



**Historical and Contemporary Synopsis of the Development of Field Education Guidelines in BSW, MSW and Doctoral Programs**

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# A Different Patient Group Responses To Community Treatment Orders Suggest Alternative Approaches

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*Segal*

## **Abstract**

Community treatment orders (CTOs) help people with severe mental illness survive through potentially harmful crises posing imminent threats to health and safety by providing needed treatment when possible as a less restrictive alternative (LRA) to involuntary hospitalization. This review considers how differing patient subgroups have responded to differing CTO implementation approaches. Though recent trends have favored restricting psychiatric discretion, patients selected by psychiatrists as eligible for brief CTO assignment and assigned randomly to either brief or fixed-longer-term CTOs were no different in adverse outcomes other than in the duration of supervised time. Though emphasis has been on dangerousness to others, a study excluding such patients found lesser amounts of victimization among CTO-assigned vs. non-CTO patients. Though the trend has been focused on shortening CTO-duration studies of extended six-month CTO assignment found that such patients experienced reduced inpatient days. Though emphasis has been on using CTOs with patients who have repeatedly failed in voluntary community care, studies of early intervention CTO use yielded positive results. Finally, CTO diversion has received limited use but when used had positive outcomes. Average evidence rankings for all subgroup study areas were 3.58 of 5 with 1 being the best rank. These studies, while low in evidence ranking, suggest alternative approaches may improve CTO-use outcomes for different patient subgroups.

## **Introduction**

Community treatment orders (CTOs), outpatient civil commitment assignments, are written into law around the world (Bazelon Center for Mental Health Law, 2004; Canada: Legal Line, 2020; Glover-Thomas, 2002; Israel: Treatment of Mental Patients Law, 1991; Lake v. Cameron, 1966; Mental Health Act 2007 (NSW); Mental Health Act 2000 (Qld) s 14(1)(f); Mental Health Act 1996 (Tas) s 24; Mental Health Act

2014 (Vic); Mental Health Act 1996 (WA) s 26 (2); Norwegian Act No. 62 of 2 July 1999; O'Connor v. Donaldson, 1975; Treatment Advocacy Center, 2017; U.K. Mental Health Act 2007-8; Victorian Mental Health Act 1986). These laws help people with severe mental illness survive through potentially harmful crises posing imminent threats to health and safety in community settings by mandating the provision of needed treatment for those refusing such assistance due to their illness. When possible, CTOs are required to facilitate the provision of such needed treatment in a less restrictive manner than involuntary hospitalization. CTO provisions, however, vary by jurisdiction, some emphasizing dangerousness, others a need for treatment to prevent deterioration, the newest suggestion emphasizing a “mechanism for safeguarding the personal welfare...of adults who lack the capacity to take some or all decisions for themselves. p. 2 (Lusman, 2020)”. Inconsistencies in outcomes following CTO assignment have been interpreted in seven CTO meta-analyses in the U.S., Europe, and Commonwealth Nations as an intervention failure (Barnett et al., 2018; Churchill, Owen, Hotopf, & Singh, 2007; Kisely, Campbell, & O'Reilly, 2017; Kisely, Campbell, Scott, Preston, & Xiao, 2007; Maughan, Molodynski, Rugkåsa, & Burns, 2014; Rugkåsa, Dawson, & Burns, 2014; Rugkåsa, 2016). Variance in the assignment provisions of the law may however account for such inconsistencies, as such provisions change the character of the population selected for CTO assignment. Provisions emphasizing “needed treatment” vs “dangerousness,” for example, respectively increase the numbers of middle-aged woman vs younger men who are civilly committed (Segal, 1989). Trending provisions emphasize securing against errors that increase the risk of curtailing patient rights. The assignment provision emphasizing “lack of capacity,” while intended to protect patient rights, has expanded the population subject to CTOs. Under Ireland’s new capacity law, an investigation found that 92.3% of involuntary patients lacked capacity, as did 52% of voluntary patients (Curley, Murphy, Plunkett,

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& Kelly, 2019). These findings would appear to indicate that the lack of capacity provision casts a much wider net, potentially selecting a wider group of patients for involuntary treatment. Thus, the adoption of the capacity criterion is likely to change the composition and character of the populations selected for CTO assignment. While most CTO outcome studies include all eligible participants for assignment under the CTO statute in the jurisdiction, several studies focus on unique subsamples of CTO assignees. This review considers how differing subgroups of patients deemed eligible for CTO assignment responded to it and how their experiences might contribute to understanding CTO effectiveness.

### Method

#### Selection of studies

Ten studies addressing the experiences of unique subgroups of patients eligible for CTO assignment were selected-- i.e. as opposed to all eligible CTO patients--from among 73 quantitative CTO evaluations conducted from 1986-2019. The list of CTO studies was developed by working backwards from the reference lists of the most recent CTO meta-analysis (Barnett et al., 2018) through the references of all six other reviews (Churchill et al., 2007; Kisely et al., 2017; Kisely et al., 2007; Maughan et al., 2014; Røgkåsa et al., 2014; Røgkåsa, 2016). In addition, since the most recent investigation (Barnett et al., 2018) searched through the fourth week of December 2017, this review searched for additional studies through August 2020. The procedure for the search in each review article and followed herein is that described in the most recent review (Barnett et al., 2018).

Inclusion criteria herein were peer-reviewed studies reported in reviews that addressed the experiences of unique CTO patient subgroups vs studies that included all potentially eligible CTO patients in a jurisdiction. Studies were reported in English. Samples included a majority (>50%) of patients that had severe mental illness and CTO interventions, defined as legal compulsion on patients to remain in contact with mental health services or accept treatment in the community or both. Interventions in which compulsion was in response to a criminal offence were excluded.

Eligible study designs were quantitative

randomized trials, contemporaneous controlled comparison studies comparing a subgroup who were subject to a CTO with a similar subgroup of patients not subject to a CTO, and pre-post or pre-during-post studies comparing service use by patients before, during, and after the imposition of a CTO.

#### Analyses

In addition to describing studies, their implementation, and their outcomes, three approaches to evaluating a study's contribution based on issues related to causal inference were used in the assessment of each study--i.e. problem specification, causal certainty, and "no impact expectation."

*Problem specification.* Studies were grouped by the characterization of the problem that uniquely defined them since "the formulation of the problem is often more essential than its solution..." (Einstein, & Infeld, 1938, p.286-287). Selected studies were distinguished from evaluations focused on all CTO-eligible patients in a jurisdiction. For example, CTO evaluation studies using random assignment to adjust for differences in comparison group histories have made significant recruitment modifications to meet human subjects concerns associated with protecting patient safety. Among studies included herein, two did not include individuals with recent violence against others, thus focusing the evaluation on non-violent patients (Steadman et al, 2001; Swartz et al., 2001). A third was forced to allow psychiatrists to deselect patients they did not believe eligible for brief CTO oversight (Burns et al., 2013). By agreeing to accept the legitimate restrictions on their design these investigators reformulated the problem to address the role of CTOs in protecting the unique subgroup of the population allowed to participate in their study.

*Causal certainty.* Two assessments of the hierarchical-rank ordering on causal certainty attributable to all the reviewed studies at completion were made using the Berkeley Evidence Rank (BER) system (Segal, 2020) and the Newcastle-Ottawa Score (NOS) system (Wells, 2018). Inter-ranking system agreement between the BER and NOS evidence hierarchy ranks for 21 outcome studies where ratings were available in both evaluative systems was  $r = .78$  and  $rs = .79$ .

“No impact expectations” were made for all reviewed studies since there are studies in which it is inappropriate to use the “null hypothesis” as an indicator of “no impact.” When between group pre-existing disabilities related a study’s outcome criterion remain uncontrolled at a study’s end, the “null hypothesis” is misapplied to conclude “no effect” or more accurately “failed to find an effect” (Fisher, 1935, p.16). The CTO group, selected because of the severity of their conditions, may be justifiably expected to do worse than a comparison group composed of voluntary patients. Thus, a positive finding might be one where CTO-group outcomes improve to a level where they are no different from the less disturbed comparison group. In addition, in studies where the dependent variable is conflated with the intervention measure the “no impact expectation” may be “not determinable”. The object of the CTO is to provide needed treatment to those refusing such treatment, when possible using community-based service. When community-based services are not available, return to hospital is the default-mandated provision of needed treatment, i.e. the intervention. Many studies, without providing information on the availability of community-based service, use return to the hospital as their outcome measure and report failure to prevent such returns as a negative outcome. In these studies, preventing hospitalization may be the denial of needed-treatment, the intervention, yet is reported as the outcome. In such studies, the outcome and the intervention are the same and a “no impact” conclusion is “not determinable”.

### Results

Average evidence rankings for all study subgroups are included in Table 1. The average evidence rank weighted by the study’s sample size was  $M=3.58$  of 5 where a score of 1 is the highest ranked study. Evidence ranks in both the BER and NOS systems for each study when applicable and available are included in Table 2. The ten studies considered in Table 2 are grouped by the enrollment procedures or analyses limiting their results and conclusions to the special circumstances and/or characteristics of CTO subgroups they address. Studies are referred to herein by their group letter, and their order of

presentation in Table 2, e.g. the first listing in study grouping A, “Patients...eligible for brief oversight....” would be A.1.

*A. Patients that clinicians believed to be eligible for brief oversight to test stability* (Table 2.A.1) [Evidence Rank M Sample size weighted = 5.00]. A.1 researchers randomized patients into two forms of CTO (Burns et al., 2013). They contrasted short-term conditional release “used for brief periods to assess the stability of a patient’s recovery” in the community before discharging them to voluntary status (median duration: 8 days)” (Burns et al., 2013, p. 1629) vs. fixed longer-term CTO. Patients only participated in the study after the responsible clinician had determined that the patient was ready for a stability test where oversight might be brief. Responsible use of this clinical mechanism would have dictated that approving clinicians allow participation for only patients believed to qualify for the brief test. Thus, clinician’s judgement of whether patients believed to be only in need of brief care without extended oversight is tested. This selection process, however, would have excluded patients thought to be in need of longer-term CTO supervision. The study’s failure to find differences between groups on adverse outcomes, other than the duration of supervised time, might be conceived as lending support to the clinician’s judgment of a patient’s qualification for a “brief” assessment of community care. Only 25% needed reassignment to the longer-term CTO.

*B. Patients not believed to be dangerous, i.e., those without a history of violence* (Table B.1-2) [Evidence Rank M Sample size weighted = 3.00]. B.1 (Swartz et al., 2001) and B.2 (Steadman et al., 2001) researchers randomized patients released to CTO who did not have a history of violence or recent violence. Thus, the results are only applicable to non-violent patients. They would not apply in jurisdictions with “hard” dangerous criteria limiting CTO assignment to danger to self and others patients. Both studies excluded dangerous patients and, given their absence, found no differences in dangerous behavior at follow-up. The studies, however, would have increasing applicability in jurisdictions with statutes including gravely disabled and other more broadly defined threats to health and safety. In fact, they found reduced victimization of CTO patients compared to non-CTO patients (Hiday,

Swartz, Swanson, Borum, & Wagner, 2002). B.2 (Steadman et al., 2001) researchers, having failed to enforce CTO provisions for return to hospital, found no differences in hospital utilization. Had they enforced such provisions might they also have found reduced incidence of victimization? In this investigation hospitalization would have been the necessary effort to provide the needed treatment believed necessary to reduce victimization risk. Further, both studies employed fixed follow-up periods whereby patients actually spent more time outside of CTO assignment than on CTO. Consequently, one might expect equivalent hospital utilizations.

C. *Patients stabilized with CTO for 6 months to two years* (see Table II.C.1-5) [Evidence Rank M Sample size weighted = 3.39]. C.3 (Swartz et al., 2001; Swartz, 1999) compared hospital utilization of CTO patients on orders for  $\geq 180$  days with other patients during a single follow-up year. By definition, the  $\geq 180$ -day CTO group could have been hospitalized for only 180 days while the comparison group had a full year to be hospitalized. The authors arrived at unwarranted conclusions related to hospital utilization based on this artifact (Segal, 2001) as did C.1 researchers (Nakhost, Perry, & Frank, 2012).

C.2 (Segal & Burgess, 2006a) addressed this selection problem by comparing extended CTO patients with extended community care patients not placed on a CTO. It found that both groups had reduced inpatient days and that these reductions were associated with increased numbers of community treatment days.

C.4 (Munetz, Grande, Kleist, & Peterson, 1996) found reduced violence among those individuals stabilized on CTO for six months compared to non-CTO comparison patients, adding credence to the use of longer-term-CTO. C.3 (Swartz, 1999) also found  $\geq 6$ -month CTO experience associated with increased medication compliance. Apparently, the patients in these studies were stabilized on a CTO regimen and/or orders were renewed to help maintain that stability.

C.5 (Wagner, Swartz, Swanson, & Burns, 2003) and C.3 (Swartz, Swanson, Wagner, Burns, & Hiday, 2001) considered factors predicting service utilization among patients assigned to CTO and renewed for 6 months. They found that the amount of outpatient services received was associated with crisis (arrests and hospital

readmissions). Regardless of CTO duration, psychiatrist (medication management) visits were the emphasized treatment contacts. Medication non-compliance was the most significant predictor of the amount of service use among the CTO patients. Those patients renewed for 6 months of CTO had greater need and received more services and a greater diversity of services.

D. *Early-Intervention-CTOs* (Table II.D.1). Many CTO jurisdictions limit CTO eligibility to patients with multiple and extended periods of hospitalization. D.1 (Segal & Burgess, 2006b; Evidence Rank M Sample size weighted = 3.00) reported on CTO patients experiencing their first hospitalization during a ten-year period. The results showed lower subsequent hospital utilization, though also indicated this group had more community supports.

E. *Community-Initiated-CTOs* (Table II.E.1). E.1 (Segal & Burgess, 2008; Evidence Rank M Sample size weighted = 3.00) considered separating CTO use as a form of parole after hospitalization from probation (diversion from hospital). Their study found that probationary CTOs were significantly associated with reduced subsequent inpatient days compared to individuals with a "hospital-initiated order" and a group with both types of CTOs. These study results, as well as in D.1, may simply reflect severity of illness levels in the comparison groups.

## Discussion

Studies measuring special CTO subgroup experiences, though relatively weak in the evidence hierarchy (M Sample size weighted = 3.58), hold promises for better understanding of how to improve the use of CTOs. They open hypothetical situations that, from a policy perspective, indicate that current advocacy is moving in a direction opposed to achieving the LRA effects sought after with the use CTOs. Studies on extended-CTOs, C1-5, seem to indicate that some patients may do better when placed on a long-term CTO, stabilizing them and keeping them in the community and out of hospital. This finding goes in the opposite direction of current human rights advocates who continue to push for shorter durations under CTO supervision. Longer periods of CTO assignment extend protections to people moving in and out of supervision and have the advantages of protecting

this vulnerable population from apparently recurring threats to health and safety.

The United Kingdom trial, A.1 (Burns et al., 2013), may validate the use of increased psychiatric discretion in determining the duration of CTO oversight. Three-fourths of the individuals in this study sample were able to function without crossover to a more extended stay. Greater effort is required to identify the patients requiring longer-term protection and those who could recover to risk-free status without extended oversight. Its results seem to support an argument for increased flexibility in the assigned duration of CTOs and for early review of conditional release.

D.1 (Segal & Burgess, 2006b) seems to indicate potential for early intervention CTO assignment as opposed to CTO use only with individuals having long-term hospital histories. The Lanterman, Petris, Short Act of 1969 in California was a landmark legislation considered a bill of rights for the mentally ill. Limiting civil commitment to those deemed dangerous to self and others and/or gravely disabled, setting fixed durations and committee reviews for involuntary commitment, it embodied the principles of protection of patient rights. Yet, in today's world, there are frequently not enough general hospital psychiatric beds to sleep those on the ward during the day. Early release due to this overpopulation and due to the arrival of new acute patients is necessary. Efforts to provide community-based oversight for those continuing to pose a threat to self and others have been stymied by an often overly simplistic, naïve, and narrow vision of patients' rights protection. The passage of outpatient commitment legislation in California was injected with a poison pill requiring counties to bear increased costs of implementation. The most recent attempt (SB1045, 2017-8) to create a five-year pilot allowing for the implementation of their outpatient commitment law, which unimplemented was already on the books for over 10 years, has been so riddled with bureaucratic obstacles that in its second year not one patient has been enrolled in the program (Thadani, 2020). This new law restricts CTO assignment to those with "eight or more detentions for evaluation and treatment in the preceding 12 months." (SB1045, 2017-8). Thus, in order to pass the objections of advocates, this new law requires patients deemed imminently dangerous and/or gravely disabled

who are refusing treatment to survive a gauntlet of eight episodes before they get protective oversight. Given the growing body of evidence for the effectiveness of CTOs in reducing risks of imminent threats to health and safety (Hiday et al., 2002; Segal, Hayes, & Rimes, 2017a; Segal, Hayes, & Rimes, 2017b; Segal, Hayes, & Rimes, 2018; Segal, Hayes, & Rimes, 2019; Swartz et al., 2020; Link, Epperson, Perron, Castille, & Yang, 2011; Phelan, Sinkewicz, Castille, Huz, & Link, 2010), this new law certainly adds substance to Treffert's assertion that patients are "dying with their rights on" (Treffert, 1973).

The reality is that episodic threats to health and safety continue beyond the psychiatric emergency room and after hospital release (Segal, Watson, & Akutsu, 1998). The fact that patients assigned to a CTO are refusing needed treatment to address these threats has been ignored. Mandatory care has been opposed with arguments for funding voluntary treatment that by virtue of CTO eligibility would not be accessed by such patients. Sadly, for those who actually survive the California gauntlet, the consequence is frequently increased involvements with the criminal justice system resulting in greater abridgement of rights than would be associated with CTO assignment. There needs to be increased use and study of early intervention CTOs especially for individuals with profiles similar to patients with long-term episode recurrence histories. Perhaps in jurisdictions with laws requiring repeated failure prior to CTO placement patients could be randomly assigned to early intervention vs. the "wait and see if they fail" type provisions of SB1045, 2017-8.

The final irony in this accumulated research is the almost complete absence of studies focused on community-initiated CTOs. CTO diversion is the ultimate less restrictive alternative to hospitalization, yet it is rarely used. This despite the results of one study that seems to hold promise for patient success in a diversion approach (Segal & Burgess, 2008).

### Limitations

There is no absolute causal certainty in this research. All studies provide associations. None of them, even the putative "RCTs," insure causal certainty. Some studies may unfortunately have been overlooked. Though yielding potential for alternative approaches to CTO assignment by patient group profiles, these studies as a whole are

the weakest in design ranking among CTO evaluations. The studies that have been included herein, however, should be viewed as starting points, hypotheses for new research. There are many questions regarding how a CTO is implemented and could be improved that should guide future solutions.

### **Conclusion**

The use of CTOs needs to be more individualized in order to maximize outcomes for different patient groups. Studies indicate potential positive CTO outcomes may be obtained by redirecting current trends in the law toward provisions often rejected by advocate groups—i.e. early intervention CTO, longer CTO assignment periods, use of increased psychiatric discretion in setting CTO duration, and experimenting with CTO diversion.

### **Glossary of Abbreviations**

BER-Berkeley Evidence Rating: Ranks comparison group studies according to an evidence hierarchy based on the quality of the study's design implementation upon completion.

LRA-Less Restrictive Alternative: Less restrictive alternative to psychiatric hospitalization.

NOS-Newcastle-Ottawa Score: Ranks studies according to an evidence hierarchy based on the quality of the study's design.

CTO-Community Treatment Order: Other names and abbreviations for community treatment orders include OCC-Outpatient Civil Commitment; OPC-Outpatient Commitment; AOT-Assisted Outpatient Treatment.

RCT-Randomized Controlled Trial: Taken from the laboratory, the RCT is a study design for testing an intervention that randomly assigns participants into an experimental group or a control group, i.e. where randomization controls for pre-assignment subject differences and the laboratory situation controls for outcome relevant differences going forward to outcome assessment. The RCT differs from randomized trials where post-randomization differences relevant to the outcome are not necessarily taken into account in the outcome assessment. As the RCT is conducted, the only expected difference between the control and experimental groups is

evidenced in the outcome variable being studied. In a randomized trial, other post-randomization uncontrolled differences may account for the outcome. In both designs, incomplete randomization, where historical differences between groups relevant to the outcome remain after randomization, these differences need to be taken into account before attributing the result to the intervention.

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**Table 1: Evidence Ranking Supporting Positive Associations with OCC Assignment**

Outcome	Number of Studies Addressing the Designated Outcome	Total Sample N	Combined BER and NOS Ranks*				
			Mean (Weighted by sample size)	Mean	Median	Mode	Range
<b>Analyses Generalizable to a Subset of OCC Patients</b>							
A. Patients' clinicians believe eligible for brief oversight to test stability	1	336	5.00	5.00	5.00	5.00	5
B. Patients not believed to be dangerous, i.e., those without a history of violence	2	406	3.00	3.00	3.00	3.00	3
C. Patients Stabilized with OCC for 6 Months to Year	5	1,667	3.39	2.83	3.00	-	2-3.5
D. Early Intervention OCC	1	24,973	3.00	3.00	3.00	3.00	3
E. Community Initiated OCC	1	8,879	3.00	3.00	3.00	3.00	3
Study Outcomes	N Outcomes = 10		M of Outcome Groups = 3.58	3.37			

\*In order to enable a causal ranking for a given outcome area in Table 1, the NOS ranks were reversed to match BER rank ordering (NOS = 9 was coded 1, 8 coded 2...5 coded 5). When only one rank in either the NOS or BER system was available that rank was accepted. When both systems ranked a study, the average rank was used.

**Table 2: Studies Generalizable to a Subset of OCC/CTO Patients—i.e., limited due to patient selection**

**A. Findings from patients' clinicians believe eligible for brief oversight to test stability.**

Study	Jurisdiction	Sample	Outcome Criteria	Design & Analysis features	Summary of finding(s)	"No impact" expectation	Berkeley Evidence Rank (BER) <sup>1</sup>	Newcastle-Ottawa Score (NOS)	NOS re-Ordered
A.1. Burns et al. 2013 <i>Lancet</i> 381(9878):1627-33.	UK	CTO N = 167 vs. Section 17 OCC N = 169	Admission rate; Time to readmission; Admission length; Community service use	Descriptive Follow-up Design	CTOs not associated with admission rate, time to readmission or admission length	Undeterminable, given crossover in follow-up period and unreported re-hospitalizations viewed as part of treatment process.	Rank # 5: reduced from Rank # 1, given between group crossover in follow-up period controls, and lack of pre/post controls in the analysis.	Not Rated	Not Rated

**B. Patients not believed to be dangerous, i.e., those without a history of violence**

Study	Jurisdiction	Sample	Outcome Criteria	Design & Analysis features	Summary of finding(s)	"No impact" expectation	Berkeley Evidence Rank (BER) <sup>1</sup>	Newcastle-Ottawa Score (NOS)	NOS re-ordered
B.1. Steadman et al 2001 <i>Psychiatr Serv</i> 52(3):330-336.	New York, USA	OCC N = 78 vs. Non-OCC N = 64	Re-hospitalization, arrest	Adjusted Comparison Group Design (Adjustments by incomplete/failed randomization)	OCC was not associated with admission rate, time to readmission or readmission length	Undeterminable, for re-hospitalization a conflated outcome criterion. Undeterminable re arrest, due to a lack of enforcement of OCC provisions for hospital return in the OCC group—a group including more severely disturbed patients.	Rank # 3: reduced from Rank # 1, due to incomplete randomization and given lack of pre and follow-up period controls	Not Rated	Not Rated
B.2. Swartz et al 1999 <i>Am J Psychiatr</i> 156:1968-1975. & 2001 <i>Psychiatr Services</i> 52:325-329.	North Carolina, USA	OCC N = 129 vs. Non-OCC N = 135	Readmissions & post-CTO Hospital Days	Adjusted Comparison Group Design (Adjustments by incomplete/failed randomization)	No difference on hospitalization outcomes	Undeterminable, given conflated treatment outcome criteria. Incomplete randomization on confounders related to outcome-criteria-related. No-post period controls.	Rank # 3: reduced from Rank # 1 due to incomplete randomization and given lack of pre and follow-up period controls	Not Rated	Not Rated

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### C. Patients Stabilized with a CTO for 6 Months to a Year

Study	Jurisdiction	Sample	Outcome Criteria	Design & Analysis features	Summary of finding(s)	"No impact" expectation	Berkeley Evidence Rank (BER) <sup>†</sup>	Newcastle-Ottawa Score (NOS)	NOS re-Ordered
C.1. Nakhost et al. 2012 <i>Can J Psychiatr</i> 57(6):359-365.	Canada	CTO N= 72	Number of readmissions	Descriptive Follow-up Design; CTO experience short vs >6 months	Long CTOs were associated with reduced number of readmissions.	Undeterminable because a long CTO implies fewer hospitalizations based solely on time in community.	NA	Not Rated	Not Rated
C.2. Segal and Burgess 2006a, <i>Int J Law Psychiatry</i> 29(6):525-534. (reprinted in <i>SocWk &amp; Health Care</i> 2006, 43(2/3), 37-51.	Victoria, Australia	CTO N= 591 vs. Non-CTO N= 591 both groups having experienced > 6 months under community care at outset of comparison	Re-hospitalization; Inpatient days; Community service use	Adjusted Comparison Group Design, Propensity Score Adjustment (Regression), Matching and Regression	>6 month-CTOs associated with reduced number of admissions, inpatient days, and increased services compared to >6 months community care without CTO.	< hospitalizations; < inpatient days and community services.	3	6	4
C.3. Swartz et al 1999 <i>Am J Psychiatry</i> 156:1968-1975) & <i>Psychiatric Services</i> 2001a 52:325-329***.	North Carolina, USA	OCC N= 129 vs Non-OCC N= 135	Readmissions; hospital days; violence; and medication compliance	Adjusted Comparison Group Design Exclusive of dangerous patients. No control for failed randomization—i.e. more medication non-compliant and those lacking insight in their illness in OCC group.	Extended OCC was associated with positive outcomes all measures	Undeterminable for re-hospitalizations: because a long CTO requires fewer hospitalizations solely on time in community.  < community services	3	Not rated	Not Rated
C.4. Munetz et al 1996 <i>Psychiatr Serv</i> 47(11): 1251-3.	Ohio, USA	OCC N= 20	PES visits, hospital admissions and duration of stay	Own Control Design; Pre-Post	Reduced PES visits, hospital admissions and duration of stay	≥	NA	8	2
C.5. Wagner et al Psychology, Public Policy, and Law 2003, 9(4), 145-158. Also Swartz et al, 2001b <i>Journal of Nervous and Mental Disease</i> 189:583-592.	North Carolina, USA	OPC N=129; OPC Renewed after 90 days N=47 vs OPC Not-renewed N=82	Average number of monthly visits per subject by type.	Pre/Post for renewed vs NonRenewed OPC Exclusive of dangerous patients.. No post-period control for extension of OPC or not into follow-up.	The amount of outpatient services received was associated with crisis (Arrests and Hospital admissions). Regardless of OCC duration, psychiatrist (medication management) visits were emphasized treatment contacts. Medication non-compliance was the most significant predictor the amount of service use among the OCC patients.	< community services	NA	Not Rated	Not Rated

### D. Early Intervention CTOs

Study	Jurisdiction	Sample	Outcome Criteria	Design & Analysis features	Summary of finding(s)	"No impact" expectation	Berkeley Evidence Rank (BER) <sup>†</sup>	Newcastle-Ottawa Score (NOS)	NOS re-ordered
D.1. Segal & Burgess 2006b <i>Psychiatr Serv</i> 57(11):1614-22.	Victoria, Australia	CTO: 8,879 vs. Non-CTO: 16,094	Admissions; admission length; Community service use	Adjusted Comparison Group Design, Propensity Score Adjustment (Regression), Matching and Regression	Early use of CTOs associated with reduced number of admissions, reduced admission length. No significant association with community service use	≥	3	Not Rated	Not Rated

### E. Community Initiated CTOs

Study	Jurisdiction	Sample	Outcome Criteria	Design & Analysis features	Summary of finding(s)	"No impact" expectation	Berkeley Evidence Rank (BER) <sup>†</sup>	Newcastle-Ottawa Score (NOS)	NOS re-ordered
E.1. Segal and Burgess 2008 <i>Aust N Z J Psychiatry</i> 42:732-739.	Victoria, Australia	CTO patients with only community initiated orders= 415; CTO with only hospital initiated orders N= 7,720; CTO patients with both types of orders= 744	Admission length	Adjusted Comparison Group Design Propensity Score Adjustment (Regression), Matching and Regression	Community-initiated CTOs associated with reduced admission length vs. hospital-initiated CTOs	≥	3	Not rated	Not Rated

\*\*\* Also published in: Swartz et al 2001 *Nerv Ment Dis* 189:583-592, and Swanson et al *British Journal of Psychiatry* 2000; 176: 224-231).

† See Figure 1 for determinants of hierarchical rank of study