

# UCSF

## UC San Francisco Previously Published Works

### Title

The Effectiveness of Discharge Planning for Psychiatric Inpatients With Varying Levels of Preadmission Engagement in Care

### Permalink

<https://escholarship.org/uc/item/16j814jc>

### Journal

Psychiatric Services, 73(2)

### ISSN

1075-2730

### Authors

Smith, Thomas E  
Haselden, Morgan  
Corbeil, Tom  
[et al.](#)

### Publication Date

2022-02-01

### DOI

10.1176/appi.ps.202000863

Peer reviewed



Published in final edited form as:

*Psychiatr Serv.* 2022 February 01; 73(2): 149–157. doi:10.1176/appi.ps.202000863.

## The effectiveness of discharge planning for psychiatric inpatients with varying levels of pre-admission engagement in care

Thomas E. Smith, M.D.<sup>1</sup>, Morgan Haselden, B.A.<sup>2</sup>, Tom Corbeil, M.P.H.<sup>2</sup>, Melanie M. Wall, Ph.D.<sup>1</sup>, Fei Tang, M.P.H.<sup>3</sup>, Susan M. Essock, Ph.D.<sup>4</sup>, Eric Frimpong, Ph.D.<sup>3</sup>, Matthew L. Goldman, M.D., M.S.<sup>5</sup>, Franco Mascayano, M.P.H.<sup>2</sup>, Marleen Radigan, Dr.P.H.<sup>3</sup>, Matthew Schneider, M.D.<sup>6</sup>, Rui Wang, M.S.<sup>3</sup>, Ian Rodgers, M.P.H.<sup>2</sup>, Lisa B. Dixon, M.D., M.P.H.<sup>1</sup>, Mark Olfson, M.D., M.P.H.<sup>1</sup>

<sup>1</sup>New York State Psychiatric Institute, Department of Psychiatry, Columbia University Vagelos College of Physicians and Surgeons, New York, New York

<sup>2</sup>New York State Psychiatric Institute, New York, New York

<sup>3</sup>Office of Performance Measurement and Evaluation, New York State Office of Mental Health, Albany, New York

<sup>4</sup>Department of Psychiatry, Columbia University Vagelos College of Physicians and Surgeons, New York, New York

<sup>5</sup>Department of Psychiatry and Behavioral Sciences, University of California-San Francisco, San Francisco, California

<sup>6</sup>Department of Psychiatry and Behavioral Sciences, Albert Einstein College of Medicine, Montefiore Medical Center, New York, New York

### Abstract

**Objective:** This study examined the extent to which pre-hospital treatment engagement is related to post-hospital follow-up treatment among psychiatric inpatients and whether the effects of inpatient discharge planning on post-hospital follow-up treatment vary by level of pretreatment engagement in care.

**Methods:** New York State Medicaid and other administrative databases were used to examine service use by 18,793 adult patients discharged to the community following inpatient psychiatric care in 2012–2013. Outcomes included attending an outpatient mental health service within 7- and 30-days following discharge. The sample was stratified based upon whether patients had high, partial, low, or no engagement in outpatient psychiatric services in the 6 months prior to admission.

---

**Correspondence author:** Thomas E. Smith, New York State Psychiatric Institute, 1051 Riverside Drive, New York, NY 10032. thomas.smith@nyspi.columbia.edu.

**Disclosures:** The authors have no conflicts of interest to disclose.

**Results:** Scheduling an outpatient appointment as part of the patient's discharge plan was significantly associated with attending outpatient psychiatric appointments, regardless of the patient's level of engagement in care prior to admission. The differences were most pronounced in group of patients who had not received any outpatient care in the 6 months prior to admission. When an appointment was scheduled, these patients were 3 times more likely to follow-up with care within 7 days and over twice as likely to follow-up within 30 days.

**Conclusions:** The likelihood of psychiatric inpatients following up with outpatient psychiatric care was directly related to their level of outpatient care engagement prior to hospital admission, but even among those who had not been engaged in outpatient care, inpatient discharge planning was associated with a greater likelihood of receiving follow-up outpatient care.

### Keywords

Care transitions; discharge planning; scheduling appointments; engagement; follow-up after hospitalization; hospital psychiatric care

---

### Introduction

High rates of failed care transitions following inpatient psychiatric care is a critical quality concern: 42%–51% of adult (1–3) and 31%–45% of youth (3–5) do not attend mental health visits within 30 days after discharge. Failed care transitions increase the risk of relapse and hospital readmission (6–13), homelessness (14,15), violent behavior (16,17), criminal justice involvement (18,19), and all-cause mortality including suicide (20–24).

Routine discharge planning, including scheduling an outpatient appointment with a community-based psychiatric provider prior to discharge, significantly improves the likelihood of patients attending visits following discharge (25–28). Recent studies by our group describe patient, hospital, and service system characteristics associated with patients receiving routine discharge planning practices (29) and also document that, after controlling for a range of patient, hospital, and service system characteristics, patients who had an appointment scheduled prior to discharge had a significantly greater likelihood of receiving timely outpatient psychiatric care (30).

An important factor to consider, however, is the patient's history of engagement in outpatient care. Patients who were not engaged in psychiatric care prior to admission are much more likely to fail to transition to outpatient care following inpatient psychiatric discharge (1,2,30). Hospital providers may provide less discharge planning for patients known to not follow up with care or when patients are being discharged against medical advice or otherwise refusing outpatient follow-up. It is important to know whether routine discharge planning practices are effective and should be encouraged for these patients.

In the present study, we explore whether the strength of associations between scheduling aftercare appointments during routine psychiatric inpatient discharge planning and post-discharge follow-up care varies by level of patient engagement in outpatient psychiatric care prior to hospital admission. We hypothesized that the association between appointment scheduling and attendance at follow-up appointments would be weaker for patients who

were only partially engaged in care prior to the admission, and that appointment scheduling would not have a significant impact on follow-up for patients who received no psychiatric care during the 6 months prior to admission to inpatient psychiatric admission. These hypotheses were based on the expectation that individuals who do not routinely engage in outpatient care may be more likely to have characteristics (e.g., co-occurring substance use disorders) or circumstances (e.g., housing instability) that contribute to their poor engagement and for which a routine discharge planning practice such as scheduling an aftercare appointment may be less likely to impact.

## Methods

### Data sources and study population

Data for this study was obtained from 4 sources: 1) New York State Medicaid claims records (including data on patients and clinicians); 2) the 2012–2013 American Hospital Association Annual Survey (31); 3) the 2012–2013 Health Resources and Human Services Administration Area Resource File (32); and 4) a 2012–2013 New York State (NYS) Managed Behavioral Healthcare Organization (MBHO) Discharge File created as part of a statewide quality assurance program in NYS aimed to review discharge planning practices related to inpatient psychiatric admissions. The Area Health Resource File and Annual Hospital Survey data are available from the federal Health Resources and Human Services Administration and the American Hospital Association, respectively.

The eligibility criteria for study participants included patients who: 1) were <65 years of age; 2) were admitted to an inpatient psychiatric unit during 2012–2013 with a principal diagnosis of a mental disorder (only the first observed inpatient admission was included for patients who had more than 1 inpatient psychiatric admission during 2012–2013; ICD-9 diagnostic codes for mental disorder included 290, 293–299, 300–302, and 306–316); 3) had an inpatient length of stay  $\geq$  60 days; 4) were discharged to the community; 5) were continuously enrolled in Medicaid for the 60 days following discharge; and 6) were enrolled in Medicaid for at least 11 of the 12 months prior to their inpatient admission. Dual Medicaid-Medicare eligible patients were excluded due to lack of available information on Medicare service use. A total of 18,793 patients met these criteria. The study was approved by the local Institutional Review Board that granted a waiver of individual consent.

### Variables of interest

The main outcome was attending an outpatient psychiatric service within 7 or 30 days after being discharged from inpatient psychiatric care. An outpatient psychiatric service was defined as a Medicaid claim for a visit at a mental health licensed outpatient setting or any outpatient service with a primary diagnosis of a mental disorder. The New York State mental health authority requires that hospitals schedule appointments within 7 days of discharge.

The primary independent variable was a categorical measure of engagement in psychiatric care during the 6 months prior to inpatient admission. We adapted an approach to measuring engagement developed by researchers studying primary care (33) and veteran psychiatric populations (34) that measures intensity and regularity of outpatient visits as proxies for

engagement in services. Descriptive analyses of outpatient mental health visit intensity and regularity characteristics focused on the 6-month period prior to each patient's inpatient psychiatric admission. After review by clinicians and clinical administrators who are members of the research team, we defined an engagement variable based upon the following criteria: there should be sufficient numbers of cases in each category to allow for meaningful analyses; and the category definitions should reflect expert clinicians' experiences with patients who have variable levels of engagement in ambulatory care. Our engagement variable includes 4 levels: 1) High engagement: 4 or more visits with a psychiatric provider with visits in at least 4 of the 6 months; 2) Partial engagement: 4 or more visits but with all visits occurring in only 3 or fewer of the 6 months; 3) Low engagement: 1 to 3 visits in the 6-month period; and 4) No engagement: no visits in the 6-month period.

### Covariates

We included as covariates several patient, hospital, and regional service system characteristics that had been associated with discharge planning and post-discharge continuity of care for patients with psychiatric disorders (1,2,30,35,36). Patient characteristics included demographics (e.g., age, gender, race/ethnicity, length of stay, homeless at admission), primary inpatient discharge diagnosis, co-occurring substance use diagnosis at discharge, and burden of co-occurring medical conditions using an Elixhauser Comorbidity Index (ECI) (37). Established algorithms were used to develop an ECI index score for each discharge based on clinical diagnoses reported in inpatient and outpatient claims for all Medicaid-reimbursed health care services during the 12 months prior to inpatient admission (38,39).

Hospital level characteristics encompassed number of hospital beds, hospital ownership, percentage of discharges that were Medicaid, whether hospitals provided outpatient psychiatric services, whether the hospitals had resident teaching status, percentage of psychiatric discharges with use disorder diagnosis, and percentage of psychiatric population with 2 or more psychiatric discharges. System level characteristics described counties in which patients resided based on the percentage of county population in poverty, the number of psychiatric workers per 100,000 residents, and whether the counties had urban or rural level of population density.

### Data analysis

The proportions of patients admitted to inpatient psychiatric units meeting criteria for each of the 4 outpatient levels of engagement were calculated and stratified by each patient, hospital and service system characteristic. Unadjusted odds ratios (ORs) with 99% confidence intervals (CIs) were calculated for each characteristic using logistic regression models to describe the effect of each variable on the probability of being engaged prior admission comparing the partial, low, and no engagement groups with the high engagement group as the reference.

Logistic regression models estimated the associations of having an outpatient psychiatric appointment scheduled with 7- and 30-day attendance at outpatient psychiatric services. We fit models testing this association within each of the 4 groups based upon level of

engagement 6 months prior to psychiatric inpatient admission, while adjusting for all other patient, hospital, and service system covariates. For these associations, adjusted odds ratios (AORs) with 99% confidence intervals are provided as a measure of effect on the probability scale. Generalized estimating equations were used for all models to account for the clustering of observations within hospitals. In this large, exploratory study, no adjustments were made to the many CIs and p-values that should therefore be interpreted with caution. All analyses were performed using SAS version 9.4 (2016, SAS Institute Inc., Cary, NC, USA).

## Results

The final study sample included 18,793 psychiatric inpatient admissions involving 18,793 unique patients, all of whom were discharged to the community. Grouping the patients based on level of engagement with psychiatric services during the 6 months prior to inpatient admission identified 7,927 (42.2%) in the high engagement group, 1,968 (10.5%) in the partial engagement group, 3,648 (19.4%) in the low engagement group, and 5,250 (27.9%) in the no engagement group. Figure 1 shows 7- and 30-day rates of attending care following discharge for the high, partial, low, and no engagement groups. Follow-up rates progressively increased based upon level of engagement in care prior to admission.

Table 1 describes patient characteristics of the total sample and the 4 engagement groups. Comparing the 4 groups indicates consistent patterns that were more pronounced in the groups with lower levels of engagement in care prior to the admission. Compared to patients who were highly engaged in care, those with no psychiatric visits in the 6 months prior to admission were more likely to be Black patients (compared to White patients), older (relative to the 4–12 years old group), and to have shorter (0–4 days) lengths of stay. Patients not engaged in care prior to psychiatric admission were also more likely to be homeless, have a co-occurring substance use disorder, have a primary mood disorder (compared to psychotic disorder) diagnosis, and not to have co-occurring medical conditions. Table 2 lists hospital and system level characteristics for the total sample; none of these variables were consistently associated with level of engagement in psychiatric care prior to admission.

Among those who were highly engaged in care prior to admission, 15.1% did not have an appointment scheduled. This proportion progressively increased among the other groups; among those with partial, low or no engagement in care prior to admission, 18.0%, 21.6%, and 28% respectively did not have an appointment scheduled prior to discharge. Figures 2 and 3 present the proportions of patients attending outpatient appointments within 7- and 30-days following discharge, respectively, adjusted for the patient, hospital, and service system characteristics described in Table 1. For each of the 4 patient groups defined based upon level of engagement in care prior to admission, scheduling an outpatient appointment as part of the patient's discharge plan was significantly associated with attending an initial outpatient psychiatric appointment within both 7- and 30-days following discharge. In the group of patients who had not received any outpatient care in the 6 months prior to admission, those for whom the inpatient team scheduled an outpatient appointment as part of their discharge plan were approximately 3 times more likely than those who did not receive

this practice to follow-up with care within 7 days and more than twice as likely to follow-up within 30 days.

## Discussion

This study examined associations of scheduling appointments during discharge planning with follow-up outpatient treatment among patients with varying levels of engagement in care prior to hospital admission. We report 3 key findings: 1) only 42.2% of patients were highly engaged in outpatient psychiatric care in the 6 months prior to a psychiatric inpatient admission; 2) patients who were less engaged in care prior to admission were less likely to have an appointment scheduled with an aftercare provider); and 3) having an appointment scheduled as part of the discharge plan was associated with successful care transition regardless of the patient's level of engagement in care prior to the admission.

Our hypotheses that the association between appointment scheduling and attendance at follow-up appointments would be weaker or non-existent for patients who were partially or not engaged in care prior to the admission were not supported. Rather, we found that scheduling an outpatient appointment prior to discharge remained strongly associated with post-discharge follow-up regardless of patients' level of engagement in psychiatric care prior to admission. Even among patients who received no psychiatric services in the 6 months prior to admission, whose overall follow-up rates were the lowest, those for whom the inpatient psychiatric team scheduled an outpatient appointment as part of the discharge plan were approximately 3 times more likely to attend a follow-up psychiatric visit within 7 days and more than twice as likely to attend a visit within 30 days.

Lack of engagement in care prior to inpatient psychiatric admission is a strong predictor of failed care transitions (1,2). We defined 4 levels of engagement in outpatient psychiatric care based upon intensity of services received over a 6-month period prior to hospital admission. The finding that only a minority (42.2%) of patients met our definition of highly engaged in care prior to their hospital admission confirms prior studies indicating that poor access or adherence to community-based psychiatric care is a common antecedent to acute inpatient psychiatric care (2). Our approach to measuring engagement in outpatient psychiatric care may inform future quality improvement efforts.

In our sample, patient characteristics were more strongly associated with level of engagement in care prior to admission than were hospital or service system characteristics. Two of the significant patient characteristics, being homeless and having a co-occurring substance use disorder, are known predictors of poor treatment outcomes (1,14). Patients who had a shorter inpatient length of stay were also more likely to have been disengaged from outpatient psychiatric services prior to hospital admission: this group might include patients who were refusing treatment, were admitted on involuntary holds due to concerns about safety, and were discharged when the treating psychiatrist could no longer identify safety concerns. Other patient characteristics associated with poor engagement in care prior to admission, including older age, being a Black patient, having a primary mood disorder, and not having significant medical co-morbidities, are more difficult to explain. Of note is the finding regarding Black patients, who have been shown to have lower rates



of engagement in psychiatric care (40). Acute psychiatric care systems need to prioritize efforts to better understand and address the needs of Black individuals with psychiatric illness experiencing crises, including the potential impact of provider bias, patient distrust, and institutional racism on access to and retention in care.

Previously published analyses of this sample revealed that 77% had an outpatient appointment scheduled with a psychiatric provider as part of their discharge plan (29,35). The current analysis indicated that inpatient treatment teams were less likely to schedule post-discharge appointments for patients who were not engaged in care prior to admission. This may reflect a lack of available community providers with available appointment times. In the current and prior analyses (29), however, we did not find associations between outpatient provider density and scheduling appointments or follow-up attendance. This association may also be because these patients were more likely to refuse discharge planning, or it may reflect a bias on behalf of inpatient providers to offer less discharge planning to patients they believe to be less likely to follow-up. Importantly, our findings suggest that inpatient teams should offer to schedule outpatient follow-up appointments for all patients discharged from inpatient psychiatric care regardless of their level of engagement in psychiatric care prior to hospital admission.

There are several possible explanations for the associations between scheduling an appointment and attending post-discharge visits. For patients who were previously engaged in outpatient care, scheduling an appointment may serve as a reinforcement of the need for timely follow-up and limits the potential for confusion and discontinuity during the post-discharge period. For patients with low or no engagement in outpatient care prior to admission, scheduling an aftercare appointment may create an opportunity for continued care that some patients take advantage of following discharge despite their prior difficulties accessing treatment. Our data indicate that many such patients take advantage of this opportunity. This has important implications; hospital providers who do not offer discharge planning to patients who are leaving against medical advice or otherwise refusing to collaborate on discharge planning should consider revising their policies to ensure that all patients receive a follow-up appointment regardless of the circumstances of their discharge.

Additional factors may contribute to our finding that scheduling appointments was associated with successful care transitions for patients with low or no prior engagement in care. Some patients who previously had not engaged in care may have been affected by their current episode or circumstances in such a way that they became more motivated to seek outpatient care and collaborated with the inpatient treatment team on a discharge plan that included a scheduled appointment with an outpatient provider. Relatedly, for some patients, the inpatient treatment team may have accurately perceived other indicators that the patient was more likely to follow-up and preferentially scheduled appointments for those individuals. We do not have data to address either of these possibilities.

Potential limitations to this study include the possibility that unmeasured variables may have affected attendance at outpatient appointments, such as transportation constraints or attitudinal factors. There is also significant potential for measurement error given that we relied on multiple MBHOs independently reporting provider discharge planning activities.



Findings from a Medicaid population may not generalize to commercial or Medicare populations, and the New York State Medicaid population likely differs from other state Medicaid populations given variations in eligibility and enrollment practices across states. Data from 2012–2013 may not highly reflect contemporary practice given the age of the data and subsequent health care reform initiatives such as the Affordable Care Act. Additionally, the results are based on patients with one year of near continuous Medicaid enrollment and may not generalize to those with shorter enrollment.

## Conclusions

Discharge planning activities such as scheduling follow-up appointments increases the likelihood of patients successfully transitioning to outpatient care regardless of their level of engagement in care prior to psychiatric inpatient admission. Future research should examine mechanisms underlying successful discharge planning and care transitions, including potentially relevant issues including the role of familiarity of the community-based provider and whether additional discharge planning practices (e.g., forwarding care summaries or follow-up communications) further improve engagement in psychiatric care following hospital discharge.

## Acknowledgments:

This research was supported by two grants from the National Institute of Mental Health (NIMH):

1. R01MH106558
2. P50MH115843

## References

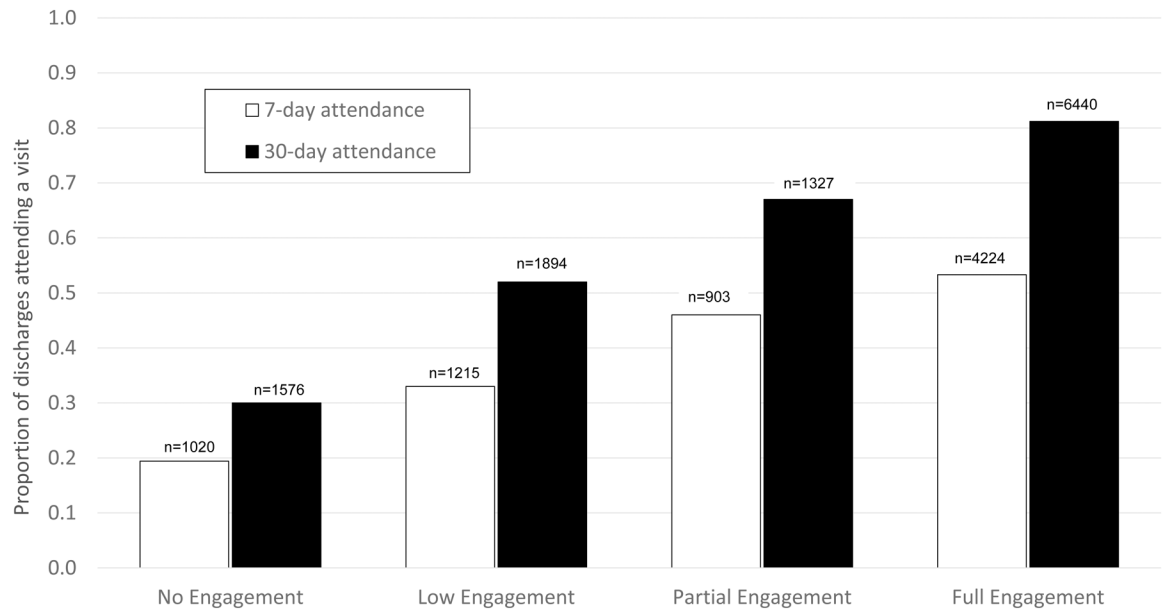
1. Stein BD, Kogan JN, Sorbero MJ, et al. : Predictors of timely follow-up care among medicaid-enrolled adults after psychiatric hospitalization. *Psychiatr Serv* 2007; 58(12):1563–1569. [PubMed: 18048557]
2. Olsson M, Marcus SC, Doshi JA: Continuity of care after inpatient discharge of patients with schizophrenia in the Medicaid program: a retrospective longitudinal cohort analysis. *J Clin Psychiatry* 2010; 71(7):831–838. [PubMed: 20441730]
3. Smith TE, Abraham M, Bolotnikova NV, et al. : Psychiatric Inpatient Discharge Planning Practices and Attendance at Aftercare Appointments. *Psychiatr Serv* 2017; 68(1):92–95. [PubMed: 27582241]
4. Fontanella CA, Hiance-Steelesmith DL, Bridge JA, et al. : Factors Associated With Timely Follow-Up Care After Psychiatric Hospitalization for Youths With Mood Disorders. *Psychiatr Serv* 2016; 67(3):324–331. [PubMed: 26620293]
5. Cheng C, Chan CWT, Gula CA, et al. : Effects of Outpatient Aftercare on Psychiatric Rehospitalization Among Children and Emerging Adults in Alberta, Canada. *Psychiatr Serv* 2017; 68(7):696–703. [PubMed: 28245702]
6. Cuffel BJ, Held M, Goldman W: Predictive models and the effectiveness of strategies for improving outpatient follow-up under managed care. *Psychiatr Serv* 2002; 53(11):1438–1443. [PubMed: 12407272]
7. Nelson EA, Maruish ME, Axler JL: Effects of discharge planning and compliance with outpatient appointments on readmission rates. *Psychiatr Serv* 2000; 51(7):885–889. [PubMed: 10875952]
8. Mark TL, Tomic KS, Kowlessar N, et al. : Hospital readmission among medicaid patients with an index hospitalization for mental and/or substance use disorder. *J Behav Health Serv Res.* 2013; 40(2):207–221. [PubMed: 23430287]

9. Lin HC, Lee HC: The association between timely outpatient visits and the likelihood of rehospitalization for schizophrenia patients. *Am J Orthopsychiatry* 2008; 78(4):494–497. [PubMed: 19123771]
10. Valenstein M, Copeland LA, Blow FC, et al. : Pharmacy data identify poorly adherent patients with schizophrenia at increased risk for admission. *Med Care* 2002; 40(8):630–639. [PubMed: 12187177]
11. Carlisle CE, Mamdani M, Schachar R, et al. : Aftercare, emergency department visits, and readmission in adolescents. *J Am Acad Child Adolesc Psychiatry* 2012; 51(3):283–293. [PubMed: 22365464]
12. Kurdyak P, Vigod SN, Newman A, et al. : Impact of Physician Follow-Up Care on Psychiatric Readmission Rates in a Population-Based Sample of Patients With Schizophrenia. *Psychiatr Serv* 2018; 69(1):61–68. [PubMed: 28859584]
13. Marcus SC, Chuang CC, Ng-Mak DS, et al. : Outpatient Follow-Up Care and Risk of Hospital Readmission in Schizophrenia and Bipolar Disorder. *Psychiatr Serv* 2017; 68(12):1239–1246. [PubMed: 28669289]
14. Olfson M, Mechanic D, Hansell S, et al. : Prediction of homelessness within three months of discharge among inpatients with schizophrenia. *Psychiatr Serv* 1999; 50(5):667–673. [PubMed: 10332904]
15. Herman DB, Susser ES, Jandorf L, et al. : Homelessness among individuals with psychotic disorders hospitalized for the first time: findings from the Suffolk County Mental Health Project. *Am J Psychiatry* 1998; 155(1):109–113. [PubMed: 9433347]
16. Elbogen EB, Van Dorn RA, Swanson JW, et al. : Treatment engagement and violence risk in mental disorders. *Br J Psychiatry* 2006; 189:354–360. [PubMed: 17012659]
17. Monahan J: The MacArthur studies of violence risk. *Crim Behav Ment Health* 2002; 12(4):S67–S72.
18. Van Dorn RA, Desmarais SL, Petrila J, et al. : Effects of outpatient treatment on risk of arrest of adults with serious mental illness and associated costs. *Psychiatr Serv* 2013; 64(9):856–862. [PubMed: 23677480]
19. Oliver P, Keen J, Rowse G, et al. : The effect of time spent in treatment and dropout status on rates of convictions, cautions and imprisonment over 5 years in a primary care-led methadone maintenance service. *Addiction* 2010; 105(4):732–739. [PubMed: 20403022]
20. Olfson M, Gerhard T, Huang C, et al. : Premature Mortality Among Adults With Schizophrenia in the United States. *JAMA Psychiatry* 2015; 72(12):1172–1181. [PubMed: 26509694]
21. Olfson M, Wall M, Wang S, et al. : Short-term Suicide Risk After Psychiatric Hospital Discharge. *JAMA Psychiatry* 2016; 73(11):1119–1126. [PubMed: 27654151]
22. Katz IR, Peltzman T, Jedele JM, et al. : Critical Periods for Increased Mortality After Discharge From Inpatient Mental Health Units: Opportunities for Prevention. *Psychiatr Serv* 2019; 70(6):450–456. [PubMed: 30890049]
23. Valenstein M, Kim HM, Ganoczy D, et al. : Higher-risk periods for suicide among VA patients receiving depression treatment: prioritizing suicide prevention efforts. *J Affect Disord* 2009; 112(1–3):50–58. [PubMed: 18945495]
24. Vasiliadis HM, Ngamini-Ngui A, Lesage A: Factors associated with suicide in the month following contact with different types of health services in Quebec. *Psychiatr Serv* 2015; 66(2):121–126. [PubMed: 25270296]
25. Hansen LO, Young RS, Hinami K, Leung A, Williams MV. Interventions to reduce 30-day rehospitalization: a systematic review. *Ann Intern Med* 2011; 155(8):520–528. [PubMed: 22007045]
26. Shepperd S, Lannin NA, Clemson LM, et al. : Discharge planning from hospital to home. *Cochrane Database Syst Rev* 2013; (1):CD000313. [PubMed: 23440778]
27. Cherlin EJ, Curry LA, Thompson JW, et al. : Features of high quality discharge planning for patients following acute myocardial infarction. *J Gen Intern Med* 2013; 28(3):436–443. [PubMed: 23263917]

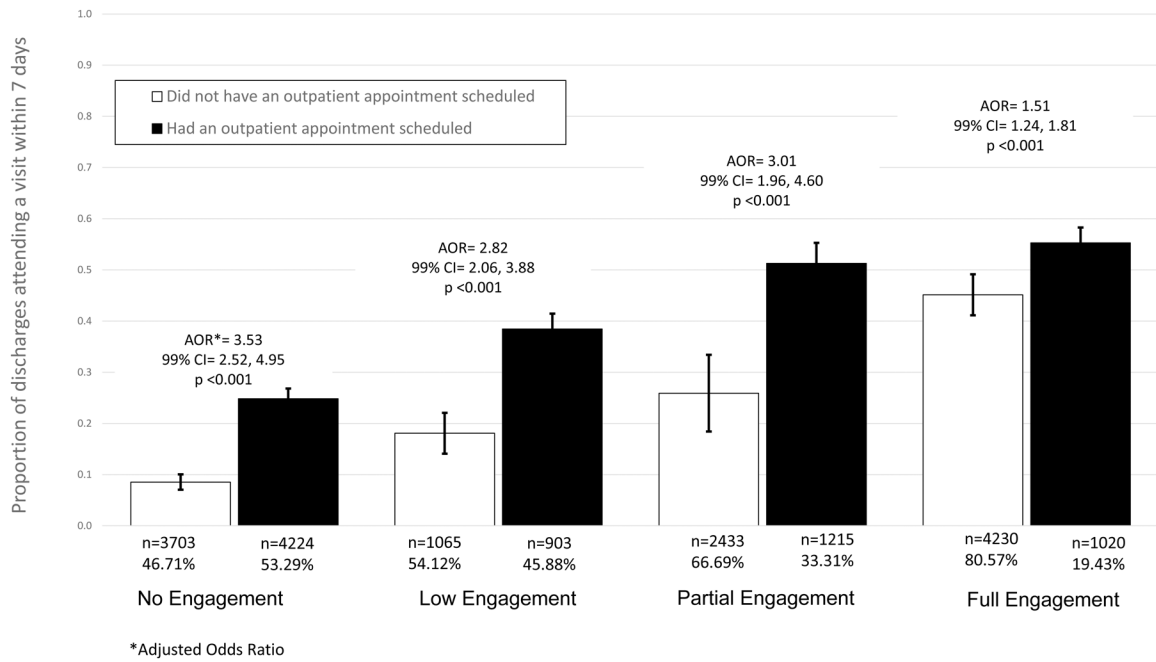
28. Vigod SN, Kurdyak PA, Dennis CL, et al. : Transitional interventions to reduce early psychiatric readmissions in adults: systematic review. *Br J Psychiatry* 2013; 202(3):187–194. [PubMed: 23457182]
29. Smith TE, Haselden M, Corbeil T, Wall MM, Tang F, Essock SM, Frimpong E, Goldman ML, Mascayano F, Radigan M, Schneider M, Wang R, Dixon LB, Olfson M: Factors associated with discharge planning practices for patients receiving psychiatric inpatient care. *Psychiatr Serv*, published online March 4, 2021; doi: 10.1176/appi.ps.202000021.
30. Smith TE, Haselden M, Corbeil T, et al. : Effect of Scheduling a Post-Discharge Outpatient Mental Health Appointment on the Likelihood of Successful Transition From Hospital to Community-Based Care. *Journal of Clinical Psychiatry* 2020; 81(5):20m13344.
31. AHA Annual Survey Database™ Fiscal Year 2012. Chicago, IL, American Hospital Association, 2013. <http://www.ahadataviewer.com/book-cd-products/aha-survey/>. Accessed July 7, 2019.
32. Area Health Resources Files [database on the Internet]. US Department of Health and Human Services, Health Resources and Human Services Administration, Bureau of Health Professions, 2012–2013. <https://data.hrsa.gov/topics/health-workforce/ahrf>. Accessed July 7, 2019.
33. Wang PS, Demler O, Kessler RC: Adequacy of treatment for serious mental illness in the United States. *Am J Public Health* 2002; 92(1):92–98. [PubMed: 11772769]
34. Greenberg GA, Rosenheck RA: Continuity of Care and Clinical Outcomes in a National Health System. *Psychiatr Serv* 2005; 56(4):427–433. [PubMed: 15812092]
35. Smith TE, Haselden M, Corbeil T, et al. : Relationship Between Continuity of Care and Discharge Planning After Hospital Psychiatric Admission. *Psychiatr Serv* 2020; 71(1):75–78. [PubMed: 31590622]
36. Storm M, Husebo AML, Thomas EC, et al. : Coordinating Mental Health Services for People with Serious Mental Illness: A Scoping Review of Transitions from Psychiatric Hospital to Community. *Adm Policy Ment Health* 2019; 46(3):352–367. [PubMed: 30604004]
37. Sharabiani MT, Aylin P, Bottle A: Systematic review of comorbidity indices for administrative data. *Med Care* 2012; 50(12):1109–1118. [PubMed: 22929993]
38. Quan H, Sundararajan V, Halfon P, et al. : Coding algorithms for defining comorbidities in ICD-9-CM and ICD-10 administrative data. *Med Care* 2005; 43(11):1130–1139. [PubMed: 16224307]
39. van Walraven C, Austin PC, Jennings A, et al. : A modification of the Elixhauser comorbidity measures into a point system for hospital death using administrative data. *Med Care* 2009; 47(6):626–633. [PubMed: 19433995]
40. Olfson M, Blanco C, Wall MM, et al. : Treatment of Common Mental Disorders in the United States: Results From the National Epidemiologic Survey on Alcohol and Related Conditions-III. *J Clin Psychiatry* 2019; 80(3).

### Highlights

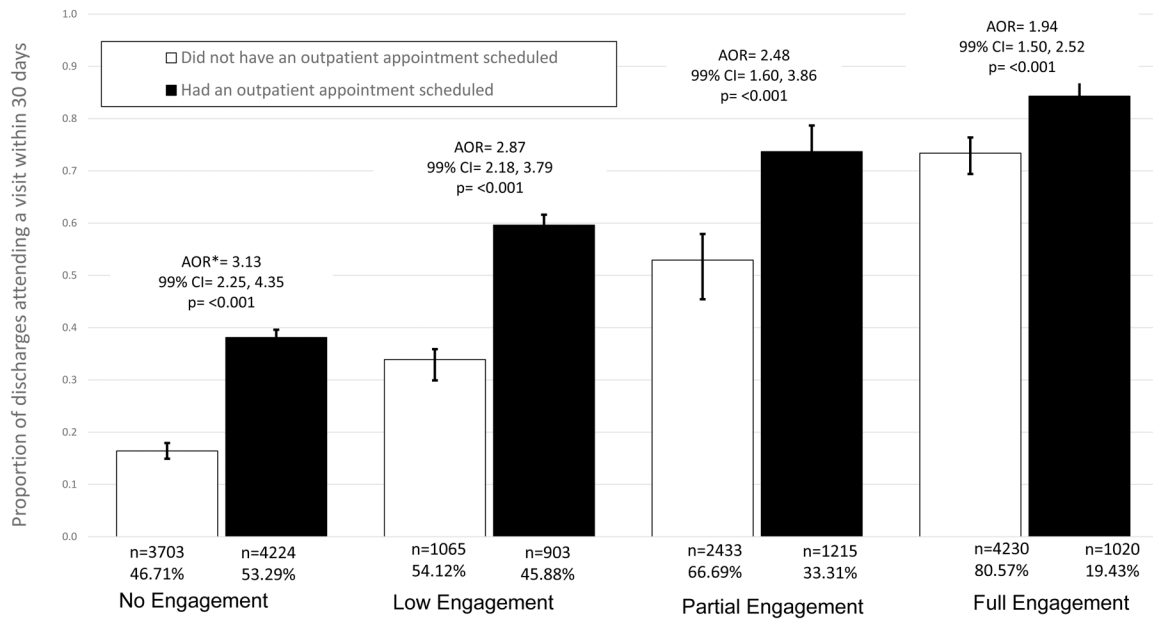
- Only 42% of patients admitted to inpatient psychiatric units were highly engaged in outpatient psychiatric care in the 6 months prior to admission
- Having an appointment scheduled as part of the discharge plan was associated with successful care transition regardless of the patient's level of engagement in care prior to the admission
- Even among patients who received no psychiatric services in the 6 months prior to admission, those for whom the inpatient psychiatric team scheduled an outpatient appointment were 3 times more likely to attend a follow-up psychiatric visit within 7 days and more than twice as likely to attend a visit within 30 days



**Figure 1.**  
Seven- and 30-day rates of attending outpatient mental health care following discharge among patients who had high, partial, low, and no engagement in care prior to admission



**Figure 2.** Proportions of patients attending an outpatient mental health appointment within 7 days following discharge based upon level of pre-admission engagement in care and receipt of discharge planning.



\*Adjusted Odds Ratio

**Figure 3.** Proportions of patients attending an outpatient mental health appointment within 30 days following discharge based upon level of pre-admission engagement in care and receipt of discharge planning.



**Table 1.** Patient characteristics associated with engagement in mental health care 6 months prior to admission.

	Total (N=18793)	Engagement in psychiatric care prior to admission				Partial vs. High			Low vs. High			No visits vs. High		
		High (N=7927)	Partial (N=1968)	Low (N=3648)	No visits (N=5250)	OR	99% CI	p	OR	99% CI	p	OR	99% CI	p
<b>Age</b>		%	%	%	%									
4-12	1809	11.5	10.6	8.4	7.2	ref			ref					
13-17	2627	12.0	15.0	13.3	17.0	1.35	1.06-1.72	.001	1.5	1.21-1.86	<.001	2.25	1.66-3.03	<.001
18-35	5632	29.0	32.0	30.6	30.3	1.20	.97-1.48	.026	1.44	1.15-1.80	<.001	1.66	1.20-2.30	<.001
36-64	8725	47.5	42.5	47.7	45.4	.97	.79-1.19	.743	1.37	1.09-1.71	<.001	1.52	1.09-2.10	<.001
<b>Gender</b>														
Male	10156	53.2	52.4	54.0	56.0	ref			ref			ref		
Female	8637	46.8	47.6	46.1	44.0	1.03	.90-1.17	.568	.96	.87-1.07	.448	.89	.79-1.00	.016
<b>Race/ethnicity</b>														
Non-Hispanic White	7707	42.4	43.2	42.0	37.4	ref			ref			ref		
Non-Hispanic Black	6256	31.8	31.4	33.4	36.1	.96	.81-1.15	.629	1.05	.90-1.24	.345	1.28	1.09-1.51	<.001
Hispanic	2052	11.7	10.8	10.9	9.7	.9	.74-1.10	.196	.94	.78-1.13	.410	.94	.78-1.12	.380
Other	1459	8.1	8.2	6.1	8.3	1	.79-1.27	.971	.76	.61-.95	.002	1.16	.94-1.43	.056
Unknown	1319	5.9	6.4	7.6	8.5	1.06	.82-1.35	.536	1.28	1.04-1.58	.002	1.63	1.23-2.14	<.001
<b>Length of stay</b>														
0-4 days	2800	12.1	14.3	17.3	17.7	ref			ref			ref		
5-14 days	9581	50.4	50.4	51.8	51.6	.84	.68-1.05	.055	.71	.61-.84	<.001	.7	.61-.80	<.001
15-30 days	4855	28.0	26.5	23.8	23.7	.8	.62-1.02	.019	.59	.49-.71	<.001	.57	.47-.70	<.001
31-60 days	1557	9.5	8.9	7.0	7.1	.79	.58-1.07	.051	.51	.41-.64	<.001	.51	.39-.65	<.001
<b>Homeless at admission</b>														
No	16555	90.1	87.9	86.9	85.9	ref			ref			ref		
Yes	1327	4.4	7.7	8.7	9.8	1.8	1.32-2.47	<.001	2.07	1.65-2.59	<.001	2.35	1.91-2.90	<.001

	Total (N=18793)	Engagement in psychiatric care prior to admission				Partial vs. High			Low vs. High			No visits vs. High		
		High (N=7927)	Partial (N=1968)	Low (N=3648)	No visits (N=5250)	OR	99% CI	p	OR	99% CI	p	OR	99% CI	p
<b>Primary diagnosis at discharge</b>														
Schizophrenia	5229	32.3	24.3	25.7	23.9	ref		ref				ref		
Schizoaffective	1909	13.2	10.5	8.5	6.6	1.05	.85–1.30	.506	0.8	.63–1.03	.027	.67	.53–.84	<.001
Bipolar disorders	6085	30.9	35.6	32.1	33.6	1.52	1.28–1.82	<.001	1.3	1.09–1.56	<.001	1.46	1.19–1.81	<.001
Depressive disorders	3553	14.5	18.3	21.9	23.7	1.67	1.35–2.07	<.001	1.9	1.57–2.29	<.001	2.21	1.79–2.72	<.001
Other disorders	2017	9.1	11.2	11.8	12.3	1.63	1.25–2.13	<.001	1.63	1.28–2.07	<.001	1.81	1.36–2.42	<.001
<b>Co-occurring substance use diagnosis at discharge</b>														
No	11764	70.5	62.1	56.7	54.9	ref			ref			ref		
Yes	7029	29.5	37.9	43.3	45.1	1.45	1.24–1.71	<.001	1.82	1.62–2.06	<.001	1.96	1.66–2.32	<.001
<b>Medical Comorbidity in previous 12 months (non-behavioral health)</b>														
0	6097	30.3	30.4	32.2	38.0	ref			ref			ref		
1–3	8930	50.1	49.3	49.2	43.4	.98	.84–1.14	.775	.92	.79–1.06	.167	.69	.60–.78	<.001
4 or higher	3578	19.6	20.3	18.6	18.7	1.03	.84–1.26	.694	.89	.74–1.07	.118	.76	.61–.93	<.001

**Table 2.** Hospital and system characteristics associated with engagement in mental health care 6 months prior to admission.

	Total (N=18793)	Engagement in psychiatric care prior to admission				Partial vs. High			Low vs. High			No visits vs. High		
		High (N=7927)	Partial (N=1968)	Low (N=3648)	No visits (N=5250)	OR	99% CI	p	OR	99% CI	p	OR	99% CI	p
		%	%	%	%									
<b>Hospital level characteristics</b>														
<b>Number of hospital beds</b>														
Small: less than 100	777	4.2	4.5	4.1	3.8	ref			ref					
Medium: 100-499	10040	52.6	54.1	55.4	53.1	.96	.67-1.38	.793	1.07	.81-1.42	.481	1.11	.47-2.64	.737
Large: 500 or more	7976	43.2	41.4	40.5	43.1	.89	.62-1.29	.456	.95	.72-1.27	.708	1.1	.46-2.61	.769
<b>Hospital ownership</b>														
Public	5173	28.1	26.8	28.5	26.3	ref			ref					
Private not-for-profit	11801	62.4	62.7	62.9	63.5	1.05	.85-1.30	.526	.99	.80-1.22	.930	1.08	.84-1.38	.404
Private for-profit	1819	9.6	10.5	8.7	10.2	1.14	.90-1.45	.128	.89	.66-1.19	.305	1.13	.72-1.78	.475
<b>Psychiatric discharges that were Medicaid, %</b>														
Low: less than 49%	3582	19.2	20.0	18.2	19.1	ref			ref					
Medium: 49-71%	9633	50.6	50.7	52.2	51.7	.96	.79-1.16	.631	1.09	.86-1.37	.331	1.03	.79-1.34	.764
High: over 71%	5578	30.2	29.3	29.4	29.3	.93	.74-1.17	.446	1.02	.78-1.33	.798	.97	.71-1.33	.855
<b>Hospital provides outpatient psychiatric services</b>														
No	2529	13.4	14.3	14.1	12.8	ref			ref					
Yes	16264	86.6	85.7	85.9	87.2	.92	.78-1.09	.219	.94	.75-1.16	.464	1.05	.78-1.40	.636
<b>Teaching hospital</b>														
No	3473	18.4	20.1	17.9	18.4	ref			ref					
Yes	15320	81.6	79.9	82.2	81.6	.89	.75-1.07	.122	1.04	.84-1.27	.612	1	.74-1.36	.963
<b>Psychiatric discharges with substance use disorder diagnosis</b>														
Low: less than 34%	4327	24.9	23.6	20.8	21.6	ref			ref					

	Total (N=18793)	Engagement in psychiatric care prior to admission				No visits (N=5250)	Partial vs. High			Low vs. High			No visits vs. High		
		High (N=7927)	Partial (N=1968)	Low (N=3648)	%		OR	99% CI	P	OR	99% CI	P	OR	99% CI	P
Medium: 34–60%	10543	55.7	55.4	56.4	56.8	1.04	.82–1.33	.601	1.2	.96–1.51	.032	1.17	.87–1.57	.159	
High: over 60%	3923	19.4	21.0	22.8	21.7	1.13	.87–1.48	.202	1.4	1.09–1.79	<.001	1.28	.93–1.75	.041	
<b>Psychiatric population with 2 or more psychiatric discharges</b>															
Low: less than 25%	4195	21.4	23.8	22.3	23.1	ref			ref			ref			
Medium: 24.5–35%	9195	49.7	48.4	47.8	48.8	.87	.74–1.03	.037	.92	.71–1.19	.423	.9	.68–1.21	.394	
High: over 35%	5403	28.9	27.8	30.0	28.1	.86	.70–1.06	.078	.99	.75–1.31	.991	.9	.66–1.23	.397	
<b>System level characteristics</b>															
<b>Behavioral Health Organization</b>															
Western	2821	14.3	16.0	17.1	14.3	ref			ref			ref			
Central	2628	13.2	15.2	15.4	13.8	1.03	.80–1.33	.740	.98	.75–1.27	.845	1.04	.72–1.49	.761	
Hudson River	4546	23.6	25.7	23.9	24.8	.97	.79–1.18	.713	.84	.65–1.09	.101	1.05	.78–1.40	.666	
NYC	6997	38.1	35.0	36.5	37.3	.82	.66–1.00	.013	.8	.62–1.02	.022	.97	.75–1.26	.821	
Long Island	1801	10.9	8.1	7.2	9.9	.66	.49–.89	<.001	.55	.42–0.73	<.001	.91	.61–1.34	.535	
<b>County population in poverty</b>															
Low: less than 15%	6010	32.6	33.3	32.1	31.6	ref			ref			ref			
Medium: 15–19%	7180	37.9	39.1	38.9	39.1	1	.83–1.21	.916	1.04	.84–1.27	.611	1.06	.87–1.29	.412	
High: 20% or higher	5434	29.5	27.6	29.0	29.4	.91	.75–1.10	.221	.99	.78–1.25	.954	1.02	.82–1.27	.751	
<b>Mental health workers per 100,000 residents</b>															
Low: less than 67	1460	7.7	8.4	9.2	7.0	ref			ref			ref			
Medium: 67 to 166	10627	57.6	56.0	56.6	57.0	.88	.62–1.25	.367	.81	.61–1.08	.067	1.08	.81–1.44	.449	
High: 167 or more	6537	34.8	35.6	34.2	36.0	.93	.66–1.30	.595	.81	.60–1.09	.076	1.13	.85–1.50	.241	
<b>Urban/rural classification</b>															

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

	Total (N=18793)	Engagement in psychiatric care prior to admission				Partial vs. High			Low vs. High			No visits vs. High		
		High (N=7927)	Partial (N=1968)	Low (N=3648)	No visits (N=5250)	OR	99% CI	P	OR	99% CI	P	OR	99% CI	P
		%	%	%	%	ref			ref					
Large central metro	10164	55.1	52.1	53.4	55.5				ref					
Large fringe metro	3252	18.7	16.6	16.0	16.9	.93	.75-1.17	.469	.88	.68-1.13	.206	.89	.72-1.09	.156
Medium metro	2162	11.0	13.2	12.9	11.0	1.26	1.02-1.56	.004	1.2	1.01-1.44	.006	.98	.74-1.31	.912
Small metro	1104	5.2	5.8	6.5	6.7	1.18	.92-1.50	.073	1.29	1.01-1.64	.006	1.27	.91-1.77	.057
Metropolitan	1515	7.8	9.7	8.6	7.9	1.32	.96-1.81	.023	1.13	.86-1.49	.218	1	.77-1.29	.956
Noncore	427	2.2	2.6	2.5	2.1	1.21	.86-1.72	.143	1.17	0.77-1.76	.326	.93	.62-1.39	.661