

# Nonpsychiatric Outpatient Care for Adults With Serious Mental Illness in California: Who Is Being Left Behind?

Maria E. Garcia, M.D., M.P.H., Dean Schillinger, M.D., Eric Vittinghoff, Ph.D., Jennifer M. Creasman, M.S.P.H., Penelope Knapp, M.D., John W. Newcomer, M.D., Christina Mangurian, M.D, M.A.S.

**Objective:** Although primary care is associated with better outcomes, many individuals with serious mental illness do not receive general medical services. This study examined patient-level factors associated with not having outpatient general medical visits among individuals with serious mental illness in California.

**Methods:** The study analyzed administrative, pharmacy, and billing data for 56,895 Medicaid-enrolled adults with serious mental illness treated in community mental health clinics between October 1, 2010, and September 20, 2011. Poisson regression estimated independent associations between predictor variables and outpatient general medical visits.

**Results:** One-third of participants (34%) had no outpatient general medical visits during the study. In multivariate analyses, younger adults (ages 18–27) were less likely than older

groups to have such a visit (adjusted relative risk [ARR]=1.07 and 1.19, respectively, for ages 28–47 and 48–67). Women were more likely than men to have such a visit (ARR=1.29). Compared with whites, blacks were less likely to have an outpatient general medical visit (ARR=.93). Rural dwellers were less likely than urban dwellers to have such a visit (ARR=.64). Persons with drug or alcohol use disorders were less likely than those without such disorders to have an outpatient general medical visit (ARR=.95), and those with schizophrenia were less likely than those with any other psychiatric disorder examined to have such a visit.

**Conclusions:** Individuals with serious mental illness had low use of outpatient general medical services. Integrated care models are needed to engage these individuals and eliminate disparities in morbidity and mortality.

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Individuals with serious mental illness, such as schizophrenia or bipolar disorder, have higher morbidity and earlier mortality than individuals without serious mental illness (1–6). The Substance Abuse and Mental Health Services Administration defines serious mental illness as the presence of a *DSM-IV* diagnosis of mental illness (excluding substance use and developmental disorders) that results in serious functional impairment (7). Persons with serious mental illness have high rates of other chronic diseases and die 13 to 30 years earlier than persons in the general population, primarily from cardiovascular disease and other treatable general medical conditions with modifiable risk factors (1,6,8–11). Individuals with serious mental illness have high rates of smoking and alcohol consumption, poor nutrition and obesity, physical inactivity, unsafe sexual behavior, and intravenous drug use (6,10–15).

Despite high rates of general medical comorbidities, people with serious mental illness face barriers related to accessing primary care (8,16). In addition to the burden of the disorganizing symptoms of their mental illness, comorbid substance use disorders, social isolation, poverty, and homelessness often make it difficult to connect or engage

individuals with serious mental illness with primary care (9). For example, in one study of Department of Veterans Affairs (VA) patients, those with serious mental illness, including schizophrenia, bipolar disorder, and substance use disorders, had lower use of primary care services than those without these disorders, even after the analysis controlled for general medical comorbidity (16). Difficulty accessing primary care is likely one reason that receipt of guideline-recommended metabolic screening and other preventive services (including immunizations, cancer screenings, and tobacco cessation and nutrition counseling) is lower among individuals with serious mental illness (8,9,17,18).

Although policy makers, researchers, and providers are increasingly focused on determining characteristics of “high utilizers” of health care—particularly users of acute and emergency services (19,20)—little research has explored the characteristics of low or nonusers in this vulnerable population, especially those who are low users of primary care. What is known about utilization among individuals with serious mental illness is based almost entirely on care delivered in the VA health care system, the largest integrated public-sector health care system in the United States, but

one that differs greatly from other public or private health care systems (21). The purpose of this study was to characterize the use of outpatient general medical services among a large cohort of individuals with serious mental illness who were being served in California's public mental health care system. We examined predictors of nonpsychiatric outpatient visits to identify subpopulations that will require targeted outreach.

## METHODS

### Study Population

This study population, a subsample of individuals with serious mental illness in the state of California, has been previously described (18,22) and was sampled on the basis of the following criteria: ages 18–67; Medicaid enrollee; received care in a California community mental health clinic between October 1, 2010, and September 30, 2011; received a prescription for an antipsychotic medication at least once during the study period; and was not dually eligible for Medicare. It is notable that in California, and most states, specialty mental health care in community mental health clinics is restricted to persons with serious mental illness who meet medical necessity criteria for services (that is, they must have one of the included diagnoses as well as significant functional impairment or probability of significant deterioration) (23). Use of care provided by community mental health clinics was determined from the California Client and Service Information (CSI) system. The CSI system is an encounter-based data system used to track state- and county-funded mental health services in California. CSI provides the state's Department of Health Care Services (DHCS) with data on non-inpatient mental health services (outpatient mental health visits), demographic characteristics (including age, gender, and race-ethnicity), and psychiatric diagnoses.

After approval from the University of California, San Francisco, Committee on Human Research, the State of California Committee for the Protection of Human Subjects, and the DHCS's Data and Research Committee, DHCS combined existing databases, deidentified the data, and provided the combined data set to the study investigators. To secure confidentiality of participants, the California DHCS provided the data with age categorized into three groups (18–27, 28–47, and 48–67). Only the primary diagnosis was included in the data set provided to study investigators. Individuals with multiple psychiatric comorbidities were classified hierarchically in the following order: schizophrenia spectrum disorder (schizophrenia and schizoaffective disorder), bipolar disorder, major depressive disorder, anxiety disorder, and other.

### Study Measures

We defined the primary outcome as having one or more nonpsychiatric outpatient visits (outpatient general medical visits) during the yearlong study. Although the optimal

number of outpatient general medical visits is not well defined, it is generally accepted that patients who take medications for chronic conditions should have at least one examination per year (24,25). Outpatient general medical visits were determined by billing CPT codes of 99201–99205, 99211–99215, and 99241–99245, which indicate new patient, returning patient, and outpatient consult visits, respectively. Per the U.S. Department of Health and Human Services, these codes are used to report evaluation and management services provided in a physician's office or in an outpatient or other ambulatory facility (26). Consult visits include visits to specialists, such as endocrinologists, gynecologists, and surgical specialties.

Demographic data, type of Medicaid (fee-for-service or managed Medicaid), psychiatric diagnoses, substance use disorders, and comorbid metabolic conditions (specifically hypertension, defined by ICD-9 codes 401 or 997 or any prescription claim for an antihypertensive drug; dyslipidemia, defined by ICD-9 code 272 or a prescription claim for a cholesterol-lowering drug; or diabetes mellitus, defined by ICD-9 codes 249, 250, 253, or 648 or a prescription claim for an antidiabetic drug) were included as predictors of outpatient medical visits. [Tables in an online supplement to this article list the names of the prescription drugs.] Demographic variables included age (one of three categories), race-ethnicity, and gender. We dichotomized county status into rural or urban according to 2013 National Center for Health Statistics definitions (27).

### Statistical Analysis

We described participant characteristics by using frequencies for continuous variables and proportions for categorical variables. We used chi-square tests for categorical variables to compare individuals with at least one outpatient general medical visit and those with no such visits. We then used Poisson regression with robust standard errors (28) to estimate the independent association of each predictor of interest with outpatient general medical visits, adjusting for confounders and after excluding mediators. We included predictor variables chosen a priori on the basis of previous literature associated with outpatient health care utilization: sex, race-ethnicity, urban versus rural residence, psychiatric diagnosis, any drug or alcohol use disorder diagnosed by a psychiatrist in one of the community mental health clinics, and presence of concomitant metabolic conditions (hypertension, diabetes, or dyslipidemia). We chose Poisson regression because outpatient visits were a relatively common outcome, and odds ratios would thus not approximate prevalence ratios.

Because California delegates delivery of mental health services to its counties, we used robust standard errors to account for clustering of outcomes by county and to accommodate use of a Poisson model for a binary outcome. Seven rural counties (12% of the 58 counties in California) had too few observations and were grouped with counties of similar size, region, and demographic characteristics (27). For example, we aggregated three rural counties: Alpine,

Inyo, and Mono. We excluded all San Mateo County data, because there were far fewer observations than expected as a result of its early adoption of the California County Organized Health System, a program that negatively affected reporting to the CSI system during the study period (29). A sensitivity analysis was conducted to determine whether findings were affected by enrollment in fee-for-service or managed Medicaid. All analyses were done with both SAS, version 9.4, and Stata, version 13.1.

## RESULTS

Characteristics of the 56,895 individuals in the sample are summarized in Table 1. Just over half of the sample (55%) was female. Almost all participants (N=55,188, 97%) were taking second-generation antipsychotics, and some were taking first-generation antipsychotics (N=1,707, 3%). The largest proportion of participants was white (38%), followed by Hispanic (20%) and non-Hispanic black (19%). Half of the individuals had schizophrenia spectrum disorders (52%).

Overall, one-third (34%) of individuals had no outpatient general medical visits during the one-year study period (mean±SD=4±6 visits, median=2, range 0–152) (Figure 1). Of those with any outpatient medical visits, 89% of the visits were categorized as returning patient and 8% were categorized as new patient; less than 3% were categorized as consult visits (patients could have multiple types of visit). Less than 3% of individuals (N=1,706) had 20 or more visits. Individuals with managed Medicaid were more likely to have outpatient general medical visits than those with fee-for-service Medicaid (77% versus 60%,  $p<.001$ ).

In bivariate analyses, individuals with schizophrenia were less likely than those with other psychiatric conditions to have an outpatient general medical visit (Table 2). Similarly, men, young adults, and people with comorbid drug or alcohol use disorders were less likely to have an outpatient general medical visit.

In multivariate analyses, individuals with schizophrenia were less likely than those with other psychiatric conditions to have an outpatient general medical visit. In this adjusted

**TABLE 1. Characteristics of Medicaid-enrolled adults with serious mental illness who did or did not have an outpatient visit for general medical care**

| Characteristic                                                            | Total (N=56,895) |    | Any outpatient general medical visit (N=37,325) |    | No outpatient general medical visit (N=19,570) |    | p     |
|---------------------------------------------------------------------------|------------------|----|-------------------------------------------------|----|------------------------------------------------|----|-------|
|                                                                           | N                | %  | N                                               | %  | N                                              | %  |       |
| Female                                                                    | 31,308           | 55 | 23,033                                          | 74 | 8,275                                          | 26 | <.001 |
| Race-ethnicity                                                            |                  |    |                                                 |    |                                                |    | <.001 |
| Asian                                                                     | 7,197            | 13 | 5,341                                           | 74 | 1,856                                          | 26 |       |
| Black                                                                     | 11,038           | 19 | 6,810                                           | 62 | 4,228                                          | 38 |       |
| Hispanic                                                                  | 11,248           | 20 | 7,357                                           | 65 | 3,891                                          | 35 |       |
| Other                                                                     | 5,913            | 10 | 3,771                                           | 64 | 2,142                                          | 36 |       |
| White                                                                     | 21,499           | 38 | 14,046                                          | 65 | 7,453                                          | 35 |       |
| Age <sup>a</sup>                                                          |                  |    |                                                 |    |                                                |    | <.001 |
| 18–27                                                                     | 8,911            | 16 | 5,023                                           | 56 | 3,888                                          | 44 |       |
| 28–47                                                                     | 24,021           | 42 | 15,165                                          | 63 | 8,856                                          | 37 |       |
| 48–67                                                                     | 23,963           | 42 | 17,137                                          | 72 | 6,826                                          | 29 |       |
| County                                                                    |                  |    |                                                 |    |                                                |    | <.001 |
| Rural                                                                     | 1,611            | 3  | 684                                             | 43 | 927                                            | 58 |       |
| Urban                                                                     | 55,284           | 97 | 36,641                                          | 66 | 18,643                                         | 34 |       |
| Psychiatric diagnosis                                                     |                  |    |                                                 |    |                                                |    | <.001 |
| Anxiety disorder                                                          | 2,128            | 4  | 1,584                                           | 74 | 544                                            | 26 |       |
| Bipolar disorder                                                          | 8,126            | 14 | 5,719                                           | 70 | 2,407                                          | 30 |       |
| Major depressive disorder                                                 | 12,927           | 23 | 9,891                                           | 77 | 3,036                                          | 24 |       |
| Other                                                                     | 3,967            | 7  | 2,660                                           | 67 | 1,307                                          | 33 |       |
| Schizophrenia spectrum disorder                                           | 29,747           | 52 | 17,471                                          | 59 | 12,276                                         | 41 |       |
| Comorbid substance use disorder                                           | 10,124           | 18 | 6,066                                           | 60 | 4,058                                          | 40 | <.001 |
| Evidence of hypertension, dyslipidemia, or diabetes mellitus <sup>b</sup> | 6,909            | 12 | 5,092                                           | 74 | 1,817                                          | 26 | <.001 |
| Type of Medicaid                                                          |                  |    |                                                 |    |                                                |    | <.001 |
| Managed                                                                   | 17,969           | 32 | 13,868                                          | 77 | 4,101                                          | 23 |       |
| Fee for service                                                           | 38,926           | 68 | 23,457                                          | 60 | 15,469                                         | 40 |       |

<sup>a</sup> Age categories were those provided by the California Department of Health Care Services.

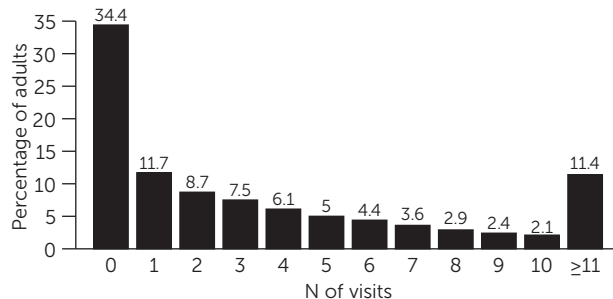
<sup>b</sup> Defined by ICD-9 codes for these comorbid conditions or prescription of medications to treat the diagnosed condition

analysis, older individuals were more likely than young adults (ages 18–27) to have at least one outpatient general medical visit (ages 28–47, adjusted relative risk [ARR]=1.07; and ages 48–67, ARR=1.19). Women were more likely than men to have at least one outpatient general medical visit (ARR=1.29). Compared with whites, blacks were less likely to have an outpatient general medical visit (ARR=.93). Hispanic ethnicity was not significantly associated with having an outpatient general medical visit. Asians and Pacific Islanders were more likely than whites to have at least one outpatient general medical visit (ARR=1.09). Rural dwellers were 36% less likely than urban dwellers to have such a visit (ARR=.64), although the number of rural dwellers in the cohort was low. Individuals given a diagnosis of a drug or alcohol use disorder by a psychiatrist were less likely than those without these diagnoses to have an outpatient general medical visit (ARR=.95). Sensitivity analysis confirmed that findings did not differ by enrollment in fee-for-service or managed Medicaid [see online supplement].

## DISCUSSION

In a large cohort of Medicaid recipients with serious mental illness in California's public mental health care system,

**FIGURE 1. Number of outpatient general medical visits over one year among Medicaid-enrolled adults with serious mental illness in California (N=56,895)**



one-third of patients (34%) did not utilize outpatient general medical services in a one-year period. These utilization patterns are lower than in the general Medicaid population, in which over 80% of patients used medical services in the past year (30). Although there is controversy about the need for an annual physical examination among asymptomatic individuals—and we did not have a specific measure of medical need—it is generally accepted that individuals who are taking a medication for a chronic condition should receive at least one annual medical visit (24,25). This poor utilization is particularly concerning given the increased morbidity and mortality documented in this vulnerable population (1,6,8,9,12,13).

Individuals with serious mental illness in rural counties had the lowest utilization, with 58% not accessing outpatient general medical services during the study year. Similar to prior studies, this study found that young adults, men, blacks, individuals with schizophrenia, and individuals with comorbid drug and alcohol use disorders were less likely to have an outpatient general medical visit (1,16,17,31–33). These differences in use of outpatient medical services were seen even though all individuals in the cohort had the same insurance (Medicaid). The fact that people with schizophrenia were less likely to use outpatient care than those with other disorders is especially concerning, given that a recent study found that adults with schizophrenia were more than 3.5 times as likely (all-cause standardized mortality ratio) to die at younger ages than those in the general population, primarily from cardiovascular and respiratory diseases (1). Of note, this excess cardiovascular mortality was seen even among young adults (ages 20–34).

This lack of use of outpatient general medical care has implications for preventive service delivery for individuals with serious mental illness. For example, because many antipsychotic medications are associated with metabolic syndrome (8,34), the American Diabetes Association and the American Psychiatric Association issued guidelines in 2004 for monitoring metabolic risk factors. Unfortunately, prior studies have found that even ten years after these guidelines were published, only 30% of individuals taking these medications were being screened for diabetes (3,18). Part of the problem is that community mental health clinics

often do not have established referral and treatment options (35). Another contributing factor may be that few primary care providers may know about monitoring and treatment guidelines for individuals taking antipsychotic medications (36). Unfortunately, there are no clear standards for the delineation of responsibilities between mental health and primary care providers regarding baseline and maintenance monitoring and treatment for metabolic side effects of these medications (3,35).

Notably, because our study included only individuals who are engaged in the public mental health care system, it is likely that our findings underestimate the extent of this problem. People with serious mental illness have difficulty engaging in specialty mental health services (4,7). In fact, the California Department of Health and Human Services estimated that in 2012 only 22% of Medicaid-enrolled individuals with serious mental illness in the state were engaged in specialty mental health services (37). The large number of individuals with serious mental illness without outpatient general medical visits highlights the importance of initiatives to integrate care to improve the fragmented mental and general medical health care system (21,35).

Despite an Institute of Medicine call for improved integration of general medical and mental health care for individuals with serious mental illness (4), a recent Cochrane review noted a lack of studies examining effective collaborative care for people with schizophrenia (38). The lack of integration (cultural, fiscal, geographic, and electronic) among primary care and mental health systems obviously represents a barrier to coordinated services for this vulnerable population (21,35,39). Models of care have been developed that facilitate collaboration and coordination between mental health and general medical clinics to improve morbidity and reduce mortality among individuals with serious mental illness (40), but these models have proven difficult to disseminate. Dissemination will require structured support, concerted leadership, and financial restructuring.

There were several limitations to this study. First, our models used administrative billing data, with only individual-level predictors included in the model and no place-of-service codes or additional types of service variables. Although we found a difference in outpatient service use in our cohort between individuals with managed Medicaid and those with fee-for-service Medicaid, more research is needed to determine the factors that led to differential access to care between these two groups. Furthermore, the administrative billing data did not include general medical comorbidities, behavioral factors (for example, smoking), area-level social determinants of health, or other personal characteristics that may have influenced the number of outpatient visits. Thus there may have been residual confounding.

The differences in relative risk seen in our cohort were relatively small, suggesting that we may not have captured some of the factors that accounted for whether an individual had at least one outpatient visit. In addition, our results may not be generalizable to individuals with serious mental

illness who are not in treatment in community mental health centers or who live in states other than California. Many individuals with serious mental illness do not access specialty mental health services, and those engaged in such care may be more likely to access nonpsychiatric outpatient visits; thus our findings may overestimate the number of individuals with serious mental illness seen in primary care (37). Our study represented only a subsample of individuals with serious mental illness; however, given the use of antipsychotic medications, this is a subsample of interest. Other systems-level factors not examined in this study may also influence the likelihood of outpatient visits, including case management programs, emergency room visits, and hospitalizations. Although individuals who receive acute services (such as urgent care, emergency room care, and hospitalization) should also receive subsequent outpatient services, information about use of these types of services was not available for our cohort.

## CONCLUSIONS

Although researchers, policy makers and frontline providers often focus on the association between mental illness and high use of health care (primarily acute care and hospitalizations), less is known about individuals with serious mental illness who do not access primary care services at all. Furthermore, it is unknown whether individuals who do not access primary care services have higher use of acute or emergency health care services. This study observed that a third of individuals with serious mental illness had no outpatient general medical visits in a one-year period. In contrast, less than 3% of individuals had 20 or more visits in a year. People with schizophrenia—one of the most severe mental illnesses—were most at risk of a lack of health care. We need to better understand factors that influence care seeking among individuals with serious mental illness, including patient-, provider-, and systems-level factors. New models of care will be needed to engage this group. Future research is needed

**TABLE 2. Poisson regression of potential predictors of outpatient general medical visits by Medicaid-enrolled adults with serious mental illness in California (N=56,895)**

| Characteristic                                                                              | Unadjusted analysis |           |       | Adjusted analysis |           |       |
|---------------------------------------------------------------------------------------------|---------------------|-----------|-------|-------------------|-----------|-------|
|                                                                                             | RR <sup>a</sup>     | 95% CI    | p     | ARR <sup>b</sup>  | 95% CI    | p     |
| Female (reference: male)                                                                    | 1.32                | 1.28–1.36 | <.001 | 1.29              | 1.25–1.34 | <.001 |
| Race-ethnicity (reference: white)                                                           |                     |           | <.001 |                   |           | <.001 |
| Asian and Pacific Islander                                                                  | 1.14                | 1.07–1.21 |       | 1.09              | 1.03–1.16 |       |
| Black                                                                                       | .94                 | .91–.98   |       | .93               | .89–.96   |       |
| Hispanic                                                                                    | 1.00                | .97–1.03  |       | 1.01              | .98–1.04  |       |
| Other                                                                                       | .98                 | .95–1.01  |       | .96               | .94–.99   |       |
| Age (reference: 18–27) <sup>c</sup>                                                         |                     |           | <.001 |                   |           | <.001 |
| 28–47                                                                                       | 1.12                | 1.09–1.15 |       | 1.07              | 1.05–1.09 |       |
| 48–67                                                                                       | 1.27                | 1.24–1.29 |       | 1.19              | 1.16–1.22 |       |
| Rural county (reference: urban) <sup>d</sup>                                                | .64                 | .53–.77   | <.001 | .64               | .53–.77   | <.001 |
| Psychiatric diagnosis (reference: schizophrenia spectrum disorder) <sup>e</sup>             |                     |           | <.001 |                   |           | <.001 |
| Anxiety disorder                                                                            | 1.27                | 1.20–1.34 |       | 1.18              | 1.13–1.24 |       |
| Bipolar disorder                                                                            | 1.20                | 1.16–1.24 |       | 1.15              | 1.11–1.18 |       |
| Major depressive disorder                                                                   | 1.30                | 1.25–1.36 |       | 1.20              | 1.16–1.25 |       |
| Other                                                                                       | 1.14                | 1.08–1.20 |       | 1.15              | 1.11–1.19 |       |
| Comorbid substance use disorder (reference: none) <sup>f</sup>                              | .90                 | .86–.93   | <.001 | .95               | .92–.98   | .001  |
| Evidence of hypertension, dyslipidemia, or diabetes mellitus (reference: none) <sup>g</sup> | 1.14                | 1.07–1.22 | .001  | 1.11              | 1.05–1.18 | <.001 |
| Managed Medicaid (reference: fee-for-service Medicaid)                                      | 1.28                | 1.17–1.40 | <.001 | 1.21              | 1.12–1.31 | <.001 |

<sup>a</sup> Relative risk

<sup>b</sup> Adjusted relative risk

<sup>c</sup> Age categories were those provided by the California Department of Health Care Services.

<sup>d</sup> The adjusted analysis controlled for the three main demographic variables (gender, race-ethnicity, and age) and county type, unless it was the predictor variable of interest.

<sup>e</sup> The adjusted analysis controlled for the three main demographic variables, county type, and comorbid substance use disorders.

<sup>f</sup> The adjusted analysis controlled for the three main demographic variables, county type, and axis I diagnosis.

<sup>g</sup> The adjusted analysis controlled for the three main demographic variables, county type, axis I diagnosis, and comorbid substance use disorder.

as to which models best improve morbidity and reduce mortality in this vulnerable population of individuals with serious mental illness.

## AUTHOR AND ARTICLE INFORMATION

Dr. Garcia and Dr. Schillinger are with the Department of Medicine, Dr. Vittinghoff is with the Department of Epidemiology and Biostatistics, Ms. Creasman is with the Clinical and Translational Science Institute, and Dr. Mangurian is with the Department of Psychiatry, all at the University of California, San Francisco, School of Medicine (e-mail: maria.garcia@ucsf.edu). Dr. Garcia, Dr. Schillinger, and Dr. Mangurian are also with Zuckerberg General Hospital, San Francisco. Dr. Knapp is with the Department of Psychiatry and Behavioral Sciences, University of California, Davis. Dr. Newcomer is with the Department of Integrated Medical Science, The Charles E. Schmidt College of Medicine, Florida Atlantic University, Boca Raton. Early results of this work were presented at the annual meeting of the Society of General Internal Medicine, Hollywood, Florida, May 11–14, 2016.

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## Short Descriptions of Novel Programs Invited

Psychiatric Services invites contributions for Frontline Reports, a column featuring short descriptions of novel approaches to mental health problems or creative applications of established concepts in different settings.

Text should be 350 to 750 words. A maximum of three authors, including the contact person, can be listed; one author is preferred. References, tables, and figures are not used. Any statements about program effectiveness must be accompanied by supporting data within text.

Material to be considered for Frontline Reports should be sent to one of the column editors: Francine Cournos, M.D., New York State Psychiatric Institute (e-mail: [fc15@columbia.edu](mailto:fc15@columbia.edu)), or Stephen M. Goldfinger, M.D., Department of Psychiatry, SUNY Downstate Medical Center (e-mail: [smgoldfingermd@aol.com](mailto:smgoldfingermd@aol.com)).