Mode of Entry to an Early Intervention Service for Psychotic Disorders: Determinants and Impact on Outcome

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Objective: Specialized early intervention services for first-episode psychosis should treat a proportion of patients without using inpatient beds. This study compared such service users by their initial mode of treatment before entry—inpatient (N=157) or outpatient (N=102). _Methods:_ On entry to a Montreal early intervention service, the groups were compared on baseline clinical and functional variables and on hospitalizations during two years of treatment. _Results:_ Initial presentation at an emergency service, shorter duration of untreated psychosis, lower functioning level, and aggressive and bizarre behavior were associated with the inpatient entry mode to early intervention services. During follow-up, individuals entering as inpatients spent more days hospitalized than those entering as outpatients, and their time to rehospitalization was shorter. _Conclusions:_ Results suggest that entry into early intervention services via the hospital emergency department and presentation with behavioral and functional disturbances were more predictive than core psychotic symptoms of hospital inpatient status on referral to an early intervention service. (_Psychiatric Services_ 64:1166–1169, 2013; doi: 10.1176/appi.ps.201200474)

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Patients with psychotic disorders almost invariably require hospitalization during the course of treatment, and high rates of hospitalization are observed at the time of the first psychotic episode (1). With the burgeoning development of specialized early intervention services in many jurisdictions, a substantial proportion of patients may not require a hospital admission to initiate treatment. When fully developed, these services are directly accessible to hospital and nonhospital referral sources and emphasize outpatient and community treatment within an assertive case management model. Further, these services are based on a clinical staging model designed to minimize traumatic and restrictive forms of care, including involuntary hospitalizations. In addition, higher rates of symptom improvement, treatment adherence, and lower utilization of hospital beds, resulting in cost savings (2), have been found to be associated with use of specialized early intervention services over the first two years of treatment compared with standard care (3–5). Although these services emphasize outpatient care, many patients access them only after a hospitalization (6), partly because few of these services are integrated with hospital care. If alternatives to hospitalization are available when the patient first seeks treatment, it remains unclear whether this has any impact on clinical and resource-related outcomes.

Therefore, the primary objective of this study was to determine whether the sociodemographic characteristics and the clinical presentation of patients seeking treatment for first-episode psychosis from specialized early intervention services distinguish those who were referred during an inpatient admission from those who entered these services without hospitalization. The secondary objective was to determine whether these two groups differed on follow-up in symptomology, functioning, and hospital resource utilization.

Methods

All participants were part of a longitudinal study of patients with first-episode psychosis who were treated at the Prevention and Early Intervention Program

for Psychoses (PEPP-Montreal), a specialized early intervention service in southwest Montreal, Quebec, Canada. The study was approved by the Douglas Mental Health University institutional ethics committee, and patients provided informed consent to participate in evaluations.

PEPP-Montreal is the only such service for this population, and the parent hospital is the only mental health facility for the defined catchment area. No competing private or public hospital facilities exist in the catchment area. Although PEPP-Montreal is primarily an outpatient facility, it also has dedicated inpatient beds managed under the same program. Both medical and psychosocial interventions are provided, primarily through assertive case management that has been modified to suit the needs of young people and that is aimed at quickly and efficiently reintegrating them into their community, family, and social environment (7).

Patients referred from all sources (for example, emergency services, hospital inpatient units, family members, and educational institutions) are accepted provided they meet the following entry criteria: 14–35 years of age, less than 30 days of previous treatment with antipsychotic medication, *DSM-IV-R* diagnosis of a psychotic disorder (nonaffective or affective), IQ above 70, and no history of organic mental disorders (for example, epilepsy). A clinician responds to all referrals within 72 hours, and a full psychiatric assessment is carried out within a week in order to determine whether the individual meets program criteria. Thus patients can enter the program directly as outpatients or through hospitalization in designated program beds. A baseline symptom evaluation is conducted within the first two weeks after program entry.

In the study reported here, the Brief Psychiatric Rating Scale (BPRS) was used to evaluate global psychopathology. The Scale for Assessment of Negative Symptoms was used to assess negative symptoms. Overall functioning was assessed with the Global Assessment of Functioning (GAF) scale. Symptoms were rated with reference to the month preceding the assessment. Within the first three

months after PEPP admission, primary and secondary diagnoses were established by trained research staff using the Structured Clinical Interview for DSM-IV; diagnoses were confirmed via consensus with a senior psychiatrist (AM or RJ). The Circumstances of Onset and Relapse Schedule, a semistructured interview, was conducted by trained research staff with the patient and his or her family to determine the course of illness onset. Information collected during these interviews was corroborated with information provided by case managers and available health records to establish the duration of untreated psychosis, which was arrived at through consensus between the interviewers and a senior psychiatrist (AM or RJ). Duration of untreated psychosis was calculated as the period (in weeks) between the onset of psychotic symptoms and the commencement of continuous antipsychotic treatment for more than one month or until remission of psychotic symptoms, whichever came first. During follow-up, data were recorded monthly on hospitalizations or emergency visits during the preceding month, the length of these visits, and the type of admission (voluntary or involuntary). All ratings were done by trained staff members who achieved a high level of interrater agreement for each rating scale (intraclass correlation coefficients ranging from .71 to .88).

The data were analyzed by using Predictive Analytics Software, version 18. Duration of untreated psychosis, with a highly skewed distribution, was subsequently log transformed. GAF scores and number of days in the hospital were also not normally distributed and were analyzed using the Mann-Whitney U test. Chi square tests for significance were employed to compare the groups on categorical demographic information. The comparisons for age, log-transformed duration of untreated psychosis, and symptom measures were made utilizing independent-sample t tests. Variables that emerged as significant in the univariate analyses were then entered into a backward binary logistic regression to investigate potential predictors of hospitalization status at baseline.

Results

From January 2003 to July 2011, a total of 335 patients in the program were expected to have completed at least one year of follow-up. However, 38 patients' files had been closed because the individuals had dropped out of treatment or moved out of the area. Of the 297 patients who reached at least one year of follow-up, complete data were available for 259; 21 were missing hospitalization data at 12 months, and 17 were excluded because on further investigation they did not meet PEPP admission criteria. Patients entering the program through the designated hospital beds were labeled the "inpatient group" (N=157), and those entering directly as outpatients without hospitalization were designated the "outpatient group" (N=102).

Of the 76 patients excluded from the study, data on social, demographic, and clinical variables were available for 59 patients. The excluded group was older (mean±SD=23.9±4.3 years versus 22.6±4.0 years; t=2.09, df=315, p=.04) and the proportion of patients who were visibly from a racial-ethnic minority group was smaller (χ^2=4.99, df=1, p=.025). No differences in clinical variables were noted.

Of the patients presenting to the hospital emergency service, a greater proportion entered the program as inpatients (N=81) than as outpatients (N=46) (χ^2=25.49, df=2, p<.001). Eighty-nine patients in the inpatient group were admitted voluntarily (58%), and 64 had an involuntary admission (42%) (data were missing for four patients). Follow-up data were available for 187 patients at two years (113 inpatients and 74 outpatients).

At baseline assessment, no significant differences were found between the inpatient and outpatient groups in gender, living circumstances, racial-ethnic background, and age at PEPP entry. [A table presenting these data is available in an online data supplement to this report.] The proportions of patients with a primary diagnosis of affective psychosis and a shorter duration of untreated psychosis were significantly higher in the inpatient group than the outpatient group. In the inpatient group, those with a diagnosis of a schizophrenia spectrum

Table 1

Analyses predicting hospitalization status on entry to an early intervention service among 259 service users

Variable[a]	OR	95% CI	Wald statistic	p
Duration of untreated psychosis	.58	.39–.86	7.36	.01
Aggressive and bizarre behavior	1.15	1.04–1.28	7.13	.009
GAF score	.93	.86–.97	9.29	.002

[a] Variables initially entered into the backward logistic regression model were primary diagnosis, duration of untreated psychosis (log transformed), aggressive and bizarre behavior, elevated mood, unusual thought content, Brief Psychiatric Rating Scale total score, and Global Assessment of Functioning (GAF) score.

disorder had a longer duration of untreated psychosis (log M±SD=1.24± .70, median=17.4 weeks) than those with a diagnosis of affective psychosis (log M±SD=.73±.70, median=5.1 weeks; t=4.2, df=152, p<.001).

At baseline the inpatient group had a higher BPRS total score (symptom severity) than the outpatient group, and specific differences were found in the domains of hostility, elevated mood, unusual thought content, and bizarre behavior. The mean GAF score was also significantly lower in the inpatient group than in the outpatient group. However, the two groups did not differ in suicidal thoughts or behavior and negative symptoms. [A table presenting BPRS domain scores for the two groups is available in the online data supplement.]

Pearson's correlations were conducted for the variables that were found to be significant in the univariate analyses (that is, primary diagnosis, duration of untreated psychosis, hostility, elevated mood, unusual thought content, bizarre behavior, BPRS total score, and GAF score) to check for colinearity before the variables were entered into a regression analysis. A significant correlation (r=.36, p<.001) was found between hostility and bizarre behavior. To reduce colinearity, a new variable called "aggressive and bizarre behavior" was created by summing the scores on the hostility and bizarre behavior items of the BPRS for each participant. A backward binary logistic regression analysis indicated that shorter duration of untreated psychosis, higher aggressive and bizarre behavior, and a lower GAF score were significant predictors of inpatient group status (Table 1).

The inpatient group spent significantly more days in the hospital than the outpatient group during the two years of follow-up (28.8±52.9 versus 15.8±44.4 days; Mann-Whitney U=5,090, p=.007). However, this difference was not significant after the first year.

During follow-up, 82 of the 157 patients in the inpatient group (52%) were rehospitalized compared with 35 of the 102 patients in the outpatient group (34%). For the survival analysis, time to subsequent hospitalization for the inpatient group was calculated in weeks from the end of the initial hospitalization to the following hospital contact. For the outpatient group, time was calculated in weeks from the date of PEPP entry to first hospital contact after the baseline assessment. Time to subsequent hospitalization was significantly shorter for inpatients than outpatients (χ^2=7.1, df=1, p=.008). [A figure showing Kaplan-Meier survival curves is available in the online data supplement.]

The two groups did not differ significantly on the clinical or functional outcome measures after one and two years of follow-up. Similarly, no differences between groups were found on clinical and functional outcome measures when the analyses were repeated only for patients with diagnoses of a schizophrenia spectrum disorder.

Discussion

In keeping with the mandate of specialized early intervention services, a significant proportion of patients were treated without being hospitalized, although a substantial proportion entered services as inpatients. In our sample, 102 patients (39%) received initial treatment as outpatients without a hospital admission, which is slightly lower than the rate reported previously for early intervention services (8,9). A relatively large proportion of this inpatient group was admitted involuntarily. Previous studies have reported similar rates of involuntary hospital admissions for this population (10,11). Considered in the context of the entire sample of patients receiving care in the early intervention program for at least one year (N=259), less than quarter of patients were admitted involuntarily.

Multivariate analyses showed that a lower level of functioning, a shorter duration of untreated psychosis, and a higher level of aggressive and bizarre behavior at the time of the initial assessment were significantly associated with inpatient group status on entry into the early intervention service. Results of the univariate analysis suggested that diagnoses of affective psychosis and elevated mood may also be associated with inpatient group status, but these results were not independent of other variables. These findings are consistent with results of previous studies examining hospitalization after treatment initiation (1,9). However, unlike these studies, our analysis did not find an association between hospital admission status and level of negative symptoms (9) or core psychotic symptoms, such as persecutory delusions or auditory hallucinations (1).

Because individuals in our inpatient group were more likely to be referred to early intervention services via the emergency department, it can be hypothesized that the shorter duration of untreated psychosis in the inpatient group may be due to quicker access to treatment through presentation at and referral from the emergency department. The shorter duration may also reflect the fact that the inpatient group had a larger proportion of patients with affective psychosis; these patients tend to have a shorter duration of untreated psychosis than patients with schizophrenia. In our entire sample, the median duration of untreated psychosis for those with a diagnosis of affective psychosis was six weeks, compared with 18.6 weeks for those with schizophrenia.

We found that patients who entered early intervention services via the inpatient route spent, on average, 13 more days in the hospital during the first two years of follow-up than those who were initially treated as outpatients. This finding has important implications because the greatest share of health care costs during the first year after an initial psychotic episode is accounted for by inpatient bed-days (12). Also, when hospitalization was required during follow-up, the time to rehospitalization was significantly shorter for the inpatient group than for the outpatient group. However, no differences were found between the groups on outcome measures at the end of the follow-up periods.

Our study had a few notable limitations. We were unable to address certain factors previously implicated in higher rates of hospital admissions for this population, including history of suicidal behavior (13), lack of social support (14), and medication nonadherence (15). However, no differences were found between the inpatient and the outpatient groups in suicidal intent or behavior as measured by the BPRS suicidality item at the baseline assessment and both follow-up assessments. In addition, although we did not directly assess degree of social support, we found no difference between the groups in living circumstances, which may be a measure of social isolation.

Conclusions

Although outpatient treatment is emphasized in specialized early intervention services for patients experiencing a first episode of psychosis, a large proportion of individuals require hospitalization before referral to these programs. Our results suggest that entry through hospital emergency services and behavioral and functional disturbances is more predictive than core psychotic symptoms of hospital inpatient status on referral. Therefore, whenever a patient's clinical state allows, it would be beneficial if emergency services utilized direct access to a specialized early intervention service in an attempt to avert a hospital admission. Initial entry to specialized early intervention services through emergency services and subsequent inpatient admission was associated with greater use of hospital resources during the two years of follow-up. Detecting these disturbances and providing interventions for them outside a hospital setting may also reduce hospitalization, which could improve cost-efficiency.

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