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Use of community treatment orders to prevent psychiatric hospitalization

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Abstract

Objective: The purpose of the present study was to analyse how, for whom, under what circumstances, and with what consequences for a patient's treatment career the community treatment orders (CTOs) were used to prevent psychiatric hospitalization during the course of a decade in Victoria, Australia.

Method: Records were obtained from the Victorian Psychiatric Case Register for 8879 patients who were exposed to CTOs. Descriptive statistics and logistic regression were used to determine the characteristics of patients solely selected for placement on orders directly from the community, in lieu of hospitalization, versus patients selected for placement on orders only from the hospital or for those who experienced both hospital- and community-initiated orders. Ordinary least squares regression was used to evaluate the relationship of sole reliance on community-initiated orders and experienced changes in future hospital utilization.

Results: CTOs were infrequently issued directly from the community by comparison with outpatient orders issued at termination of inpatient episodes. Patients whose placements on orders were carried out only through direct community placement differed from those whose placement was primarily initiated from hospital or from both hospital and community. The former group, although largely consisting of people with schizophrenia, was less likely to include such patients than the comparison samples. It also included fewer male subjects and 'never married' individuals as well as more individuals with major affective disorders. Those served solely with community-initiated orders had significantly less use of subsequent inpatient care than individuals in the comparison samples, all other diagnostic and pre-morbid adjustment characteristics taken into account.

Conclusion: For patients at risk of beginning a career of long-term psychiatric hospitalization, sole reliance on community-initiated orders appeared to prevent additional hospital involvement. The issuance of orders from hospital and the combined-order strategy were associated with protective oversight throughout extended inpatient careers. Sole reliance on community-initiated outpatient orders provided a 'least restrictive' alternative to hospitalization.

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Keywords

community treatment orders; involuntary treatment; least restrictive alternative to hospitalization; outpatient commitment; preventing hospitalization

Involuntary outpatient commitment statutes require participation in proffered mental health care by individuals who, because of a mental disorder, pose a danger to themselves or others and/or need treatment but refuse to accept it on a voluntary outpatient basis. Mandated compliance may extend to requiring someone to live in a particular apartment, take prescribed medications, attend counselling sessions, and abstain from illicit substances. A community treatment order (CTO) is the legal action placing a person on involuntary outpatient commitment. Few studies of involuntary outpatient commitment using CTOs address the following questions: what form do orders take in the system of care; for whom are orders being used; and why are orders being used; that is, what is their desired outcome [1,2]. Outpatient commitment provisions are written into law around the world [3] and are variously described as assisted treatment [2], a means to deliver involuntary treatment [4], to engender treatment compliance [5], or to stop 'revolving door' admissions [6]. The universal objective of such laws, that is, the one appearing in almost all statutes, is to provide '…a least restrictive alternative to psychiatric hospitalization' for those meeting the involuntary civil commitment standard of the jurisdiction. This can include patients considered a danger to self or others, gravely disabled, or in need of protection or treatment for health and safety due to a mental disorder. Orders are terminated when patients no longer meet the involuntary commitment standard. Alternatively, they are terminated when there is no viable least restrictive alternative and as a consequence the patient is hospitalized. The aim of the present study was to evaluate one aspect of CTO use that has become the centre of controversy over the past 15 years: their use as a means to prevent hospitalization. Such CTOs are issued in the community at a person's residence with the objective of keeping the person out of an inpatient facility. The study considers the experience of Victoria, Australia, during almost a decade by looking at the form that hospitalization prevention has taken in the system, the patients selected for the service, and the service objective.

During the 1990s Victoria proceeded to rapidly deinstitutionalize individuals with mentally illness. The policy relied to a significant extent on CTOs to provide a least restrictive alternative to hospitalization [7], There are two primary ways that such orders are used as a least restrictive alternative to hospitalization. In the first and by far the oldest and most used approach [8], a patient is placed on orders as a form of conditional release. Such orders are issued from involuntary hospitalization as part of an aftercare plan. The objective of such an order is to shorten the duration of a current hospital episode. Alternatively, the patient is placed on orders directly from the community to prevent hospitalization. This latter approach is the focus of this investigation.

Recent outpatient commitment research, most notably three comparison group studies, has focused primarily on preventing hospitalization [9–11], Two studies focused on prevention by randomizing without attention to the current inpatient episode [10, 11]; a third comparison group study [9] did this by statistically controlling for the effects of the

preceding hospitalizations [Segal S *et al.*, unpublished data, 2008], That research has produced mixed results. The comparison group study found no significant influence attributable to placement on orders. The former two studies, clinical trials in New York and North Carolina, randomized small groups of patients (142 and 252, respectively) with multiple major mental disorder diagnoses (characterized as severe mental illness) at various points in their treatment careers, to outpatient commitment and no outpatient commitment conditions and followed them for 1 year. Both studies failed to find significant differences between the randomized groups on any service utilization or behavioral outcomes in their initial reports. In a secondary analysis, sacrificing the randomized component of the study, the North Carolina group found less hospital utilization among extended outpatient commitment patients. A subsequent follow up of the North Carolina group reported reduced victimization (i.e. being a victim of a violent crime, such as assault, rape, or mugging or of a non-violent crime, such as burglary, theft of property or money, or being cheated in the past 4 months) among patients placed on orders. Four other studies, without comparison samples, are often cited as evidence that outpatient commitment reduces hospital admissions and the duration of hospital stays [12–15]. Because the focus of these latter studies was conditional release, shortening the duration of the current hospital episode, they seem to have minimal relevance to considering the effectiveness of orders in preventing hospitalization. And, because the oversight function of aftercare staff in conditional release often results in increased post-episode returns [16], prevention of future hospitalization is only a partial objective of this form of outpatient commitment. This investigation builds on the potential indicated by the positive outcomes reported in the North Carolina investigation by attempting to better understand the utility of outpatient orders in preventing hospitalization by focusing on the experience of patients with community-initiated orders in the Victoria Mental Health System. It considers the use of orders issued to patients in the community over the course of a decade. It assesses the impact of such orders on the course of a patient's subsequent treatment by comparing the experiences of those placed solely on community-initiated orders with those placed on orders initiated solely following hospital release and those placed on orders initiated from both hospital and community. (A member of the later group, for example, may have been placed on an order initiated from the hospital – a conditional release – and at some future time after the expiration of this order, been placed on a community-initiated order to prevent his/her rehospitalization.) The study thus looks at three CTO regimens and how these regimens relate to changes in subsequent inpatient utilization.

Although this comparison group design does not afford the level of causal inference available in a randomized experiment, it provides a perspective on the real-world pattern of use of community-initiated orders over a period of time currently unavailable in the literature. Such information is essential for treatment planning.

Method

Sample

The Victorian Psychiatric Case Register (VPCR) provides a record of all clinical contacts and their character occurring within the State of Victoria, Australia. The Victorian

Department of Human Services and its ethics committee approved access to the register data. All patients having experienced a placement on orders between 12 November 1990 and 30 June 2000 (a period when all mental health service utilization and outpatient commitment could be reliably mapped using the VPCR) were identified (n = 8879).

Units of analysis

In documenting the patient's treatment history, all treatment contacts were organized into episodes of care: each hospitalization (from day of admission to day of discharge) was considered a separate inpatient episode; each continuous period of outpatient provision without a break in service ≥90 days, a community-care episode [6, 17]. The ≥90 day break in outpatient care describes the level of tolerance for breaks in service allowed before describing the next service engagement as a new community care episode. Thus, a ≥ 90 day service break followed by re-initiation of care was considered the start of a new community care episode. All occasions of outpatient service are reported as community treatment days; multiple occasions of outpatient service on the same day count as one community treatment day.

Analyses

Analyses were completed using the SPSS Statistical Package 15 (SPSS, Chicago, IL, USA). Descriptive statistics and bivariate between-group differences are considered by inspection in order to avoid redundant statistical testing. Statistical tests for group differences are used for the multivariate models.

Logistic regression was used to clarify the distinguishing characteristics of patients selected for each of the three CTO regimens: sole reliance on community-initiated orders (henceforth, the 'community-initiated orders' group); sole reliance on hospital-initiated orders (the 'hospital-initiated orders' group); and the 'combined regimen' group of hospital- and community-initiated orders. The model included four service selection variables: (i) the duration of the patient's mental health treatment history in days (measured from the first date of contact with the mental health system to the last contact date); (ii) the experience of an inpatient episode longer than the 38 day average during the period prior to placement on orders (a variable that in previous research has been associated with selection for placement on orders) [6]; (iii) the number of inpatient episodes experienced prior to first placement on a CTO; and (iv) the interaction of the two prior measures [6].

The model also included the demographic variables age (measured at the end of the patient's last episode of care and coded in years) and gender (coded 1 for female and 2 for male). It included diagnostic groups (i.e. major affective disorder, schizophrenia, dementia, and 'paranoia or other psychoses': four categorical variables coded 1 for presence and 0 for absence of the diagnosis, with the contrast being 'other' diagnoses). The model also included indicators of pre-morbid adjustment (age at entry into the mental health system, 'never married', and > 11th grade education; the later two variables were coded 1 for presence and 0 for absence), and two measures of current social involvements (current marriage and employment; each coded 1 for presence and 0 for absence).

An analysis of covariance via dummy variable ordinary least square regression was used to consider the relationship between change in inpatient utilization and the three CTO regimens. Placement on community-initiated orders and placement on a combined regimen (i.e. orders initiated from both hospital and community) were entered as 0/1 dummy variables. The contrast group was those placed on orders solely from the hospital. The model was estimated adjusting for the amount of community-based services the patient received, interactions of community-based services with the type of CTO regimen, age at the end of the patient's last episode of care, gender, diagnoses (schizophrenia, major affective disorder, dementia, paranoia and other psychoses), year of entry into the mental health system (a deinstitutionalization trend control), and the total number of days of involvement with the mental health system.

Results

Victoria may be described as a conditional release-focused system because most of its CTOs are given to patients as a form of conditional release: orders initiated from the hospital. Of the 8879 individuals who were placed on orders during the decade of interest, 87% (n = 7720) had only hospital-initiated orders; 5% (n = 415) had only community-initiated orders, and 8% (n = 744) had a combined regimen during the course of their mental health service history.

Tables 1, 2 list the demographic, diagnostic and service use characteristics of the samples. On average a person was placed on a CTO 1.87 times (SD = 1.57) during their mental health treatment career. Those individuals who had only community-initiated orders were likely to have a mean of 1.06 (SD = 0.24) such placements, those with hospital-initiated orders a mean of 1.71 (SD = 1.34), and those on a combined regimen, a mean of 3.98 (SD = 2.39).

The focus of the results and discussion section was on gaining a better understanding of the use of CTOs for hospitalization prevention; thus these sections are presented in a way that focuses on the community-initiated and combined regimens, with the hospital-initiated group offered as a basis for comparison. (We also have considered conditional release-hospital-initiated orders extensively elsewhere [6]).

Table 3 addresses the issue of selection for community-initiated orders from a multivariate perspective. The model presented first contrasts patients experiencing only community-initiated orders versus those experiencing the combined regimen. The logistic model is significant ($p < 0.001$, n = 1159). The service history factors appear to be most important in distinguishing the community-initiated orders group. Having had an inpatient episode longer than the 38 day average prior to being placed on orders increased one's chances of membership in the community-initiated orders group, as opposed to the combined-regimen group, by 63.25-fold. Yet having many longer hospitalizations prior to placement reduced one's chances of membership by 32%. Demographics also played a role. Each year of age increased one's membership probability in the community-initiated orders regimen by 36%, and male individuals were 26% less likely to be selected to this regimen. People with schizophrenia and dementia were 63% and 57%, respectively, less likely to be selected to this regimen. Those selected to sole reliance on community-initiated orders as opposed to

the combined regimen also were more likely to enter the mental health system later in life, because each year younger that the patient was when first entering the system, decreased their chance of membership by 25%.

The logistic model also significantly distinguished the group with sole reliance on community-initiated orders from those with sole reliance on hospital-initiated orders ($p < 0.001$, $n = 8094$). The former were again primarily distinguished by the service history factors, gender, and age: having had an inpatient episode longer than the 38 day average prior to being placed on orders increased chances of selection to the community-initiated group by 3.72-fold over the hospital-initiated group. Each hospitalization prior to placement increased one's chances of membership by 6%; having had many longer hospitalizations prior to placement on orders reduced one's chance of membership by 13%; being male reduced them by 14%; and each year later in life that a patient entered the mental health system increased membership chances by 16%.

Finally, the logistic model significantly contrasted the combined regimen with the hospital-initiated orders group ($p < 0.000$, $n = 8417$). Again service history was most important in distinguishing the groups. Having had an inpatient episode longer than the 38 day average prior to being placed on orders, decreased chances of selection to the combined regimen, in contrast to the hospital-initiated group by 19%, while each additional inpatient episode and each such episode > 38 days increased one's chances of membership by 4% and 15%, respectively. Being male decreased one's chances of membership in the combined regimen versus the hospital-initiated group by 34%, as did early entry into the mental health system: accounting for an increase in probability of membership by 50% per year later in life that the individual came to the system.

Table 4 shows the relationship between changes in inpatient utilization, before minus after placement on orders by CTO regimen. It also considers the relationship of service provision to change in inpatient utilization. The model is significant (Adj. $R^2 = 0.05$, df = 13, 8751; $n = 8764$, $F = 37.24$, $p<0.001$). It shows that in comparison with those patients selected solely for hospital-initiated orders, the community-initiated orders group was likely to experience 116 fewer inpatient days in the post-placement period. The combined-regimen group, however, was likely to experience 153 more post-placement inpatient days, all other factors taken into account. Also of note is that for the community-initiated orders group the outpatient service days significantly interacted with their commitment status, such that when 8.3 service days were offered to a person they were associated with one additional inpatient day saved in the post-placement period.

Discussion

Patients appear to be selected for a singular regimen of community-initiated orders in a manner that emphasizes their experience of a single extended hospital stay. They tend to be older women. Although a majority of members in each of the three groups had schizophrenia, this majority was proportionally smaller in the community-initiated orders group. Thus proportionally more individuals with major affective disorders and other conditions were likely to be selected into this group than the comparison groups. Further, the

community-initiated orders group is most likely to benefit from increased services in their effort to avoid hospitalization.

A likely scenario for the community-initiated orders individual, given the treatment course descriptions of these patients and the multivariate model results, is that such a patient experiences a single hospitalization of duration slightly longer than average (38 days) and is released from hospital. During the 2 months that follow the patient experiences some deterioration, perhaps discontinuing treatment. The CTO is written to prevent return to the hospital and establish a pattern of care that will eliminate the need for future hospitalization. The patient then makes good use of the services offered. The strategy appears to work for this subgroup in that they experience fewer inpatient days after placement on community-initiated orders and only approximately one in five return to the hospital.

Patients placed on the combined regimen of hospital- and community-initiated orders appear to present the most difficult treatment situations. This is to some extent indicated in their demographic and illness characteristics: they are younger (37.5 ± 12.6 years) male individuals (67%) who have never been married (68%) and who have schizophrenia (87%). These are the ‘revolving door’ patients for whom CTOs seem to serve the functions of shortening the duration of current inpatient episodes [6] and of providing community-based oversight in an extended course of episodic hospitalizations. Such patients may benefit from such protective oversight in the form of reduced exposure to victimization [18, 19] and reduced risk of premature death [20]. But they experience the longest treatment careers (10 years on average), in all likelihood because of the severity of their illness and their early entry into the mental health system.

The present study has shed some light on the service use pattern of those patients placed on CTOs from the community: one subgroup experiencing such orders as a true preventative measure and the other as a form of oversight in the context of extended mental health inpatient experiences.

The present study had several limitations. Although it represents a first view of a population’s experience with CTOs issued in the community over almost a decade, the pattern of care herein observed may be unique to Victoria and its treatment approach and resources. Results, we emphasize again, derived in a comparison group design with adjustments for available covariates do not have the causal certainty attributable to a clinical trial. Like all research, there is a likelihood of some unmeasured variable accounting for the differences between CTO groups. Although the administrative data used represents perhaps the best in this category of information, they suffer from all the validity problems associated with administratively collected information. Given these limitations, however, it appears that for a select group of patients, CTOs issued from the community may help in future avoidance of inpatient care, following a shaky period of community care after an initial extended inpatient episode.

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Table 1.

Subject characteristics

	History with outpatient commitment orders (n = 8879)		Only hospital- initiated orders (n = 7720)		Both hospital- and community-initiated orders (n = 744)		Only community- initiated orders (n = 415)	
	n	%	n	%	n	%	n	%
Variables								
Age (years), mean±SD	42.4 ± 16.3		42.8±16.4		37.5 ± 12.6		43.2 ± 18.1	
Gender:								
Male	5275	59	4554	59	498	67	223	54
Female	3604	41	3166	41	246	33	192	46
Education:								
<11th grade education	6796	76	5894	76	565	76	337	81
>11th grade education	2083	24	1826	24	179	24	78	19
Employment:								
Employed	920	10	793	10	79	11	48	12
Other	7959	90	6927	90	665	89	367	88
Marital status:								
Never married	5023	57	4302	56	502	68	219	53
Currently married	1563	18	1397	18	83	11	83	20
Once married	1650	19	1456	19	109	15	85	20
Not known	643	7	565	7	50	7	28	7
Diagnosis								
Dementia or other nervous system disorders	872	10	760	11	64	9	48	12
Schizophrenic disorders	6911	78	5951	77	650	87	310	75
Paranoia and acute psychotic disorders	194	2	179	2	7	1	8	2
Major affective disorders	628	7	575	7	20	3	33	8
Other disorders	274	3	250	3	3	0	16	3

Table 2.

Service characteristics

Service Characteristics	History with outpatient commitment orders (n = 8679) Mean	±SD	Only hospital- initiated orders (n = 7715) Mean	±SD	Both hospital- and community-initiated orders (n = 744) Mean	±SD	Only community- initiated orders (n = 415) Mean	±SD
No. days in system	3104	3554	3070	3586	3664	3344	2728	3216
Total CTO episodes	1.87	1.57	1.71	1.34	3.98	2.39	1.06	0.24
No. orders initiated in community	NA	NA	0	0	1.20	.54	1.06	0.24
Days on community-initiated orders	NA	NA	0	0	189.09	199.01	235.36	280.71
Had >38 day inpatient episode prior to first CTO (%)	20		20		16		26	
Total inpatient episodes before first CTO	2.25	2.185	2.20	2.127	2.61	2.630	2.40	2.313
Total inpatient episodes after first CTO	2.46	4.16	2.17	3.83	6.39	5.94	0.65	1.29
Total inpatient episode days before first CTO	86.52	181.15	80.67	153.39	88.18	129.41	192.38	472.31
Total inpatient episode days after first CTO	101.33	265.27	88.88	246.06	267.01	398.03	35.97	198.33
Difference in before/after first CTO in inpatient days use	−14.83	286.50	−8.22	250.10	−178.83	387.66	156.41	495.74

CTO, community treatment order.

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Table 3.

Factors in selection to treatment condition

Conditions compared	**Community-initiated orders vs combined regimen**[†]				**Community-initiated orders vs hospital-initiated**[‡]				**Combined-regimen vs hospitai- initiated**[§]			
Distinguishing Characteristics	**B**	**SE**	**p**	**OR**	**B**	**SE**	**p**	**OR**	**B**	**SE**	**p**	**OR**
Service history												
Inpatient episode >38 day average	4.15	0.51	0.000	63.25	1.31	0.23	0.000	3.72	−1.68	0.23	0.000	0.19
No. inpatient episodes prior to first CTO	0.04	0.03	0.173	1.04	0.05	0.02	0.005	1.06	0.04	0.02	0.020	1.04
Interaction of inpatient episode >38 days by no. inpatient episodes prior to first CTO	−0.39	0.06	0.000	0.68	−0.14	0.03	0.000	0.87	0.14	0.02	0.000	1.15
Time from first date known to mental health system to last face-to-face contact Demographics	−0.001	0.00	0.000	0.999	0.00	0.00	0.000	1.00	0.00	0.00	0.000	1.00
Age	0.31	0.07	0.000	1.36	−0.18	0.11	0.090	0.83	0.16	0.09	0.070	1.17
Gender	−0.30	0.15	0.050	0.74	−0.15	0.03	0.000	0.86	−0.42	0.04	0.000	0.66
Community Involvement												
Employed	0.20	0.22	0.353	1.22	0.19	0.16	0.234	1.21	0.09	0.13	0.469	1.10
Currently married	0.44	0.26	0.051	1.55	0.11	0.15	0.472	1.11	−0.25	0.14	0.076	0.78
Premorbid Indicators												
Age at first date known to mental health system	−0.29	0.07	0.000	0.75	0.15	0.03	0.000	1.16	0.40	0.04	0.000	1.50
>11th grade education	−0.27	0.17	0.117	0.76	−0.31	0.13	0.019	0.73	−0.08	0.09	0.413	0.93
Never married	0.02	0.19	0.91	1.02	0.05	0.14	0.720	1.05	0.00	0.11	0.973	1.00
Diagnostic group												
Major affective disorder	−0.13	0.44	0.765	0.88	−0.18	0.27	0.487	0.83	−0.25	0.31	0.426	0.78
Dementia	−0.84	0.43	0.050	0.43	−0.12	0.27	0.657	0.89	0.48	0.27	0.078	1.61
Schizophrenia	−0.99	0.32	0.002	0.37	−0.19	0.20	0.362	0.83	0.54	0.22	0.013	1.72
Paranoia/other psychoses	−0.47	0.65	0.467	0.62	−0.32	0.41	0.435	0.72	0.14	0.45	0.751	1.15

CTO, community treatment order; OR, odds ratio.

[†]Model characteristics: χ^2 = 265.36; df = 15; p <0.000;% correct classification = 75.2%, n = 1151; missing cases, n = 8.

[‡]Modei characteristics: χ^2 = 71.56; df = 15; p <0.000;% correct classification = 94.9%, n = 8094; missing cases, n = 41.

[§] Model characteristics: $\chi^2 = 379.02$; df = 15; p <0.000; % correct classification = 91.2%, n = 8417; missing cases, n = 47.

Table 4.

Change in inpatient days used following CTO

Criterion variable	**Inpatient days following CTO**				
Independent variables	**Unstandardized regression coefflclent/B**	**SE**	**Standardized regression coefficient**	**T**	**p**
Age	0.07	0.20	0.00	0.34	0.733
Gender	−15.40	6.13	−0.03	−2.51	0.012
Major affective disorder	51.38	16.65	0.05	3.09	0.002
Schizophrenia	41.07	12.99	0.06	3.16	0.002
Dementia	43.33	16.74	0.04	2.59	0.010
Paranoia and other psychosis	60.06	23.22	0.03	2.59	0.010
Total service days	−0.03	0.02	−0.02	−1.79	0.074
Order initiated in community only	116.08	16.91	0.09	6.86	0.000
Orders initiated from hospital and community	−152.81	15.98	−0.15	−9.56	0.000
Interaction of hospital and community initiated orders with service days	−0.02	0.04	−0.01	−0.46	0.644
Interaction of community only initiated orders with service days	0.12	0.06	0.03	2.10	0.035
Year of first inpatient episode	5.13	1.24	0.05	4.13	0.000
No. days from first date to ‘last known face-to-face contact date’ (var1)	0.00	0.00	−0.04	−3.03	0.002

CTO, community treatment order.

Dependent variable: inpatient days before first CTO minus inpatient days after (i.e. days saved).; Model summary: R = 0.23, R^2 = 0.05, Adj. R^2 = 0.05, df for regression = 13, residual df = 8751, n = 8764, F = 37.24, p <0.000.