Mental health disorders among prisoners have consistently exceeded rates of such disorders in the general population, and correctional facilities in the United States are often considered to be the largest provider of mental health services. Despite court mandates for access to adequate health care in prisons (these mandates are even further limited to “severe” and “serious” mental illness treatment requirements in prison settings), inmate access to health and mental health care has been sporadic. Treatment decisions often depend on the limited available resources, public support of correctional treatment, and correctional management decision-making. Some studies report that at least half of male inmates and up to three quarters of female inmates reported symptoms of mental health conditions in the prior year (compared with 9% or fewer in the general population). These rates underscore the importance of access to mental health treatment for inmates, because lack of access to treatment can have important policy implications, particularly when financial resources are limited for correctional intervention and treatment.

Individuals with untreated mental health conditions may be at higher risk for correctional rehabilitation treatment failure and future recidivism on release from prison. In fact, Baillargeon et al. found that after release from prison, former inmates who received a professional diagnosis of any Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, mental health disorder were 70% more likely to return to prison at least once than were those who were not given a diagnosis. Furthermore, among those who have been previously incarcerated, the rates of recidivism are between 50% and 230% higher for persons with mental health conditions than for those without any mental health conditions, regardless of the diagnosis. The limited treatment options in many prison settings are directly reflected in the greater number of disciplinary problems, rule violations, and physical assaults among those who have mental health disorders, often compounded by the resulting solitary confinement as punishment for these behaviors. Although all prisons are required to provide some level of health care, we know very little about whether mental health treatment is actually available to inmates on a case-by-case basis. In fact, Wilper et al. found that most prisoners, even those who have chronic medical conditions (such as diabetes or hypertension), had limited access to health care in prison. Therefore, we used a nationally representative sample of US prisoners to assess whether all persons with a history of mental health conditions were screened and evaluated by a medical professional for these conditions and whether medication use was continuous from the community setting to the prison setting.

Mental health conditions represent a different level of need when compared with physical health needs among prisoners. For instance, tuberculosis transmission is a physical health hazard to all inmates and staff. Therefore, correctional administrators ensure that individuals suspected of having tuberculosis obtain proper assessment and subsequent access to health care. Symptoms inherent to many mental health disorders, however, may be less obvious to prison staff, especially without assessment by trained mental health professionals. In addition, a report on mental health care in prison emphasized the need for screening and treatment of mental health conditions among inmates from both a legal and a humanitarian perspective. Specifically, several US Supreme Court decisions have supported the rights of prisoners to receive health care, including mental health care (see Bowring v Godiva, 551 F2d 44 [4th Cir 1977]; Laamon v Helgemoe, 437 F Supp 269 [DNH 1977]; and Ruiz v Estelle, 503 F Supp 1265 [SD Tex 1980]). To date, however, a great deal of variation remains in screening for and treatment of mental health disorders in prison settings. The use of pharmacotherapy, in conjunction with counseling and self-help groups, to treat mental health conditions in correctional settings has been largely accepted in the correctional community; however, many medications are expensive and, therefore, not offered widely within institutions.
Several practical issues might explain why an individual in the correctional system would have difficulty receiving (or continuing to receive) pharmacotherapy for mental health conditions. First, psychologists and psychiatrists who may properly diagnose disorders are in short supply, and the screening tools that are typically used in prison settings are not diagnostic tests. Instead, the purpose of these tools is to gauge the security risk of a new inmate at the institution.

Second, the continuously declining correctional budget may limit treatment access to those with only the most serious mental health conditions. In an ideal situation in which a licensed professional properly diagnoses inmates, specialized treatment programs (rarely located inside of prison facilities) are available. Unfortunately, the use of these outside treatment programs is limited, because correctional budgets do not have the extensive resources necessary to manage inmates enrolled in off-site treatment or to handle the logistics (such as secure transport) involved.

The incarceration experience itself poses a challenge to mental health treatment. Untreated mental health (and physical health) conditions are known to result in poor adjustment to life in prison. Furthermore, crowded living quarters, lack of privacy, increased risk of victimization, and solitary confinement within the institution have been identified as strong correlates for self-harm and adaptation challenges for those with mental health conditions in prison settings.

Given the strong relation between mental health and criminal behavior, the public health system has a great deal to gain from better mental health treatment among inmates, particularly in reducing the costs associated with high recidivism rates. Therefore, this study extends previous research on prisoner health conducted by Wilper et al. by assessing the continuity of pharmacotherapy (e.g., medication used to treat a mental health condition in prison), beyond the prevalence rates of pharmacotherapy in prison. Furthermore, we examined potential explanations for both continuity and discontinuity of treatment in the inmate population. Specifically, this study will contribute to the literature by evaluating 3 specific aims: (1) to assess medication continuity for a mental health condition since admission to prison; (2) to assess the correlates of medication continuity, medical screening, and receipt of examinations by medical personnel; and (3) to assess the degree to which medication continuity is predicted by screening prisoners for mental health conditions at intake to prison.

METHODS

Data were obtained from the nationally representative 2004 Survey of Inmates in State and Federal Correctional Facilities, as well as the 2004 Survey of Inmates in Federal Correctional Facilities. These surveys used a dual-stage stratified sampling design to select prisons (prisons were randomly selected in the first stage, and inmates were systematically selected within prisons during the second stage); however, some nonrandom sampling was conducted to ensure adequate gender representation. State prisons included in this sample were 21 (14 housing men only, 4 housing women only, and 3 housing both men and women) preslected institutions with the largest inmate populations according the Bureau of Justice Statistics census in 2000. The remaining state prisons were stratified by census geographic region and gender and sorted by population size. From this database, 211 male and 58 female prisons were included in this study randomly.

Similarly, 3 federal prisons (1 housing women; 2 housing men) were selected with certainty because of their size. The remaining federal prison facilities (a list also derived from the Bureau of Justice Statistics census) were then grouped according to security level and gender and sorted by size. From this file, a random sample of 30 male and 7 female federal prisons was drawn, resulting in a final federal prison sample of 32 male and 8 female prisons.

In the second stage of sampling for state prisoners, the Bureau of Justice Statistics (in cooperation with the Federal Bureau of Prisons) assigned an identification number to each inmate who had spent the night in each selected prison on 1 day during September 2002. A computer-generated algorithm with a random starting point and predetermined skip interval was used to select inmates to be interviewed. For federal prisoners, a similar procedure was used; however, inmates serving sentences for drug-related offenses were systematically undersampled to ensure variability in crime type. This undersampling was conducted because of the especially high rate of drug offenders in federal prisons (≥50% of the federal inmate population).

In summary, 14,499 state and 3686 federal prisoners were surveyed using both direct in-person interviewing (for demographic information) and computer-assisted personal interviewing because of the sensitive nature of many items on the questionnaire. The response rate was 89.8% for inmates in the state sample and 86.7% for those in the federal sample.

MEASURES

Mental health conditions. Each respondent was asked,

Have you ever been told by a mental health professional, such as a psychiatrist or psychologist, that you had [a depressive disorder, manic-depression, bipolar disorder, or mania; schizophrenia or another psychotic disorder; posttraumatic stress disorder; another anxiety disorder, such as a panic disorder; a personality disorder; any other mental or emotional condition]?

Each respondent reported whether they had been given a diagnosis of each type of disorder individually, and each type of disorder was dummy coded for analysis. An “any mental health disorder” variable also was created for descriptive purposes only.

Continuity of mental health pharmacological treatment. Each respondent who reported 1 or more of the mental health conditions was asked, “Were you taking medication prescribed by a doctor for a mental or emotional problem at the time of the [admission to current facility]?” and “Have you taken medication for a mental or emotional problem since your admission to prison?” Respondents who were taking medication at admission and continued taking medication during their incarceration were considered to have treatment continuity. All others were coded as “noncontinuous” mental health treatment. Inmates who were not taking medication before their admission to prison and initiated medication use in prison were categorized into a third level of this variable, referred to as medication received in prison only.

Access to Pharmacotherapy for Mental Health Treatment in Prison

Medical screening. Each respondent was asked, “When you were admitted on your most recent admission date, did they ask you any questions about your health or medical
history? Those who responded affirmatively were coded as “received medical screening” in prison.

Received a medical examination by medical personnel while incarcerated. Each respondent was asked, “Since your admission on [date of booking for current offense], have you had a medical examination?” Responses were dichotomized into “used counseling in prison” and “did not use counseling in prison.” Peer support group use was similarly measured and coded.

Time spent in prison. Time spent in the current prison facility was reported by the inmate and verified multiple times during the interview for reliability purposes. This measure was included as a covariate in all analyses as a potential indicator of recall bias or changes in prison practices.

Demographic information. Respondents self-reported their race/ethnicity and were coded as White (non-Hispanic), Black (non-Hispanic), Hispanic, or “other” race (non-Hispanic). Ages were calculated from self-reported birthdate, and interviewers interpreted the biological sex of the respondent with direct observation or the sex-specific prison environment (if sex was not readily apparent to the interviewer, the interviewer was directed to ask the inmate to self-report his or her sex).

Analytic Methods
All analyses were survey weighted according to the unequal probability of selection for participation in this sample. Descriptive and multivariable analyses of the full sample were stratified by jurisdiction (state and federal prisons); however, the small sample sizes for several mental health conditions and medication continuity precluded stratification of multivariable analyses by jurisdiction in assessing predictors of medication continuity. Because of the low prevalence of several mental health conditions, we conducted multivariable analyses for only schizophrenia and depression (referent). All other conditions were not related to treatment continuity in the bivariate models; therefore, only bivariate analyses for rare mental health conditions are presented.

We used survey multinomial and logistic regression procedures to examine the direct effects of mental health conditions, access to treatment, and screening at intake on treatment continuity. All analyses were conducted using Stata version 13 (StataCorp, College Station, TX).

RESULTS
Characteristics of the sample, stratified by state versus federal jurisdiction, are detailed in Table 1. The average amount of time already served in prison was longer in state facilities (5.33 years) than in federal facilities (4.41 years). The sample was primarily Black (approximately 40% in each sample), 93% of those surveyed were men, and the average age of prisoners was 36 years. Depression was the most prevalent mental health condition reported by inmates, followed by mania, anxiety, and posttraumatic stress disorder. Mental health conditions were reported more frequently among prisoners in state institutions. A combined total of 5207 (26.2%) respondents received at least 1 mental health diagnosis during their lifetime.

At the time of admission, 18% of each sample were taking medication for a mental health condition (this was consistent across state and federal facilities). Among those who previously received medication, 52% of those inmates in federal prison (and 42% in state prisons) received medication during their current sentence. Therefore, medication continuity was qualitatively greater in federal prisons than in state prisons; however, between 40% and 50% of inmates taking medication for a mental health condition at admission did not receive medication in prison. Inmates in federal facilities were more likely to use counseling services (46% compared with 41% in state facilities); the use of self-help groups, however, was consistent (20%) across both types of facilities. Approximately 90% of the respondents were screened at intake to the facility and were seen by a physician; however, rates of screening and medical examination were significantly higher in federal prisons.

Table 2 shows the results of the logistic regression analysis examining the effect of health care screening and access to treatment on medication continuity in prison. Independent of access to treatment and demographics, inmates with schizophrenia were more than twice as likely as inmates with depression to have medication continuity in prison. Screening was not related to medication continuity independent of having seen a medical professional. Finally, we found racial (but not ethnic) differences in medication continuity: Black inmates were 36% more likely to report medication continuity compared with White inmates. No gender differences were observed; however, age was positively associated with medication continuity. Time served was inversely related to continuity, and the type of institution (state or federal) was not associated with medication continuity in multivariable analyses.

Finally, we were interested in whether screening procedures for mental health conditions served as a pathway to seeing a medical professional while incarcerated (Table 3). Results indicate that screening was strongly correlated with having seen a medical professional in prison across both state and federal facilities; however, this effect was more pronounced in federal prisons. Men were less likely than women, and Hispanic inmates and those of other races were less likely than White inmates, to have seen a medical professional while serving their current sentence. Age and longer length of time served in the current facility were positively associated with having seen a medical professional in prison.

DISCUSSION
The results from this study suggest that about one fourth of the inmates in this sample received a mental health diagnosis during their lifetime, with a small proportion (18%) of these individuals taking medication for their condition(s) at the time of their admission to prison. In prison, fewer than 50% of those who reported taking medication for a mental health condition at intake reported not receiving medication for this condition in prison. Screening for mental health conditions on intake into the institution was the strongest predictor of being seen by a medical professional, which increased the rate of continuous...
TABLE 1—Sample Description, Stratified by Federal vs State Prison Setting: 2004 Survey of Inmates in State and Federal Correctional Facilities, United States

<table>
<thead>
<tr>
<th>Variable</th>
<th>Federal (n = 3666)</th>
<th>State (n = 14 499)</th>
<th>χ² or t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Race/ethnicity</td>
<td></td>
<td></td>
<td>82.38***</td>
</tr>
<tr>
<td>Non-Hispanic White</td>
<td>26.05 (0.21)</td>
<td>35.25 (0.09)</td>
<td>-8.16***</td>
</tr>
<tr>
<td>Non-Hispanic Black</td>
<td>43.43 (0.21)</td>
<td>40.59 (0.10)</td>
<td>1.78</td>
</tr>
<tr>
<td>Non-Hispanic other</td>
<td>5.39 (0.09)</td>
<td>5.97 (0.10)</td>
<td>0.69</td>
</tr>
<tr>
<td>Hispanic</td>
<td>25.12 (0.09)</td>
<td>18.19 (0.10)</td>
<td>8.66***</td>
</tr>
<tr>
<td>Sex (male)</td>
<td>92.99 (0.21)</td>
<td>93.25 (0.20)</td>
<td>0.69</td>
</tr>
<tr>
<td>Age, y (overall range = 16–84)</td>
<td>37.16 (0.21)</td>
<td>35.36 (0.09)</td>
<td>-8.16***</td>
</tr>
</tbody>
</table>

Prevalence of mental health conditions among prisoners:

- Depression: 10.92% (19.20) vs 4.11% (9.77), χ² = 108.82***
- Mania: 4.11% (9.77) vs 110.21***
- Schizophrenia: 1.98% (4.65) vs 39.95***
- Posttraumatic stress disorder: 3.36% (3.72) vs 32.44***
- Anxiety: 4.34% (7.13) vs 23.64***
- Personality disorders: 3.28% (6.04) vs 31.62***
- Other: 0.81% (1.96) vs 22.72***

Continuity of treatments for mental health conditions:

- Lifetime use of medication for a mental health condition: 13.18% (23.93) vs 160.91***
- Received medication in prison: 18.52% (18.59) vs 0.01
- Received medication while incarcerated: 52.47% (42.22) vs 27.15***
- Received medication at both time points: 63.61% (52.67) vs 18.88***
- Received medication in prison: 16.34% (27.74)

Access to and use of medical treatment in prison:

- Saw health care professional at any point during current incarceration: 91.52% (84.44) vs 78.11***
- Questioned about health or medical history: 91.05% (88.56) vs 11.90***

Other mental health treatment modalities:

- Ever saw a counselor during lifetime: 87.41% (78.45) vs 118.49***
- Saw a counselor in prison: 46.33% (40.95) vs 3.94***
- Used self-help group or peer group in prison: 21.45% (18.87) vs 1.77

Offense characteristics:

- Length of time served for current offense, y (overall range = 1953–2003): 4.41 (0.09) vs 5.33 (0.07) vs 7.44***

Note. The sample size was n = 18 185 US prisoners.

*These mental health conditions are not mutually exclusive and prisoners were free to report having been diagnosed with multiple disorders during their lifetime. Therefore, weighted percentages exceed 100%.

*The denominator of this measure is the number of prisoners who reported having taken medication for a mental health or emotional condition at admission to prison for their current sentence (n = 3718).

*The denominator of this measure is the number of prisoners who reported having ever received counseling from a trained professional (n = 4073).

*P < .05; ***P < .001.
Unexpectedly, we found that Black inmates were more likely than White inmates to have continuous pharmacotherapy. Other studies have found that Black prisoners (and those in the general population) are more likely than any other racial/ethnic group to have schizophrenia or other nonschizophrenic psychotic disorders. In the general population, the increased treatment rates for Black patients are partially attributed to higher levels of symptom severity; therefore, we suspect that Black prisoners have greater medication continuity in the correctional system because of easily identifiable symptoms of schizophrenia or other severe conditions.

Overall, given the increasing prevalence of inmates in prisons with mental health conditions and the fiscal decline in correctional budgets across the board, innovative thinking, primarily in the realm of public health intervention and prevention, is necessary. Specialized therapeutic communities, mental health courts, telemedicine (to provide access to psychiatric specialists without prisoners leaving the facility), integrated family counseling, and cognitive-behavioral therapies may be used as complementary to pharmacotherapy in prison settings to reduce already elevated levels of reoffending. We found that fewer than

### Table 2—Bivariate and Multivariable Survey Logistic Regression to Examine Screening and Access to Health Care as Predictors of Medication Continuity in US Prisons: 2004 Survey of Inmates in State and Federal Correctional Facilities

<table>
<thead>
<tr>
<th>Variable</th>
<th>Bivariate Model: Medication Use at Admission and in Prison (Continuity), OR (95% CI)</th>
<th>Multivariable Model: Medication Use at Admission and in Prison (Continuity), OR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access to and use of medical treatment in prison</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Saw a health care professional at any point while incarcerated</td>
<td>1.20 (0.95, 1.52)</td>
<td>1.36* (1.06, 1.75)</td>
</tr>
<tr>
<td>Screened about health or medical history</td>
<td>1.49** (1.17, 1.89)</td>
<td>1.17 (0.89, 1.55)</td>
</tr>
<tr>
<td>Mental health conditions*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depression (Ref)</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Mania</td>
<td>1.18 (0.92, 1.52)</td>
<td></td>
</tr>
<tr>
<td>Schizophrenia</td>
<td>1.79*** (1.34, 2.40)</td>
<td>2.26*** (1.50, 3.40)</td>
</tr>
<tr>
<td>Posttraumatic stress disorder</td>
<td>1.24 (0.90, 1.70)</td>
<td></td>
</tr>
<tr>
<td>Anxiety</td>
<td>0.96 (0.72, 1.26)</td>
<td></td>
</tr>
<tr>
<td>Personality disorders</td>
<td>1.17 (0.83, 1.65)</td>
<td></td>
</tr>
<tr>
<td>Other mental health disorders</td>
<td>1.08 (0.59, 1.98)</td>
<td></td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Hispanic White (Ref)</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Non-Hispanic Black</td>
<td>1.05*** (1.26, 1.79)</td>
<td>1.36* (1.05, 1.78)</td>
</tr>
<tr>
<td>Non-Hispanic other</td>
<td>1.17 (0.94, 1.45)</td>
<td>1.02 (0.66, 1.58)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>0.95 (0.71, 1.28)</td>
<td>0.92 (0.68, 1.25)</td>
</tr>
<tr>
<td>Sex (male)</td>
<td>0.87 (0.76, 1.03)</td>
<td>0.94 (0.75, 1.18)</td>
</tr>
<tr>
<td>Age</td>
<td>1.03*** (1.02, 1.04)</td>
<td>1.02*** (1.02, 1.04)</td>
</tr>
<tr>
<td>Time served</td>
<td>0.98 (0.96, 1.01)</td>
<td>0.97* (0.95, 0.99)</td>
</tr>
<tr>
<td>State institution</td>
<td>0.87 (0.72, 1.07)</td>
<td>0.96 (0.73, 1.26)</td>
</tr>
</tbody>
</table>

Note. CI = confidence interval; OR = odds ratio. The sample comprised all prisoners who reported having taken medication at the time of admission to the facility (n = 3718).

*Because of the low prevalence of several mental health conditions, multivariable analyses were conducted for only schizophrenia and depression (reference). All other analyses were not related to treatment continuity; therefore, only bivariate analyses for rare mental health conditions are presented here.

*P < .05; **P < .01; ***P < .001

### Table 3—Multivariable Survey Logistic Regression Testing the Relation Between Screening for Mental Health Conditions at Intake and Seeing a Health Care Professional in US Prisons: 2004 Survey of Inmates in State and Federal Correctional Facilities

<table>
<thead>
<tr>
<th>Variable</th>
<th>Federal Prisons, OR (95% CI)</th>
<th>State Prisons, OR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Questioned about health or medical history at intake</td>
<td>3.01*** (1.85, 4.91)</td>
<td>2.43*** (2.02, 2.91)</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Hispanic White (Ref)</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Non-Hispanic Black</td>
<td>1.25 (0.75, 2.06)</td>
<td>0.99 (0.84, 1.17)</td>
</tr>
<tr>
<td>Non-Hispanic other</td>
<td>0.60 (0.29, 1.23)</td>
<td>0.75*** (0.61, 0.90)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>0.67 (0.42, 1.07)</td>
<td>0.75* (0.56, 0.99)</td>
</tr>
<tr>
<td>Sex (male)</td>
<td>0.62* (0.43, 0.92)</td>
<td>0.42*** (0.34, 0.52)</td>
</tr>
<tr>
<td>Age</td>
<td>1.03** (1.01, 1.05)</td>
<td>1.02** (1.01, 1.03)</td>
</tr>
<tr>
<td>Time served</td>
<td>1.06* (1.00, 1.13)</td>
<td>1.07*** (1.05, 1.09)</td>
</tr>
</tbody>
</table>

Note. CI = confidence interval; OR = odds ratio.

*P < .05; **P < .01; ***P < .001.
half of those who reported ever having a mental health condition (36%) in this sample had used counseling services in prison, and only 21% had used self-help groups, but this was not the focus of this analysis. Furthermore, of those who were taking medication for a mental health condition in prison, 61% used no other form of treatment. Therefore, a more holistic, multidimensional (and multimodal) approach to treating mental health conditions in prison may lead to better outcomes and lower recidivism rates in this high-risk population. Transitional plans on release and reintegration into the community are especially important to maintain the positive effects of treatments that occur in the prison setting. When prevention is impossible (for those who are already in prison), an investment in evidence-based, intensive treatment programs in the prison system may result in a sharp decline in offender recidivism and, by extension, a long-term cost savings.  

These results should be interpreted in light of several limitations. First, mental health conditions were not diagnosed by health care professionals; rather, they were self-identified by respondents. The actual prevalence of mental health conditions among persons involved in the justice system is likely higher than reported here, because those diverted to mental health conditions were not diagnosed by health care professionals. The actual prevalence of mental health conditions, medication continuity, and the degree of mental health treatment that occurred in their facility.  

**About the Authors**

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This article was accepted April 10, 2014.  

**Contributors**

J.M. Reingle Gonzalez conceptualized the study, conducted data analyses, and drafted the Methods and Results sections. N.M. Connell drafted the introduction and the Discussion. Both authors were actively involved in the revisions of the article.  

**Acknowledgments**

The authors wish to thank the Bureau of Justice Statistics for access to the data set for analysis, to Lauren Glaze for her extensive insight into the data, and to the reviewers for their thoughtful comments that were used to improve the article.  

**Human Participant Protection**

These data were entirely de-identified and exempt from institutional review board review.  

**References**