mental illness. American Journal of Public Health 91:31–37, 2001
6. Swartz, MS, Swanson JW, Hannon MJ, et al: Access to Health care among people with SMI at risk for hepatitis infection. Psychiatric Services 54:854–859, 2003
7. Rosenberg SD, Drake RE, Brunette MF, et al: HCV and HIV co-infection in people with severe mental illness and substance use disorders. AIDS 19(suppl 3):S26–S33, 2005
8. Satriano J, McKinnon K, Adoff S: HIV service provision for people with severe mental illness in outpatient mental health care settings in New York. Journal of Prevention and Intervention in the Community 33:95–108, 2007
9. Walkup J, Satriano J, Hansell S, et al: Practices related to HIV risk assessment in general hospital psychiatric units in New York State. Psychiatric Services 49:529–530, 1998
10. Senn TE, Carey MP: HIV, STD, and sexual risk reduction for individuals with a severe mental illness: review of the intervention literature. Current Psychiatry Review 4:87–100, 2008
11. Desai MM, Rosenheck RA, Desai RA: Prevalence and correlates of human immunodeficiency virus testing and posttest counseling among outpatients with serious mental illness. Journal of Nervous and Mental Disease 195:776–780, 2007
12. HIV Counseling and Testing at CDC-Supported Sites: United States, 1999–2004. Atlanta, Ga, Centers for Disease Control and Prevention, 2006. Available at www.cdc.gov/hiv/topics/testing/reports.htm
13. HIV Counseling and Testing in Publicly Funded Sites Annual Report, 1997 and 1998. Atlanta, Ga, Centers for Disease Control and Prevention, 2001
14. Zimet GD, Kee R, Winston Y, et al: Acceptance of hepatitis B vaccination among adult patients with sexually transmitted diseases. Sexually Transmitted Diseases Nov:678–680, 2001
15. Newman PA, Rudy ET, Kelly EM, et al:

Women's concerns and motivators regarding uptake of hypothetical FDA approved HIV vaccines (Project Vibe). Presented at the International Conference on Aids, July 11–16, 2004

16. Frew PM, Crosby RA, Salazar LF, et al: Acceptance of a potential HIV/Aids vaccine among minority women. Journal of the National Medical Association 100:802–813, 2008
17. Eliminate Disparities in Adult and Child Immunization Rates. Atlanta, Ga, Centers for Disease Control and Prevention, Office of Minority Health and Health Disparities. Available at www.cdc.gov/omhd/AMH/factsheets/immunization.htm#5
18. Rifai MA, Moles JK, Short DD: Hepatitis C treatment eligibility and outcomes among patients with psychiatric illness. Psychiatric Services 57:570–572, 2006
19. Rosenberg SD, Brunette MF, Oxman TE, et al: The STIRR model of best practices for blood-borne diseases among clients with serious mental illness. Psychiatric Services 55:660–664, 2004
20. National Health Interview Survey (NHIS). Hyattsville, Md, Centers for Disease Control and Prevention, National Center for Health Statistics, 1998
21. Third US National Health and Nutrition Examination Survey (NHANES III) 1988–1994. Hyattsville, Md, Centers for Disease Control and Prevention, National Center for Health Statistics, 1994
22. Chawarski MC, Baird J: Comparison of two instruments for assessing HIV risk in drug abusers. Presented at Social and Behavioral Science: Proceedings of the 12th World AIDS Conference, Geneva, June 28–July 3, 1998
23. Chawarski MC, Pakes J, Schottenfeld RS: Assessment of HIV risk. Journal of Addictive Diseases 17:49–59, 1998
24. Rosenberg SD, Swanson JW, Wolford GL, et al: Blood-borne infections and persons with mental illness: the five-site health and risk study of blood-borne infections among persons with severe mental illness. Psychiatric Services 54:827–835, 2003
25. Rosenberg SD, Drake RE, Wolford GL, et al: Dartmouth Assessment of Lifestyle Instrument (DALI): a substance use disorder screen for people with severe mental illness. American Journal of Psychiatry 155:232–238, 1998
26. Drake RE, Osher FC, Noordsy D, et al: Diagnosis of alcohol use disorders in schizophrenia. Schizophrenia Bulletin 16:57–67, 1990
27. Drake RE, McHugo GJ, Clark RE, et al: Assertive community treatment for patients with co-occurring severe mental illness and substance use disorder: a clinical trial. American Journal of Orthopsychiatry 68:201–215, 1998
28. Drake RE, Yovetich N, Bebout R, et al: Integrated treatment for homeless, dually diagnosed adults. Journal of Nervous and Mental Disease 185:298–305, 1997
29. Carey K, Cocco K, Simons J: Concurrent validity of clinicians' ratings of substance abuse among psychiatric outpatients. Psychiatric Services 47:842–847, 1996
30. Prochaska J, DiClementi C, Norcross J: In search of how people change: applications to addictive behaviors. American Psychologist 47:1102–1114, 1992
31. McHugo GJ, Drake RE, Burton HL, et al: A scale for assessing the stage of substance abuse treatment in persons with severe mental illness. Journal of Nervous and Mental Disease 183:762–767, 1995
32. Alter MJ: Epidemiology and prevention of hepatitis B. Seminars in Liver Disease 23:39–46, 2003

Coming in October

- **Special section on New York's assisted outpatient treatment program: outcomes of "Kendra's Law"**
- **Coercive measures during involuntary hospitalization: findings from ten European countries**
- **Involuntary civil commitments after the implementation of California's Mental Health Services Act**
- **Negotiating the balance between recovery and parenting: a personal account**