

# Community Treatment Orders use Among Persons With a First Episode of Psychosis in Quebec




The Canadian Journal of Psychiatry /  
La Revue Canadienne de Psychiatrie  
2023, Vol. 68(2) 119-129  
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DOI: 10.1177/07067437221125284  
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Utilisation des ordonnances d'autorisation de soins chez les personnes atteintes d'un premier épisode de psychose au Québec

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## Abstract

**Objectives:** Specialized early intervention for psychosis can reduce the duration of untreated psychosis and improve clinical and functional outcomes. However, poor adherence to treatment is frequent. The literature on community treatment orders (CTOs) use in first-episode psychosis (FEP) as a means to improve treatment adherence is limited. In the context of early intervention for psychosis services (EIS), this study aims to describe (1) the frequency of CTOs utilisation, (2) the trend of CTOs use over time, (3) the timing and reasons for requesting CTOs and (4) the baseline characteristics of FEP patients on CTOs compared to those who were not.

**Method:** A 5-year prospective longitudinal study describing the use of CTOs among persons with FEP admitted to two urban EIS in Montreal, Quebec, from 2005 to 2013. At admission, and then annually for 5 years, CTOs data were collected through chart review. Baseline characteristics, assessed by patient interviews, standardized questionnaires and chart review, included socio-demographic data, illness severity, functioning and alcohol and substance use. Descriptive analyses were performed, and FEP patients on CTOs during follow-up and those who were not were compared using analyses of variance, chi-square test and multivariate logistic regression.

**Results:** Among 567 FEP patients, 19.2% were placed on CTOs. The main reasons for requesting CTOs were to prevent further deterioration in mental state, social functioning, harmful behaviours to self and others and homelessness. FEP patients on CTOs had poorer premorbid and baseline functioning, more severe symptoms and social dysfunction at admission, including legal problems and homelessness.

**Conclusions:** CTOs can be a tool to improve adherence to treatment, which is crucial for relapse prevention in FEP. However, since it is a coercive method that limits a person's fundamental rights, further research is warranted to assess its impact on patients' lives, clinical and functional outcomes, as well as patients' and carers' perception.

## Abrégé

**Objectifs:** L'intervention précoce pour premier épisode psychotique (PEP) peut réduire la durée de la psychose non traitée et améliorer l'évolution clinique et fonctionnelle. Cependant, la mauvaise observance au traitement est fréquente. Les données sur l'utilisation des ordonnances d'autorisation de soins (OASs) pour les PEPs comme moyen d'améliorer

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l'observance au traitement sont limitées. Dans le contexte de programmes d'intervention précoce pour premiers épisodes psychotiques (PIPs), la présente étude vise à décrire 1) la fréquence d'utilisation des OASs 2), la tendance de l'utilisation des OASs dans le temps 3), les raisons de requêtes d'OASs, et 4) les caractéristiques au départ des patients PEP ayant eu une OAS comparés à ceux n'ayant pas eu d'OAS.

**Méthode:** Une étude prospective longitudinale de cinq ans décrivant l'utilisation des OASs chez les personnes ayant eu un PEP admises à deux PIPs de Montréal, Québec, de 2005 à 2013. À l'admission au programme, puis annuellement pendant 5 ans, les données sur les OASs ont été recueillies par révision des dossiers médicaux. Les caractéristiques à l'admission (incluant les données sociodémographiques, la sévérité de la maladie, le fonctionnement et l'utilisation de substances), ont été évaluées par entrevues, questionnaires standardisés, révision des dossiers médicaux. Des analyses descriptives ont été faites, et les patients PEP sous OAS durant le suivi et ceux sans OAS ont été comparés à l'aide d'analyses de variance, de test chi carré et de régression logistique multivariée.

**Résultats:** Parmi les 567 patients PEP, 19,2 % ont eu une OAS. Les principales raisons de requêtes d'OAS étaient d'éviter une détérioration de l'état mental, du fonctionnement social, des comportements dangereux envers eux-mêmes eux ou les autres et l'itinérance. Les patients PEP ayant eu une OAS avaient un moins bon fonctionnement pré morbide et à l'admission, des symptômes plus sévères et un moins bon fonctionnement social à l'admission, incluant des problèmes judiciaires et une situation d'itinérance.

**Conclusions:** Les OASs peuvent être un outil pour améliorer l'observance au traitement, qui est cruciale pour prévenir la rechute dans le PEP. Toutefois, comme il s'agit méthode coercitive qui limite les droits fondamentaux d'une personne, plus de recherches sont nécessaires pour en évaluer les effets sur la vie des patients, les résultats cliniques et fonctionnels ainsi que l'expérience des patients, de leurs proches et des soignants.

## Keywords

first-episode psychosis, community treatment order, involuntary treatment

## Introduction

Early intervention for psychosis services (EIS) aim to reduce the duration of untreated psychosis (DUP) which is associated with long-term functional and symptomatic outcomes in first-episode psychosis (FEP).<sup>1-3</sup> EIS provide a range of biopsychosocial interventions, including pharmacological treatment favoring the use of low-dose antipsychotic medication. Although they usually respond well to treatment,<sup>4, 5</sup> poor compliance is frequent in FEP<sup>6</sup> and is associated with more relapses, hospitalizations, residual symptoms and poorer quality of life.<sup>6, 7</sup> For patients deemed unfit to consent because of a mental disorder, a community treatment order (CTO), a legal regime requesting specific treatment modalities despite patient refusal,<sup>8, 9</sup> can be requested. A CTO is intended to improve adherence to treatment (e.g., adherence to medication, medical tests, medical appointments and psychosocial interventions), and therefore outcomes. When patients do not comply with the CTO, the court decision usually includes reinforcement means such as being escorted by police officers to treatment facilities.

Legislations differ in the means of application, duration and definition/composition of CTOs. In Quebec, a CTO can be requested by the hospital and ordered by a judge after a court audience, when a person, whose mental illness negatively affects his/her capacity to consent to care, refuses treatment categorically. The assessment of the person's capacity to consent to care is based on the Nova Scotia's Hospitals Act<sup>10, 11</sup> criteria which include the

ability to understand his/her illness, the risks and the benefits of the treatments and the risks if the treatment is not given. The patients can appeal the court order within five days, although very few do so.<sup>12</sup> The CTO duration varies depending on the patient's needs but is usually requested for 2-3 years. When the treatment order expires and the patient who still needs care, refuses it and remains unfit to consent, a CTO renewal may be requested.<sup>13</sup>

CTOs are coercive methods that remain criticized, given the controversial evidence on their benefits,<sup>14, 15</sup> especially in FEP. Systematic reviews and meta-analyses conducted in different jurisdictions show mixed results about the impacts of CTOs in adults with chronic psychiatric illnesses and FEP populations. Indeed, no effect was found on hospitalisation rates and lengths at 12 months follow-up despite some increased use of community services.<sup>14, 16-18</sup> However, most of these studies were not generalizable to FEP patients (e.g., mean age of 40, long duration of illness), and the Quebec jurisdiction (e.g., no use of enforcement mechanisms, short duration of CTOs, conducted in UK, USA, Australia, New Zealand). Methodological characteristics (e.g., comparison of two coercive methods,<sup>19</sup> exclusion criteria of patients more likely to benefit from CTO (e.g., history of violence<sup>20, 21</sup>) also limited their generalizability. Moreover, some studies used an RCT design<sup>19-21</sup> requiring the patient's consent, implying a capacity to consent and some agreement to treatment while in Quebec, CTOs should specifically be used when these criteria are not met.

Studies from EIS in Melbourne, Australia, reported relatively stable CTO use: 19.2% between 1998 and 2000 in their 660 FEP patients cohort<sup>8</sup> and 17.3% between 2011 and 2013 in their 544 FEP patients cohort.<sup>22</sup> FEP on CTOs (FEP-CTOs) had lower education and premorbid functioning, longer DUP, more severe symptoms, poorer insight.<sup>8</sup> They were more likely to be hospitalized,<sup>8</sup> male, diagnosed with schizophrenia spectrum disorder,<sup>22</sup> to have a comorbid substance use disorder,<sup>8, 22</sup> a history of offending behaviour,<sup>8</sup> more severe positive psychotic symptoms, poor functioning.<sup>22</sup> A Canadian study,<sup>9</sup> conducted from 2003 to 2015, reported that 7% (38/548) of FEP patients who agreed to participate in their 2-year EIS outcome study were on CTOs. FEP-CTOs were mostly Caucasian, male, single, with lower education and autonomy levels, a diagnosis of non-affective psychosis and comorbid substance use disorder.<sup>9</sup> This mirror study from Montreal, Quebec on the 38 FEP-CTOs, showed clinical and functional improvement, better adherence to treatment, fewer emergency room visits and hospitalizations, but greater weight gain post-CTOs.<sup>9</sup> Another study of 688 FEP patients followed in the same program from 2003 to 2018 reported that 9.9% had been on CTOs. FEP-CTOs, compared to those without CTOs, had longer DUP, lower baseline functioning, lower anxiety levels, more uncooperativeness, poor judgement and insight.<sup>23</sup>

The use of CTOs is still debated, and little information is available on their use in FEP. Since the proportion of FEP-CTOs appears to be quite different between the few studies conducted in Canada<sup>9, 23</sup> and Australia,<sup>8, 22</sup> further studies on the use of CTOs in FEP are warranted to determine for which FEP patients they are used and for what reasons. Moreover, to ensure the representation of all people with FEP, it is essential not to exclude any patients who may benefit from CTOs (e.g., those with a history of violence, substance use disorders, unfit to consent to research or treatment, etc.) as some other studies did.<sup>19-21</sup> We thus conducted a prospective longitudinal study to describe the frequency and the trend over time of CTOs' use in FEP patients, the timing and reasons for requesting CTOs and the characteristics of all FEP-CTOs compared to all FEP without CTOs in a quasi-epidemiological sample.

## Methods

### Study Design and Population

This 5-year longitudinal study took place in two urban EIS affiliated to University of Montreal's network Québec, Canada : *Programme Premier Épisode Psychotique* (PEP) - *Institut Universitaire en Santé Mentale de Montréal* and *Clinique Jeunes Adultes Psychotiques* (JAP) - *Centre Hospitalier de l'Université de Montréal* (catchment areas of about 340,000 and 225,000 people, respectively).<sup>24</sup> Both provided 5 years of specialized EIS according to international guidelines<sup>4</sup> to all participants, including pharmacological and

intensive recovery-oriented psychosocial interventions with case-management, group and individual psychoeducation for relapse prevention, cognitive behavioural, motivational, harm reduction and family interventions. Our study design and procedures were approved by the institutional ethics and scientific committees of both institutions.

Patients admitted to these two EIS, from October 2005 to December 2013 at JAP and from January 2006 to December 2011 at PEP, were approached for recruitment once their clinical state was stable enough to insure they were apt to provide written informed consent for participation in the study. Patients had to be between 18 and 30 years of age at EIS admission and diagnosed with an untreated psychotic disorder, which was defined as any DSM-IV-TR psychotic disorder for which no antipsychotic treatment was previously administered or treated for less than 12 months prior to EIS admission. Patients with intellectual disability were excluded. To ensure adequate representation of the entire EIS patient population and to avoid biases likely to impact results, such as underestimation of CTOs, the research ethics committee and the Direction of Professional Services of each institution approved retrospective chart reviews for data collection on patients unable to consent, those lost to follow-up before recruitment and those who refused to participate.

### Data Collection

Baseline data were collected by trained research assistants through patient interviews, standardized questionnaires, medical chart review, and when possible, by questioning the treating clinicians. Baseline information included socio-demographic data, symptomatic and clinical assessments and childhood trauma history (based on items of the Childhood Trauma Questionnaire).<sup>25</sup> A two-rater (one psychiatrist and either a psychiatry resident, a physician or a second psychiatrist) best-estimate consensus method<sup>26</sup> was used to determine DSM-IV-TR diagnoses of psychotic disorders (principal diagnosis) and of comorbid disorders (substance use disorders or cluster B personality), and to score severity of illness (Clinical Global Impression-Severity sub-scale (CGI-S),<sup>27</sup> Drug Use Scale, Alcohol Use Scale<sup>28</sup> and Social and Occupational Functioning Assessment Scale (SOFAS)).<sup>29</sup> A retrospective assessment of the best premorbid functioning level based on patient file analysis was estimated using SOFAS. A SOFAS score >50 was used as a cutoff indicating moderate difficulty or good functioning in social, occupational or school functioning (e.g., "few friends, generally functions well. A score ≤50 indicated serious impairment in social, occupational or school functioning (e.g., "no friends, unable to keep a job"). Use of long-acting injectable antipsychotic (LAI-AP) and medication adherence in the first three months were collected by chart review.

Some factors were also collected by patient interviews and chart review during follow-up for descriptive purposes: homelessness, legal problems (e.g., history of legal charges),

number of hospitalizations and emergency visits. Data on CTOs were collected at admission and every year for 5 years through medical chart review. The reasons for CTO requests were assessed at JAP clinic only, as the medical reports used to request a CTO were only accessible at JAP clinic at the time of the study. The medical reports issued from 2005 to 2018 were reviewed and completed with discussions with the treating clinicians. Reasons for requesting CTOs were categorized in seven categories based on a previous study,<sup>30</sup> but were adapted to FEP: mental status deterioration, impact on study or work, impact on social network, harmful behaviours to self, harmful behaviours to others, homelessness and physical health deterioration. A single CTO request could be included in many categories.

### Statistical Analysis

Analyses were performed using Statistical Package for Social Sciences software (v.27, SPSS Inc., Chicago, IL, USA). Descriptive statistics were performed to describe the frequency of CTOs. Patients who had at least one CTO during follow-up were compared with those who did not, on baseline factors known to be associated with psychosis outcome such as socio-demographic characteristics, psychiatric symptoms and functioning.<sup>31,32,33</sup> Differences between groups were first tested using analyses of variance for continuous variables and Pearson chi-square test for categorical variables. All statistically significant variables ( $P \leq 0.05$ ) were then included in a multivariate logistic regression model. Variables with missing data on more than 100 participants were excluded from the multivariate model. All logistic regression assumptions were verified.

## Results

### Use of CTOs

All the 567 FEP patients admitted during the study period were included in this study. The mean age was 23.6 years ( $SD = 3.6$ ), 75.7% were male and 81.7% single. During

**Table 1.** Proportion of Persons With a First-Episode Psychosis who had a Community Treatment Order (CTO), a CTO Renewal and the Average Time Between the Two CTOs.

	JAP <sup>c</sup>	PEP <sup>d</sup>	Total
% of FEP <sup>a</sup> with a 1 <sup>st</sup> CTO <sup>b</sup>	21.8% (83/380)	13.9% (26/187)	19.2% (109/567)
% of FEP with a 2 <sup>nd</sup> CTO	3.2% (12/380)	4.3% (8/187)	3.5% (20/567)
Mean time between 1 <sup>st</sup> and 2 <sup>nd</sup> CTO in days (range)	189.75 (0–632)	233.75 (4–675)	207.35 (0–675)

<sup>a</sup>FEP = first-episode psychosis, <sup>b</sup>CTO = community treatment order, <sup>c</sup>JAP = clinique Jeunes Adultes Psychotiques of the Centre Hospitalier Universitaire de Montréal, <sup>d</sup>PEP = programme Premier Épisode Psychotique of the Institut Universitaire en Santé Mentale de Montréal.

their follow-up, 19.2% ( $n = 109$ ) of all FEP patients were placed on CTOs, but only 3.5% ( $n = 20$ ) needed a CTO renewal during their 5 years follow-up (Table 1). The total annual proportion of FEP-CTOs among patients still followed by EIS has increased from 8.9% in 2006, to around 20% in 2011 (Figure 1). The proportion of patients under CTOs is at its maximum in the third year (22.8% (82/360)) of follow-up (Figure 2).

Of the 93 CTOs requested at the JAP clinic (2005–2018), the reasons were mental status deterioration (100%), harmful behaviours to self (71%) and others (44%), homelessness (70%), impact on study or work (59%), impact on social network (59%) and physical health deterioration (17%). A total of 133 patients (23.5%) were lost to follow-up at 5 years. Among the patients who were placed under a CTO ( $n = 109$ ), only 6 (5.5%) were lost at the end of the study.

### Difference of Characteristics Between FEP With and Without CTOs

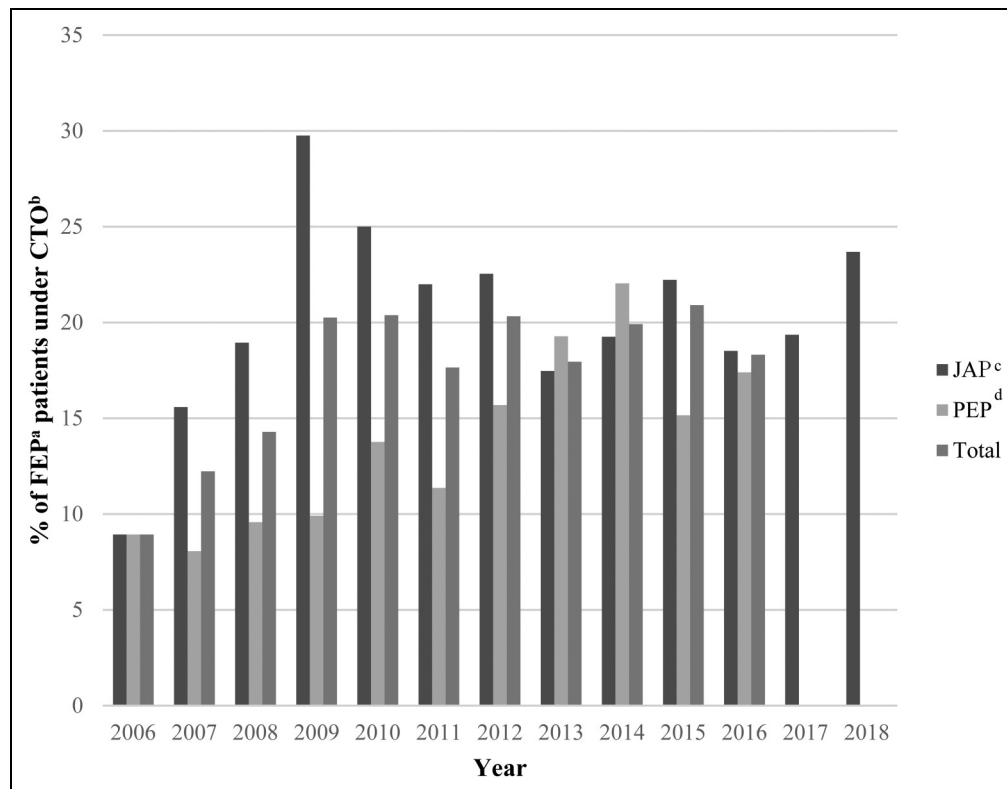
**Bivariate Analyses.** At baseline FEP-CTOs were more likely to be single, less educated, not engaged in school or work, to have lower functioning (SOFAS), to have a greater psychotic illness severity (CGI) and legal problems and experiences of homelessness before treatment. Potentially traumatic experiences during childhood were more frequent in FEP-CTOs. They also differed in their living arrangements autonomy and source of income. The type of psychotic disorder differed between the two groups, and FEP-CTOs were more likely to have concurrent diagnoses such as cluster B personalities, comorbid cannabis and amphetamine use disorders. No significant statistical difference was observed for suicidal ideation and suicide attempts. Although medication adherence at 3 months did not differ significantly between the two groups, FEP-CTOs were more likely to be prescribed a LAI-AP in the first 3 months and during follow-up. Over follow-up, FEP-CTOs were more likely to have experienced homelessness, have legal problems, have more hospitalizations and emergency visits (Table 2).

**Multivariate Analyses.** In the multivariate model, persons with schizophrenia spectrum-disorders compared to persons diagnosed with “other psychosis” (including psychosis not otherwise specified, brief psychotic disorder and delusional disorder) had a greater illness severity, as well as cannabis use disorder, a history of homelessness before treatment, and those prescribed LAI-AP at 3 months, were more likely to be on CTOs over the follow-up (Table 3).

## Discussion

### Frequency and Reasons of CTOs' use in FEP

Although there are few studies on the use of CTOs in FEP, the frequency of CTOs reported in our study (19.2%) is



**Figure 1.** Percentage of persons with a first-episode psychosis under community treatment order over the years (N = 567). FEP = first-episode psychosis, <sup>b</sup>CTO = community treatment order, <sup>c</sup>JAP = Clinique Jeunes Adultes Psychotiques of the Centre Hospitalier Universitaire de Montréal, <sup>d</sup>PEP = programme Premier Épisode Psychotique of the Institut Universitaire en Santé Mentale de Montréal. *Note.* Data collection ended in 2016 at the PEP clinic, since the last patient inclusion at the PEP clinic was in 2011.

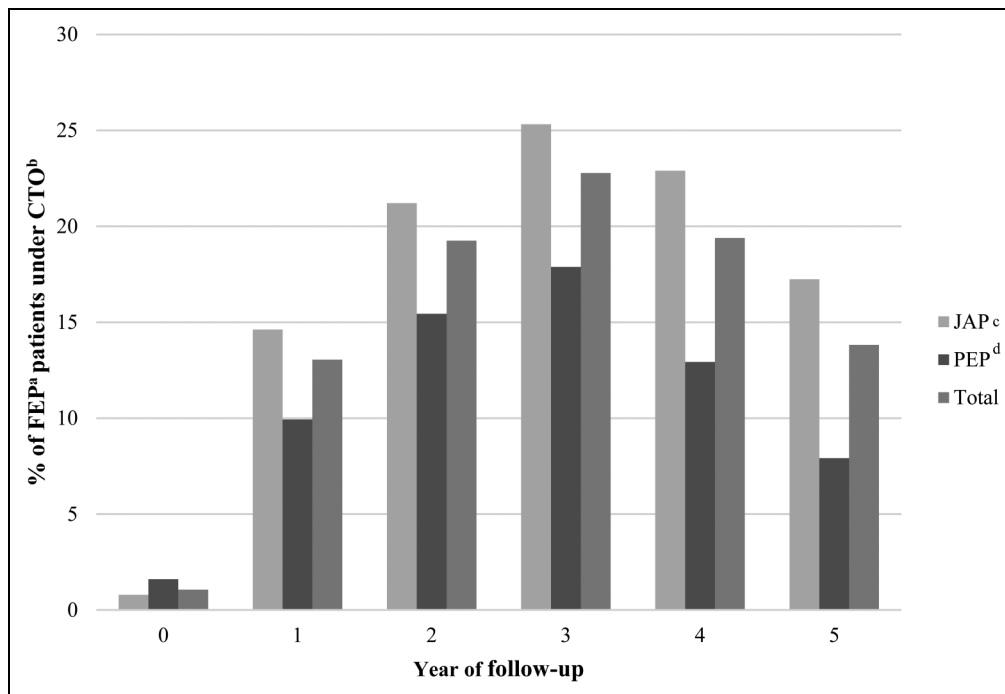
comparable to the two Australian studies (19.2%,<sup>8</sup> 17.3%<sup>22</sup>) and corresponds to one of the highest level of CTOs' use in FEP populations reported worldwide.<sup>34–37</sup> Although the use of CTOs can vary depending on jurisdictions and periods, this does not seem to explain the differences between studies. For example, in the state of Victoria where the two Australian studies were conducted, the legal process to obtain a CTO is much simpler and faster than in Quebec; nevertheless, the CTO use rates are similar. In contrast, studies from another EIS, under the same jurisdiction, in the same city (Montreal) and covering about the same period (beginning 2004–2005, ending 2015–2018<sup>9, 23</sup>) reported lower use of CTOs: 7%<sup>9</sup> and 9.9%.<sup>23</sup> This difference cannot be explained by the longer follow-up period offered by the EIS of the present study compared to the latter ones (5 years versus 2 years<sup>9, 23</sup>), considering that 19.3% were already under CTOs at 2 years of follow-up in the present study. Furthermore, the Australian EIS<sup>8, 22</sup> follow-up also lasted 2 years and reported similar CTOs use than the present study.

The different proportion of FEP-CTOs between the two clinics in our study could be explained in part by the fact that the JAP clinic is located downtown and has many patients in precarious situations which often require a CTO

if they refuse treatment.<sup>38–40</sup> For this reason, since 2012, JAP clinic includes a subprogram which takes care of homeless youth with FEP, therefore this clinic serves a higher proportion of homeless patients. Indeed, in the present study homelessness is one of the most common reasons for CTOs requests (in 70% of cases).

While in an adult cohort from Montreal with a psychotic disorder, the most common reason to seek a CTO was social disorganization,<sup>30</sup> in our study the risk of mental deterioration, social functioning decline, harmful behaviours and homelessness were the main reasons (in >50% of CTOs requests). Since EIS allow for more intensive multidisciplinary monitoring of patients, subtle symptoms and impairments can be detected more rapidly. It is likely that in FEP, since non-adherence to treatment is frequent, CTOs are requested earlier in the illness process, before major deterioration is observed.

Although we did not assess CTOs' impact nor collected data on why renewals were not required in most patients, it is probable that adequate treatment within the first CTO, allowed improvement of patients' clinical state and therefore better insight and adherence to treatment, since only 3.5% of FEP required a renewal of their CTOs within the first 5 years of follow-up. However, the limited observation period does



**Figure 2.** Percentage of persons with a first-episode psychosis under community treatment orders by year of follow-up (N = 567) <sup>a</sup>FEP = first-episode psychosis, <sup>b</sup>CTO = community treatment order, <sup>c</sup>JAP = Clinique Jeunes Adultes Psychotiques of the Centre Hospitalier Universitaire de Montréal, <sup>d</sup>PEP = programme Premier Épisode Psychotique of the Institut Universitaire en Santé Mentale de Montréal.

not allow determining if CTO renewals were required after the transition to other services after EIS follow-up ended, a period of high risk of disengagement and lower adherence. At the beginning of the treatment process in FEP, some professionals are hesitant to use CTOs since it is perceived as a coercive method. When other methods have been tried (e.g., fostering therapeutic alliance, psychoeducation, family intervention, etc.) and are not sufficient to ensure effective treatment, CTOs can be a useful tool to help patients recover, understand and gain better control over their illness. This can possibly improve their engagement with services, by forcing it at first, and avoid severe deterioration and poor outcomes associated with untreated psychosis. CTOs should be used with the aim of offering better support to people with severe mental illness in maintaining their well-being in their communities.<sup>41</sup>

### Characteristics of FEP Under CTOs

As reported in previous studies,<sup>8, 9, 22, 23</sup> a higher proportion of FEP-CTOs had a schizophrenia spectrum-disorder, comorbid cannabis use disorder and greater illness severity. The findings also revealed that severe social dysfunction, including legal problems and homelessness, emerged before admission, and persisted despite follow-up, with more frequent hospitalizations.<sup>8</sup> The profile of FEP-CTOs is similar to that of patients with severe and persistent mental illness on

CTOs, which have chronic symptoms and impairment of social functioning and longer length of stay in hospital.<sup>42</sup>

Our study found no differences in the CTO use for Black or other non-Black visible minority FEP patients compared to White FEP patients, contrarily to Kisely et al.,<sup>17</sup> who found in an adult psychiatric population, that people from culturally and linguistically diverse or migrant backgrounds are more likely to be placed on a CTO. A recent study on FEP in Montreal, Canada<sup>43</sup> reported that Black minority FEP were more likely to be exposed to coercive referrals to the health system and any legal interventions.<sup>43</sup> However, they did not report CTO use separately from other legal measures (police interventions, child protection, any court involvement, legally forced hospitalizations, etc.).<sup>43</sup>

FEP-CTOs were more likely to be prescribed LAI-APs, which have been shown to reduce relapses and rehospitalizations,<sup>44, 45</sup> which are both emotionally costly to patients and their families, as well as economically for the society. Frank et al.<sup>13</sup> reported that patients with severe and persistent mental illness on CTOs of longer duration were more likely to be adherent to LAI-APs which was linked to a decreased risk of hospitalizations. They suggest that, although a longer CTO duration may seem theoretically more restrictive, avoiding lengthy and often coercive hospitalizations and therefore allowing more time spent in the community in the long term, should be weighed in the balance when considering the coercion burden.<sup>13</sup> Similarly,

**Table 2.** Characteristics of Patients With and Without Community Treatment Orders.

Factors	Sample (n = 567) n (%) / M (SD)	Treatment orders (n = 109) n (%) / M (SD)	No treatment order (n = 458) n (%) / M (SD)	P-value
<b>Socio demographic</b>				
Age at admission	23.60 (3.55)	23.19 (3.71)	23.69 (3.51)	0.180
Male gender	429 (75.7)	90 (82.6)	339 (74.0)	0.062
Immigration				0.941
Non-immigrant	300 (53.10)	59 (54.63)	241 (52.74)	
First generation	160 (28.32)	29 (26.85)	131 (28.67)	
Second generation	104 (18.41)	20 (18.52)	84 (18.38)	
Ethnicity				0.393
Caucasian	368 (64.9)	75 (69.4)	293 (64.3)	
African and Afro-Caribbean	108 (19.0)	17 (15.7)	91 (20.0)	
Arab	38 (6.7)	4 (3.7)	34 (7.5)	
Asian	20 (3.5)	4 (3.7)	16 (3.5)	
Latin-American	30 (5.3)	8 (7.4)	22 (4.8)	
Visible minority group (non-white)	209 (37.1)	37 (33.9)	172 (37.8)	0.454
Marital status baseline				0.028
Celibacy	477 (84.13)	97 (89.00)	366 (79.91)	
Partner	90 (15.87)	12 (11.00)	92 (20.09)	
Years of education	11.14 (3.01)	10.25 (2.58)	11.36 (3.06)	<0.001
Highest completed diploma				0.005
Primary school degree or less	233 (41.83)	60 (55.05)	173 (38.62)	
High school degree	183 (32.85)	34 (31.19)	149 (33.26)	
Professional degree	84 (15.08)	9 (8.26)	75 (16.74)	
University degree	57 (10.23)	6 (5.50)	51 (11.38)	
Studying at baseline	109 (19.26)	9 (8.26)	100 (21.88)	0.001
Working at baseline	143 (25.3)	14 (12.84)	129 (28.29)	<0.001
Occupation at baseline (working and/or studying)	229 (40.46)	22 (20.18)	207 (45.30)	<0.001
Autonomy in living arrangements				0.026
autonomous	277 (48.85)	41 (37.61)	236 (51.53)	
with parents	227 (40.04)	48 (44.04)	179 (39.08)	
supervised	19 (3.35)	6 (5.50)	13 (2.84)	
homelessness	44 (7.76)	14 (12.84)	30 (6.55)	
Income				< 0.001
None	212 (38.20)	44 (40.37)	168 (37.67)	
Government aid and disability	167 (30.09)	46 (42.20)	121 (27.13)	
Autonomous income	176 (31.71)	19 (17.43)	157 (35.20)	
Legal problems at baseline or before	135 (24.46)	37 (33.94)	98 (22.12)	0.010
<b>Potentially traumatic experiences in childhood</b>				
Placement in foster care	80 (17.50)	28 (30.11)	52 (14.29)	<0.001
Negligence	81 (27)	34 (50.0)	47 (20.26)	<0.001
Attachment figure separation	204 (44.44)	55 (58.51)	149 (40.82)	0.002
Physical abuse	62 (20.81)	18 (28.13)	44 (18.80)	0.104
Abuse - all forms	140 (43.89)	45 (61.64)	95 (38.62)	<0.001
Psychological abuse	84 (27.7)	32 (47.76)	52 (22.03)	<0.001
Sexual abuse	32 (11.34)	6 (10.71)	26 (11.50)	0.867
Parental divorce	235 (51.4)	62 (64.58)	173 (47.92)	0.004
Intimidation	82 (31.2)	17 (30.91)	65 (31.25)	0.961
Death of father	39 (8.21)	9 (9.0)	30 (8.0)	0.746
Death of mother	22 (4.60)	6 (5.94)	16 (4.24)	0.470
<b>Diagnosis</b>				
Principal diagnosis				<0.001
Schizophrenia spectrum	330 (58.20)	84 (77.06)	246 (53.71)	
Affective psychosis	157 (27.69)	18 (16.51)	139 (30.35)	
Other psychosis	80 (14.11)	7 (6.42)	73 (15.94)	

(continued)

Table 2. Continued.

Factors	Sample (n = 567) n (%) / M (SD)	Treatment orders (n = 109) n (%) / M (SD)	No treatment order (n = 458) n (%) / M (SD)	P-value
<b>Secondary diagnosis</b>				
<b>Cluster B personality disorder or traits</b>	165 (29.52)	43 (39.45)	122 (27.11)	0.011
<b>Alcohol use disorder</b>	113 (20.00)	22 (20.18)	91 (19.96)	0.957
<b>Cannabis use disorder</b>	254 (44.88)	64 (58.72)	190 (41.58)	0.001
<b>Amphetamine use disorder</b>	80 (14.16)	22 (20.18)	58 (12.72)	0.045
<b>Cocaine use disorder</b>	40 (7.08)	9 (8.26)	31 (6.80)	0.594
<b>Other substance use disorder</b>	14 (2.48)	3 (2.75)	11 (2.41)	0.837
<b>Premorbid period</b>				
<b>Moderate difficulty or good social and occupational functioning (SOFAS<sup>a</sup> &gt; 50)* - best of life</b>	457 (81.03)	83 (76.15)	374 (82.20)	0.148
<b>Severity of illness (CGI<sup>b</sup>) - best of life*</b>	1.74 (0.99)	2.16 (1.13)	1.63 (0.93)	<0.001
<b>Homelessness prior to admission (%)</b>	110 (19.71)	40 (36.70)	70 (15.59)	<0.001
<b>Homelessness duration prior to admission</b>				<0.001
None	448 (80.87)	68 (63.55)	380 (85.01)	
6 months or less	58 (10.47)	21 (19.63)	37 (8.28)	
More than 6 months	48 (8.66)	18 (16.82)	30 (6.71)	
<b>Baseline</b>				
<b>Clinical</b>				
<b>Severity of illness (CGI) - baseline</b>	4.82 (0.92)	5.12 (0.85)	4.75 (0.92)	<0.001
<b>Suicidal ideation</b>	80 (14.79)	16 (15.84)	64 (14.55)	0.741
<b>Suicidal attempt</b>	44 (8.32)	7 (6.67)	37 (8.73)	0.494
<b>Functional</b>				
<b>Moderate or good social and occupational functioning (SOFAS &gt; 50) - baseline</b>	43 (7.58)	1 (0.92)	42 (9.17)	0.003
<b>Medication at baseline**</b>				
<b>Long acting injectable antipsychotic medication - (month 3)</b>	96 (17.52)	39 (36.45)	57 (12.93)	<0.001
<b>Good medication adherence 3 months (≥90%***)</b>	423 (82.78)	87 (82.08)	336 (82.96)	0.829
<b>Over the follow-up</b>				
<b>Homelessness (%)</b>	72 (13.28)	36 (33.03)	36 (8.31)	<0.001
<b>Homelessness duration</b>				<0.001
None	437 (86.02)	69 (63.89)	368 (92.00)	
6 months or less	46 (9.06)	22 (30.37)	24 (6.00)	
More than 6 months	25 (4.92)	17 (15.74)	8 (2.00)	
<b>Legal problems</b>	67 (12.52)	25 (22.94)	42 (9.86)	<0.001
<b>Total number of hospitalizations</b>	2.60 (2.72)	4.93 (3.45)	2.05 (2.18)	<0.001
<b>Total number of emergency visit</b>	0.88 (1.67)	1.72 (2.26)	0.68 (1.43)	<0.001

<sup>a</sup>SOFAS = social and occupational functioning assessment scale, <sup>b</sup>CGI = clinical global impression \*Best of life measures refer to the highest level achieved by the person between the age of 18 and admission to services.

\*\*Use of long-acting injectable and medication adherence were collected by chart review at 3 months into the program (considered as the time where baseline medication has been stabilised).

\*\*\*Based on recommendations in the field,<sup>33</sup> medication adherence was assessed by multiple sources of information: the patient's self-report, the patient's file review (including information from the family's report), laboratory measures, the patient's case manager and the psychiatrist's reports. Individuals were classified as adherent (≥90%) or partially/non-adherent.

Levy's study reported that once the CTOs were authorized, the vast majority of FEP-CTOs were prescribed LAI-APs and showed better adherence to treatment, a reduction in symptoms, better functioning and a reduction in emergency room visits and hospitalizations' length.<sup>9</sup>

In contrast with Levy's mirror study in a FEP population,<sup>9</sup> RCTs have not identified benefits of CTOs on the clinical course of patients.<sup>46</sup> However, in addition to methodological limitations associated to selection bias (since RCTs require

consent to treatment although individuals targeted for CTOs are deemed unfit to consent and categorically refuse treatment), the RCT may not be the appropriate study design to measure the impact of an intervention as complex as CTOs and their application.<sup>47</sup> Indeed, CTOs depend on local jurisdictions, on different treatment options authorized and the means available to apply them.<sup>47</sup> Moreover, these three RCTs<sup>19-21</sup> were short, lasting a few months to a maximum of 1 year, although this subgroup of severely ill



**Table 3.** Logistic Regression: Factors Associated With Community Treatment Order.

Variables	Community treatment order during follow-up (n = 513)			
	B	P	OR	95% CI
<b>Marital status (partner)</b>	-0.731	0.087	0.482	0.208–1.113
<b>Living arrangements (reference category = autonomous)</b>		0.765		
<b>With parents</b>	0.217	0.474	1.242	0.686–2.251
<b>Supervised</b>	0.063	0.916	1.066	0.325–3.489
<b>Homeless</b>	-0.307	0.550	0.736	0.269–2.013
<b>Occupation at baseline (studying or working)</b>	-0.544	0.121	0.580	0.292–1.155
<b>Income (reference category = none)</b>		0.678		
<b>Government aid and disability</b>	-0.266	0.393	0.766	0.416–1.412
<b>Autonomous income</b>	-0.182	0.632	0.833	0.395–1.759
<b>Years of education</b>	0.033	0.534	1.033	0.932–1.145
<b>Legal problems at baseline or prior to treatment</b>	-0.151	0.612	0.860	0.479–1.543
<b>Hospitalization at baseline</b>	0.203	0.461	1.226	0.713–2.106
<b>Principal diagnosis (reference category = schizophrenia spectrum-disorders)<sup>a</sup></b>		0.095		
<b>Affective psychosis</b>	-0.397	0.231	0.673	0.352–1.287
<b>Other psychosis</b>	-0.931	0.044	0.394	0.159–.976
<b>Secondary diagnosis</b>				
<b>Cannabis use disorder</b>	0.595	0.027	1.814	1.069–3.076
<b>Amphetamines use disorder</b>	0.058	0.867	1.059	0.538–2.087
<b>Cluster B personality disorder or traits</b>	0.401	0.156	1.493	0.859–2.596
<b>Moderate or good social and occupational functioning (SOFAS<sup>b</sup> &gt; 50)– baseline</b>	-1.476	0.188	0.229	0.025–2.053
<b>Severity of illness (CGI<sup>c</sup>) – best of life</b>	0.264	0.035	1.302	1.018–1.664
<b>Severity of illness (CGI) - baseline</b>	0.137	0.402	1.147	0.832–1.582
<b>Homelessness prior to treatment</b>	0.787	0.026	2.197	1.099–4.390
<b>Long acting injectable Antipsychotic–(month 3)</b>	1.173	<0.001	3.230	1.873–5.571

<sup>a</sup>The reference category was changed to compare persons with affective psychosis and those with other psychosis, and no significant differences were detected between these groups.

<sup>b</sup>SOFAS = social and occupational functioning assessment scale, <sup>c</sup>CGI = clinical global impression.

patients, might need longer time to respond to treatment and for improvements to be noticeable.<sup>48, 49</sup>

### Strengths and Limitations

Similarly, to the Bardell-Williams' study,<sup>22</sup> a strength of our large FEP cohort study is its naturalistic design. It allows a better representation of FEP patients needing CTOs since we included data on almost all incident cases of FEP in the defined catchment areas since citizens in the province of Quebec are treated by sectorized mental health services and those services are covered and equally accessible to the entire population. Although incapacity to consent to treatment does not imply incapacity to consent to RCTs, a patient cannot be randomized to a forced treatment if he categorically refuses and is incapable of consenting. With patients severely ill and unfit to consent to treatment, RCTs do not seem the appropriate design to evaluate the impact of CTOs, mainly because the randomization process would be unethical, not possible in real-life settings and excludes an important proportion of those who could benefit from such a medico-legal intervention (e.g., patients with violent behaviours<sup>20</sup> shown in the Australian study as more likely to need CTOs).<sup>50</sup>

However, reasons for CTOs requests were identified only at JAP clinic, which is located downtown and has a specialized sub-team for homeless FEP, with concurrent addiction, possibly influencing the reasons for requesting CTOs in that subgroup and therefore limiting generalizability.

Although this study sheds light on the characteristics of FEP-CTOs, there was no measure of patient insight, which is an important factor in treatment adherence. Also, the impact of CTO on different outcomes such as symptomatology, hospitalizations and functioning has not been evaluated.<sup>3, 31, 32</sup> However, Levy's et al.<sup>9</sup> 2-year study reported clinical and functional improvements after the CTOs. Studies reporting CTOs' impact in the longer term are needed since FEP-CTOs seem to have more severe illnesses and comorbidities, which often need longer periods of treatment to improve. Finally, we did not assess the experience of the CTO process with patients, their relatives and their treatment team.

### Conclusion

Although CTO has a coercive dimension and restricts the freedom of choice of patients regarding the management of their illness at first, when integrated in a treatment plan

with other therapeutic interventions, it could possibly help improve treatment adherence, and thus support the patient to gain control on their health and life situation in the medium and long term. By reducing hospitalization and facilitating a return to normal activities, CTOs may allow patients to potentially enjoy more freedom and opportunities in life choices and be able to collaborate with the multidisciplinary team in a shared decision making process about their treatment. Efforts to propose shared decision making<sup>51</sup> taking into account the legal framework seem warranted. The benefits and negative impacts of such legally coercive methods in FEP patients on symptomatology, functioning, services use but also on the subjective experience of patients and the one of their significant others, need to be documented to help clinicians use CTOs more effectively.


### Declaration of Conflicting Interests


The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.


### Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

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