

UC Berkeley

UC Berkeley Previously Published Works

Title

Protecting Health and Safety with Needed-Treatment: the Effectiveness of Outpatient Commitment

Permalink

<https://escholarship.org/uc/item/7391q8r8>

Journal

Psychiatric Quarterly, 93(1)

ISSN

0033-2720

Author

Segal, Steven P

Publication Date

2022-03-01

DOI

10.1007/s11126-020-09876-6

Peer reviewed



Published in final edited form as:

Psychiatr Q. 2022 March ; 93(1): 55–79. doi:10.1007/s11126-020-09876-6.

Protecting Health and Safety with Needed-Treatment: the Effectiveness of Outpatient Commitment

Steven P. Segal^{1,2}

¹University of Melbourne, Melbourne, Australia.

²Mental Health and Social Welfare Research Group, School of Social Welfare, University of California, 120 Haviland Hall (MC #7400), Berkeley, CA, 94720-7400, USA.

Abstract

Outpatient civil commitment (OCC) requires the provision of needed-treatment, as a less restrictive alternative (LRA) to psychiatric-hospitalization in order to protect against imminent-threats to health and safety associated with severe mental illness (SMI). OCC-reviews aggregating all studies report inconsistent outcomes and interpret such as intervention failure. This review, considering those studies whose outcome criteria are consistent with the provisions of OCC-law, seeks to determine OCC-effectiveness in meeting its legislated objectives. This review incorporated studies from previous systematic-reviews, used their search methodology, and added investigations through August 2020. Selected OCC-studies evaluated samples of all eligible patients in a jurisdiction. Their outcome-measures were threats to health or safety or the receipt of needed-treatment exclusive of post-OCC-assignment- hospitalization, the latter being the OCC-default for providing needed-treatment in the absence of an LRA and dependent on bed-availability. A study's evidence-quality was evaluated with the Berkeley Evidence Ranking and the New Castle Ottawa systems. Thirty-nine OCC-outcome-studies in six-outcome-areas directly addressed OCC-statute objectives: 21 considered imminent threats to health and safety, 10 compliance with providing needed-treatment, and 8 conformity to the LRA-standard. With the top evidence-rank equal to one, the studies $M = 2.55$. OCC-assignment was associated with reducing mortality-risk, increasing access to acute-medical-care, and reducing risks of violence and victimization. It enabled reaching these objectives as a LRA to hospitalization and facilitated the use of community-services by individuals refusing such assistance when outside of OCC-supervision. OCC appears to enable recovery by reducing potentially life-altering health and safety risks associated with SMI.

Keywords

Outpatient Commitment; Community Treatment Orders; Law and Mental Health; Mandated community treatment; Assisted Outpatient Treatment

spssegal@berkeley.edu.

Conflict of interest: The author, Steven P. Segal declares no conflict of interest.

Informed consent: Not required given that no human subjects were involved.

INTRODUCTION

Outpatient civil commitment (OCC) provisions, community treatment orders (CTOs) in European and Commonwealth nations, are part of mental health law worldwide. OCC is a legal requirement for patients to participate in needed-treatment in lieu of inpatient care. The problem addressed by OCC is helping people with severe mental illness survive through potentially harmful crises posing imminent threats to health and safety by providing needed-treatment when possible in a less restrictive manner than psychiatric-hospitalization [1–5]. The objective of this review is to summarize and assess the results of OCC-effectiveness-studies whose outcome measures are indicators of OCC-commitment criteria—i.e. measures of imminent threats to health and safety and the provision of needed-treatment in conformity with the less restrictive provisions of the law.

Protection of harm to self and others is the only behavioral basis for OCC-assignment in 23 of the 46 U.S. OCC-jurisdictions, 5 of 8 Australian mainland states and territories, the U.K., Norway, Canada, and Israel [4]. In these jurisdictions the behavioral criteria for inpatient commitment are the same as those for OCC-assignment. Failure to comply with the treatment requirements of OCC results in return to hospital and a determination of whether the patient still meets the involuntary care criteria. The U.S. Supreme Court has ruled that there is “... no constitutional basis for confining [persons with mental illness] involuntarily if they are dangerous to no one and can live safely in freedom” [2]. The U.K. Parliament’s intention for the use of the CTO in the U.K. Mental Health Act of 2007 was to “...put [the assignment to a CTO] to the clinical decision about the risk in the community...” [6]. Even in U.S. state supreme court decisions that have expanded the interpretation of the dangerous standard to include grave disablement, the provision of needed-treatment offered on a preventive basis is tied to a likelihood of an anticipated present behavioral-threat to health and safety [7].

In arguing that OCC is not meeting its objectives previous evidence reviews [8–14] indicate that: “Results from the trials showed overall OCC was no more likely to result in better ... social functioning, mental state or quality of life compared with standard ‘voluntary’ care [11]”. In addition to previously mentioned outcomes, the reviews report studies found no effect on “accommodation or homelessness, employment, satisfaction with services, perceived coercion, or family-carer satisfaction” [9]. Improved social functioning, mental state, quality of life, employment, housing, homelessness, and family-carer satisfaction, while laudable objectives and potential secondary consequences of OCC-intervention, are not, given the criteria for OCC-assignment, the statutorily specified objectives of OCC. The U.S. Supreme Court has ruled that: “...while the State may arguably confine a person to save him from harm, incarceration [involuntary care] is rarely if ever a necessary condition for raising the living standards of those capable of surviving safely in freedom, on their own or with the help of family or friends” [2].

Previous reviews have noted that the purpose of OCC-assignment is the prevention of hospitalization, the reduction of hospital-readmissions and hospital-days. Recently revised statutes do frequently discuss providing needed-treatment to “prevent deterioration”. However, a computer driven content search of the 46 U.S. jurisdictions with OCC-statutes,

8 Australian, the U.K., the Norwegian, the Israeli, the 12 Canadian, and the New Zealand statutes finds no mention of “preventing hospitalization” [4]. Including “preventing hospitalization” in the statute would be legislating the denial of peoples’ access to needed-treatment in the absence of available or effective community-based services. The “revolving door” is driven by hospital bed-reductions and inappropriate early release without adequate community-based support associated with deinstitutionalization objectives. Statutes may limit the use of OCC to patients with a history of repeated admissions using such as validation of a pattern of deterioration following stabilization and treatment secession. They do not mention “revolving door patients” [4]. The U.K.’s post-legislative scrutiny of its Mental Health Act 2007, notes, “During the passage of the 2007 Act, Parliament considered and rejected the proposal that CTOs should be limited to those with a history of non-compliance”.

This review considers whether OCC-assignment reduces the risks of imminent threats to health and safety for patients in need of treatment who are refusing voluntary-participation in needed-treatment. It considers whether the provision of that needed-treatment was in conformity with the mandate to provide such as a less restrictive alternative (LRA) to psychiatric-hospitalization.

METHOD

All quantitative-studies accessed in seven previous OCC-reviews [8–14] published through 2018 and additional 2020 publications were included in this review’s evaluation-pool. The list of OCC studies was developed by working backwards from the reference lists of Barnett et al’s most recent review[13] through the references of all six other reviews [8–12, 14]. Barnett et al [13] searched three electronic databases (PsychINFO, for articles published between Jan 1, 1806, and the fourth week of December, 2017; Embase, between Jan 1, 1974, and the first week of January, 2018; and MEDLINE, between Jan 1, 1946, and the fourth week of January, 2018) for publications in English, using the search terms “community treatment order” or “CTO” or “outpatient commitment” or “‘compulsory’ or ‘mandatory’ outpatient commitment” or “civil commitment” AND “SMI” or “psychiatric” or “manic” or “schizophrenia” or “bipolar”. They then applied a backwards reference search to the studies identified by manually searching reference lists of eligible studies. They also searched for articles that cited eligible studies using Scopus, and assessed those for eligibility. While Barnett et al. [13] searched through the fourth week of December 2017, this review, using the same procedures, searched for additional studies from January 1, 2016 through August 2020.

Herein, only studies whose outcome measures were imminent behavioral threats to health and safety, needed- treatment-provision, and indicators of conformity to the LRA-provisions of the law were included. Studies were excluded that used hospital utilization outcomes post-OCC-assignment because they conflate their intervention with their outcome measures. Also excluded were studies with outcomes beyond the scope of OCC-legislative-mandates, e.g. those addressing patient-satisfaction and quality of life issues, and investigations of forensic populations.

Since there are numerous ways that people can place their health and safety at risk, studies were grouped by threat in order to determine the effectiveness of OCC-assignment in addressing that threat. Similarly, different treatment approaches to the provision of needed-treatment are grouped by their designated treatment provision outcome.

Two design evaluation assessments were applied to comparison group studies to determine the degree of confidence associated with their conclusions regarding the effectiveness of OCC-assignment—i.e. the Berkeley Evidence Ranking (BER) [15] and the Newcastle-Ottawa Score(NOS).¹⁶ Twenty-one outcome-studies, ranked with both yielded inter-rank-reliability coefficients of $r_{\text{Pearson}} = |.78|$ and $r_{\text{Spearman}} = |.79|$ [15].

OCC-assigned patients are at greater risk than hospitalized non-OCC-comparisons for negative outcomes [17]. Comparing the two groups without statistical adjustment for differences related to OCC-assignment, differences that remain when randomization is incomplete, should always produce more negative findings for the OCC-assigned. The use of the null-hypothesis is inappropriate in such comparisons. Bringing the OCC-group to the same level of service-utilization as the non-OCC-group in such studies is a positive-outcome. Finding no difference in threat-levels of dangerous-behavior in such comparisons is a positive-outcome. Each study is therefore rated as to whether it had adjusted for obvious between-group differences disadvantaging the OCC-group. If the study failed to do so, then a determination was made as to whether a conclusion of no difference, a “failure to reject” the null hypothesis, could be viewed as a positive-outcome.

RESULTS

Causal Certainty and Evidence Ranking

Thirty-nine OCC-outcome-studies among all 74 quantitative OCC-evaluation-studies conducted between 1986–2020 considered six-outcome-areas directly addressing OCC-statute- objectives: 21 considered imminent-threats to health and safety, 10 compliance with efforts to provide needed-treatment, and 8 with conformity to the LRA standard. The mean evidence-rank for the six-outcome-areas was 2.55 (1=highest rank), when weighted by sample size, 2.27 (See Table I). Evidence-ranks in both the BER and NOS assessments of each study when applicable and available are included in the study summary Table II.

Studies Employing Direct Measures of OCC Statutory Objectives (see Table II).

Studies in Table II are identified alpha-numerically by outcome group. For example, the fourth study in the mortality study Group A, is labeled A.4; the sixth study in the Crime and violence study Group C, is labeled, C.6.

A. Mortality (Table II, A.1–6).—Six studies [Evidence Rank $M_{\text{Sample-Weighted}} = 2.48$, $M = 2.61$] found OCC-associated with reduced all-cause-mortality-risk [18–23]. Four studies comparing OCC-patients with non-OCC-patients (A.1–3, and 6) used a combination of matching, propensity-score-adjustment, and regression controls for before and after experiences [18–20, 22]. Their findings of OCC’s association with reduced all-cause mortality-risk span three decades [18–20, 22]. A.4 found no significant difference between

the groups though all suicides and deaths due to unnatural causes occurred in the comparison-sample [23]. A.5 found more non-OCC-group deaths [21].

B. Access to imminently needed/acute physical health care (Table II, B.1–2).

—Patients with SMI have elevated physical illness comorbidities and poor access to medical care [24]. Two case-controlled-studies (Evidence-Rank $M_{\text{Sample-Weighted}}=2$) address this issue. B.1 found that OCC-patients, while under mental health system supervision, were 40% more likely to obtain an acute-physical-illness diagnosis over a ten-year period than psychiatrically hospitalized non-OCC-patients were, and 5.02 times more likely than lower morbidity-risk never hospitalized outpatients. Without such supervision, OCC-patients' chances of receiving such a diagnosis were 31% lower than non-OCC-patients were, and no different from outpatients. The OCC requirement for a medical examination, enabled access to acute medical care that was associated with a 20% reduced-risk of non-injury related death [25].

OCC-patients in B.2 did not differ from non-OCC-patients during a three-year follow-up in obtaining a medical procedure for physical illness [26].

C. Perpetration of crimes against person, violence, and suicide-risks (Table II, C.1–11).

—Eleven U.S. and Australia studies [Evidence Rank $M_{\text{Sample-Weighted}} = 2.01$ considered the issue of violent behavior and major crime-risk sufficient to constitute a threat to safety of self and others [21,23,27–35]. Four (C,1–3,5) found reduced crime, crime-risk, and violence associated with OCC-assignment compared to non-OCC-patients [27–30]. Five (C.6, 7, 8, 10, 11) seem to support the role of OCC in limiting violence while the orders are in place.^{21,31,32,33,35} Two (C.4 & 9) found no difference between groups [23,33].

D. Victimization (Table II, D.1–2).—Two studies (Evidence-Rank $M_{\text{Sample-Weighted}} = 2$) compared OCC-cases against hospitalized non-OCC-cases. One used matching, propensity-score and regression-controls (D.1), the second, though randomized unsuccessfully, added regression-control (D.2). Both reported reduced victimization-risk associated with OCC-assignment [27 36].

E. Medication Adherence and Engagement with Outpatient Service (Table E.1–11).

—Eleven studies [Evidence Rank $M_{\text{Sample-Weighted}} = 2.68$] found OCC associated with improvement in the use psychotropic medications, medication compliance, and treatment participation. E.1 (Evidence-Rank-2) compared medication-possession-ratios (MPRs) of OCC-patients with ACT, ACT-patients without OCC, and patients without either intervention. Overtime, the MPR for the “OCC/ACT” group increased by 31–40%, while in the “ACT only” group it increased by 15–22%, and in the “neither treatment group” it increased by only 8–19% [37].

Similar findings are replicated in E.3, where psychotropic-medication use increased in their OCC-group vs. their non-OCC-comparisons even though prior history indicated the OCC-group had been less medication-compliant than the non-OCC-comparisons [23]. E.7 compared post-civil-commitment hearing incidence of medication-refusals among those placed on OCC following a hearing with those hospitalized and those released following

the hearing. It found significantly fewer medication refusals and significantly less treatment non-compliance in the OCC-group than the other two groups [33, 38, 39].

Two studies reported increased engagement with services. E.9 found that patients previously registered but unengaged with services increased their engagement with both case-management and housing services [40]. E.10 found that patients evidenced significantly increased engagement over a two-year follow-up period. They moved from an average rating indicating: “minor engagement (some appointments attended and doubtful adherence to medication), to ratings indicating: “good engagement (i.e. most appointments attended and generally adherent to treatment)” [41].

When an OCC-cohort-study is considered, generally both medication and service compliance improves during the period of supervision and deteriorates in the post-period. When compared to the period before OCC-assignment, E.8 reported increased compliance during OCC with medication, therapy, and substance abuse treatment [34]. E.6, in two separate analyses, the first an own-control study, found that outpatient-medication-compliance for their OCC-cohort was poor pre-OCC, good during the OCC, and significantly deteriorated to less than good post-OCC [21]. In the second analysis, an adjusted comparison group study, E.6 compared medication- compliance among OCC vs. a matched-non-OCC-group. The OCC-group that had poorer compliance in the year before the study was found to be no different from the non-OCC-group during a year and a few weeks follow-up period [21].

Patients maintained on OCC or renewed to OCC over a period of 6 months or more tend to be more compliant. E.2 and E.4 found increased compliance among patients maintained on OCC for more than six months [42,43]. E.5 following OCC-patients for almost three years, found a significant reduction in the average neuroleptic-dosage from their first to their fourth OCC- assignment as well as 100% compliance ratings [44]. E.11 following a CTO-cohort for five years found adherence to LAIs increased over time [45].

F. Less restrictive alternative to hospitalization (Table II, F.1–8).—OCC is a less restrictive alternative (LRA) to hospitalization in two ways: diversion from a pending hospitalization episode, and early-release from hospital. The savings from early-release are counted against the time a person would have spent in hospital had it not been for the availability of OCC. Eight studies (F.1–8) [Evidence Rank $M_{\text{Sample-Weighted}} = 2.47$] addressed hospitalization-episode-duration and all reported statistically significant savings associated with the use of OCC that supports the LRA-effect [17, 46–52]. Four studies, (F.1, 3, 4, & 6) were able to support the OCC LRA-effect after controlling for the potential confounding influences of deinstitutionalization [17, 47,48, 50]. Hospital day savings associated with a mental illness episode involving OCC-diversion have not been considered.

DISCUSSION

This review investigated how and to what extent OCC has utility for accomplishing its statutory objectives specified in commitment laws across nations, jurisdictions, and over the last 30 years. Studies including direct health and safety outcomes generally indicate that

OCC is associated with reducing mortality-risk, increasing access to acute-medical-care, and reducing risks of violence and victimization. They indicate that OCC generally enables reaching these objectives as a less restrictive alternative to hospitalization and facilitates the use of community-services by individuals refusing such assistance while they are assigned to OCC.

Though, OCC is consistently associated with reduced all-cause-mortality, disaggregating mortality-risk by cause of death and interventions associated with OCC offers a more complex picture—one perhaps explained in a comparison of the findings in A.1 and A.3. A.3 covered the period from 1990–2000, A.1 from 2000–2010 in Victoria Australia. In the first decade, Victoria offered the most enriched community-services in Australia. OCC-days-per-30-days at risk were associated with a 24% reduction in injury-related-deaths. Community-treatment-days-per-community-care-episode were associated with reducing mortality-risk, each day-of-service with reduced injury-related-death by 2 percent [20]. In the second decade, Victoria made significant cuts to community-services [53]. A.1 indicated that the cuts were 25% per episode of community-care. While the overall all mortality-rate for death due to assault and undetermined intent was 33% less for OCC-assigned vs non-OCC patients, this positive was offset by an increased mortality-risk of 32% due to self-harm for OCC-assigned vs non-OCC patients [18]. Community-treatment-days during this second decade showed no association with reduced injury related risk [18]. It would seem that OCC-assisted-hospital-returns reduced the risk of involvement in violent-crime and consequently mortality-risk for those threatened with such involvements, while those with suicide-potential, perhaps less visible without community-contact, were left without sufficient community-service to address their need. The importance of OCC in involving treatment-refusers with treatment is illustrated in A.2's finding that after controlling for service-utilization there was no difference in mortality-risk between their OCC and non-OCC cohorts [19]. OCC brings treatment-refusing-patients to treatment, it is not the treatment, its function is to increase involvement.

OCC was associated with increasing access to acute-medical-care. However, once entry is secured, there was a failure to find differences in access to procedures between OCC and other hospitalized patients with health conditions requiring emergency room or hospital admission. Such life threatening conditions are likely to mandate a procedure once a patient is able to get a diagnosis. Thus, it would seem that the role of OCC is facilitating access.

Of the eleven studies addressing violence and crime, nine found OCC associated with reduced risks. Both studies, C.4 and C.9, failing to find a difference between OCC and non-OCC patients, reported that their OCC-samples spent more time in locked-supervision than their comparisons during the study [23,33,38,39]. Thus, their OCC-samples were not free to commit such crime and their “no difference” findings might be attributable to the use of OCC to bring people back to hospital in order to prevent such involvement. C.1 found OCC-associated re-hospitalization accounted for a 13% reduced-risk of major crime perpetration [27].

Both victimization-studies showed positive OCC-effects.

Studies of medication-compliance and service-use need to be considered in view of the fact that OCC patients are by definition medication non-compliant and service-refusers prior to OCC-assignment. Study results indicated that OCC-patients are likely to be as compliant with medication and service use as hospitalized non-OCC-patients during their period of OCC-assignment, and perhaps less compliant than non-OCC-patients post-OCC. The finding that individuals are more compliant when maintained on OCC for more than six months seems to be a result of selection for OCC-renewal, as opposed to those patients who do not meet the standard for renewal of their OCC and thus return to their old habits of service non-compliance.

OCC's LRA effect in its capacity as a form of parole is associated with reduced inpatient-episode-duration by enabling early-release. As a form of probation, diversion from hospitalization, OCC is used infrequently. When used, however, it is associated with saving hospital-days; though, no study adds estimates of such saving to their calculations of reductions in inpatient-episode-duration. Even without consideration of diversion-savings, OCC appears to provide a significant LRA-effect.

While OCC-assignment shortens the duration of an OCC-associated-hospitalization, its effect on "total inpatient days" and "readmissions" post-OCC is not a simple one, riddled with reported inconsistencies that are addressed in an accompanying paper [54].

Severe mental illness is episodic for many, involving exacerbations of symptoms whose recurrence, given previous history, is likely but poorly predicted. Throughout their lives, people with severe mental illness experience disorder-induced episodes that place them at risk of engaging in behavioral actions posing a risk to health and safety. If unattended, such actions have consequences that pose irreversible risks to their ongoing recovery efforts. OCC is time-limited and designed to get people through an episode to recovery by ensuring continuity of care in the least restrictive manner. The results of OCC studies reviewed herein seem to support the utility of OCC for achieving this objective.

LIMITATIONS

There is no absolute causal certainty in this research. There are problems of reliability and validity throughout the behavioral science literature. Research is an ongoing if flawed effort to understand our complex reality. The reviewed-studies were varied in design and quality and discussed as though each added an equivalent piece of information. Within each study-grouping, studies show consistent findings led by studies higher in the evidence-hierarchy and supported by studies with lesser evidence-certainty. All studies provide associations. None of them, even the putative "RCTs", insures causal certainty. Some studies may unfortunately have been overlooked. Most of the epidemiological studies use administrative data and several rely on medical-record information that may be less reliable than information gathered in designed-research. While the studies reviewed do not represent all OCC-jurisdictions, they include nine U.S., four Australian, three Canadian, four U.K. and two in Spain.

CONCLUSION

Studies confirm and replicate beneficial associations between OCC and direct measures of the amelioration of imminent threats to health and safety. They confirm a successful LRA effect associated with using OCC across five countries, three of them commonwealth nations (3–4 jurisdictions in each) and nine jurisdictions in the United States. OCC is not a great solution. It takes decision power from an individual and as such may be disempowering, yet disempowering only for a period of high-risk.

FUNDING:

The research was supported by NIMH Grant# MH 18828B

GLOSSARY OF ABBREVIATIONS

| | |
|------------|---|
| ACT | Assertive community treatment, a form of intensive case management based on psychosocial intervention focused on maintaining severely mentally ill patients in the community. |
| 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. |
| ICC | Involuntary inpatient commitment |
| LRA | Less Restrictive Alternative to psychiatric hospitalization |
| MPR | medication-possession-ratio |
| NA | Not applicable. Study does not have a comparison group. It is pre/post or a pre/during- intervention/post-intervention study and not ranked in the BER system, which only ranks comparison-group designs. |
| NR | Not ranked by either the BER or NOS systems |
| NOS | Newcastle-Ottawa Score. Ranks studies according to an evidence hierarchy based on the quality of the study’s design. |
| OCC | Outpatient civil commitment; Also called: CTO-Community Treatment Order; OPC - Outpatient commitment; OC-Outpatient commitment; AOT-Assisted Outpatient Treatment |
| RCT | Randomized Controlled Trial |

REFERENCES

1. Bazelon Center for Mental Health Law. Involuntary outpatient commitment: summary of state statutes. Bazelon Center for Mental Health Law, Washington DC 2004. <http://www.bazelon.org>.
2. O’Connor v. Donaldson 422 U.S 563 (1975) <https://supreme.justia.com/cases/federal/us/422/563/>

3. Glover-Thomas NR *Reconstructing Mental Health Law and Policy*. London: Lexis Nexis Butterworths Tolley 2002.
4. U.S. Civil Commitment Laws by State. Downloaded 30 December, 2017 from <http://www.treatmentadvocacycenter.org/browse-by-state>; Mental Health Act 1986, No. 59 of 1986, Version No. 098; Version incorporating amendments as at 24 August 2010 (Victoria Australia). [http://www.legislation.vic.gov.au/Domino/Web_Notes/LDMS/LTObject_Store/LTObjSt5.nsf/DDE300B846EED9C7CA257616000A3571/A7D40FD608D61455CA2577890007FEB8/\\$FILE/86-59a098.pdf](http://www.legislation.vic.gov.au/Domino/Web_Notes/LDMS/LTObject_Store/LTObjSt5.nsf/DDE300B846EED9C7CA257616000A3571/A7D40FD608D61455CA2577890007FEB8/$FILE/86-59a098.pdf); Mental Health Act 1996 (Tasmania, Australia) s 24. http://www.dhhs.tas.gov.au/mentalhealth/mental_health_act/mental_health_act_2013_new_mental_health_act/information_for_consumers_carers_and_the_community_seCTO/OCCr/fact_sheets/treatment_orders_under_the_mental_health_act_2013 Mental Health Act 2007 (New South Wales, Australia) <https://www.legislation.nsw.gov.au/view/whole/html/inforce/current/act-2007-008#MentalHealthAct2013> Mental Health Act 2013 (Western Australia) [https://www.parliament.wa.gov.au/Parliament/Bills.nsf/A963C9962D511B3748257C0D001EE2FA/\\$File/Bill041-2.002.pdf](https://www.parliament.wa.gov.au/Parliament/Bills.nsf/A963C9962D511B3748257C0D001EE2FA/$File/Bill041-2.002.pdf) Mental Health Act 2000 (Queensland, Australia) s 14(1)(f). <https://www.legislation.qld.gov.au/view/pdf/2002-07-19/act-2000-016> U.K. Mental Health Act 2007–8, www.legislation.gov.uk/ukpga/2007/12/pdfs/ukpga_20070012_en.pdf; Norwegian Act No. 62 of 2 July 1999 relating to the provision and implementation of mental health care (the Mental Health Care Act), with later amendments, app.uio.no/ub/ujur/oversatte-lover/data/lov-19990702-062-eng.pdf. Israel: Treatment of Mental Patients Law, 1991, S.H. no. 1339, p. 58 https://www.health.gov.il/English/Topics/Mental_Health/treatment/Hospitalization/Pages/Involuntary.aspx Canada: Legal Line. Ca <https://www.legalline.ca/legal-answers/involuntary-hospital-admission-of-mentally-ill-people-and-length-of-stay/>
5. *Lake v. Cameron*, 364 F.2d 657- Court of Appeals, Dist. of Columbia Circuit (1966). [https://scholar.google.com/scholar_case?case=8826406800281196763&q=Lake+v.+Cameron,+364+F.2d+657+\(1966\).&hl=en&as_sdt=2006&as_vis=1](https://scholar.google.com/scholar_case?case=8826406800281196763&q=Lake+v.+Cameron,+364+F.2d+657+(1966).&hl=en&as_sdt=2006&as_vis=1)
6. U.K. Parliament Health Committee. Post-legislative scrutiny of the Mental Health Act 2007 - Health Committee Contents, Sec 5 Supervised Community Treatment, 2013; #80. <https://publications.parliament.uk/pa/cm201314/cmselect/cmhealth/584/58408.htm>
7. In *LaBelle*, 728 P.2d 107 Wn.2d 196 (1986) 728 P.2d 138 <https://law.justia.com/cases/washington/supreme-court/1986/52570-6-1.html>; *State v. Dennis H.*, 647 N.W.2d at 863 Supreme Court of Wisconsin (12 July, 2002) <https://www.casemine.com/judgement/us/59147afdadd7b04934414fff>; *In re K.L.*, 806 N.E.2d 480 (N.Y. 2004) <https://casetext.com/case/in-the-matter-of-kl>; *Doe v Gallinot*, 486 F Supp 983 (S D Cal 1979), *aff'd* 667 F 2d 1017(9th Cir 1981). <https://casetext.com/case/doe-v-gallinot>
8. Ruggåsa J, Dawson J, Burns T: CTO: What is the state of the evidence? *Social Psychiatry & Psychiatric Epidemiology* 2014; 49(12):1861–1871. doi: 10.1007/s00127-014-0839-7 [PubMed: 24562319]
9. Ruggåsa J: Effectiveness of community treatment orders: The international evidence. *Can J Psychiatry* 2016; 61(1):15–24. doi: 10.1177/0706743715620415 [PubMed: 27582449]
10. Maughan D, Molodynski A, Ruggåsa J, Burns T. A systematic review of the effect of community treatment orders on service use. *Social Psychiatry and Psychiatric Epidemiology* 2014; 49(4), 651–663. doi: 10.1007/s00127-013-0781-0. Epub 2013 Oct 18. [PubMed: 24136002]
11. Kisely SR, Campbell LA, O'Reilly R. Compulsory community and involuntary outpatient treatment for people with severe mental disorders. *Cochrane Database of Systematic Reviews* Issue 3, 2017 Art. No.: CD004408. DOI: 10.1002/14651858.CD004408.pub5
12. Kisely S, Hall K. An updated meta-analysis of randomized controlled evidence for the effectiveness of community treatment order. *Can J Psychiatry* 2014; 59(10):561–564. Downloaded 2/22/18 [PubMed: 25565690]
13. Barnett P, Matthews H, Lloyd-Evans B, Mackay E, Pilling S, Johnson S. Compulsory community treatment to reduce readmission to hospital and increase engagement with community care in people with mental illness: a systematic review and meta-analysis. *Lancet Psychiatry*. 2018; 10.1016/S2215-0366(18)30420-6 Downloaded 12/27/18.

14. Churchill R, Owen G, Hotopf M, & Singh S International Experiences of Using Community Treatment Orders. Institute of Psychiatry, London. 2007 Retrieved from: <http://psychrights.org/research/Digest/OutPtCmmtmnt/UKRptonCTO/OCC.pdf>
15. Segal SP. The utility of outpatient civil commitment: Investigating the evidence. *International Journal of Law and Psychiatry*; 22 May 2020, 70:101565 DOI: 10.1016/j.ijlp.2020.101565 [PubMed: 32482302]
16. Wells G, Shea B, O'Connell D, Robertson J, Peterson J, Welch V, Tugwell P. The Newcastle-Ottawa scale (NOS) for assessing the quality of non-randomized studies in meta-analysis. 2018 <http://www.ohri.ca/programs/clinicalepidemiology/oxford.asp>.
17. Segal SP, Hayes SL, Rimes L. The utility of outpatient commitment: I. A need for treatment and a least restrictive alternative to psychiatric hospitalization. *Psychiatric Services* 2017; 68(12):1247–54. APPI-PS-2016–00161.R5 [PubMed: 28760100]
18. Segal SP, Hayes SL, Rimes L. The utility of outpatient commitment: II. Mortality risk, protecting health, safety, and quality of life. *Psychiatric Services* 2017; 68(12):1262–70. APPI-PS-2016–00164.R5 [PubMed: 28712349]
19. Kisely S, Preston N, Xiao J, Lawrence D, Louise S, Crowe E. Reducing all-cause mortality among patients with psychiatric disorders: a population-based study. *Canadian Medical Association Journal* 2013; 185(1): E50–6. [PubMed: 23148054]
20. Segal SP, Burgess P. Effect of conditional release from hospitalization on mortality risk. *Psychiatric Services* 2006; 57(11):1607–14. doi: 10.1176/ps.2006.57.11.1607 [PubMed: 17085609]
21. Power P A controlled Study of the clinical effectiveness of community treatment orders in Australia: a 'Mirror-image' analysis. 1992. Summarized in: Churchill R, Owen G, Hotopf M, & Singh S: International Experiences of Using Community Treatment Orders. Institute of Psychiatry, London. 2007 Retrieved from: <http://psychrights.org/research/Digest/OutPtCmmtmnt/UKRptonCTO/OCC.pdf>
22. Barkhuizen W, Cullen AE, Shetty H, et al. Community treatment orders and associations with readmission rates and duration of psychiatric hospital admission: a controlled electronic case register study. *BMJ Open* 2020;10:e035121. doi:10.1136/bmjopen-2019-035121
23. Pollack DA, McFarland BH, Mahler JM, Kovas AE, et al. Outcomes of patients in a low-intensity, short-duration involuntary outpatient commitment program. *Psychiatric Services* 2005; 56: 863–866. [PubMed: 16020821]
24. Parks J, Svendsen D, Singer P, Foti ME. Morbidity and mortality in people with severe mental illness. Alexandria VA: National Association of State Mental Health Program Directors (NASMHPD) Medical Directors Council, 2006.
25. Segal SP, Hayes SL, Rimes L. The utility of outpatient commitment: acute medical care access and protecting health. *Social Psychiatry and Psychiatric Epidemiology* 2018; 53(6): 597–606. DOI: 10.1007/s00127-018-1510-5 [PubMed: 29626237]
26. Kisely S, Xiao J, Lawrence D, Jian L. Is the effect of compulsory community treatment on preventable deaths from physical disorders mediated by better access to specialized medical procedures? *The Canadian Journal of Psychiatry* 2014; 59(1):54–58. [PubMed: 24444325]
27. Segal SP, Hayes SL, Rimes L The utility of outpatient commitment: Reduced-risks of victimization and crime perpetration. *European Psychiatry* 2019; 56:97–104. 10.1016/j.eurpsy.2018.12.001. [PubMed: 30654319]
28. Link BG, Epperson MW, Perron BE, Castille DM, Yang LH. Arrest outcomes associated with outpatient commitment in New York State. *Psychiatric Services* 2011; 62:504–508. [PubMed: 21532076]
29. Phelan JC, Sinkewicz M, Castille DM, Huz S, Link BG. Effectiveness and outcomes of assisted outpatient treatment in New York State. *Psychiatric Services* 2010; 61(2): 137–143. [PubMed: 20123818]
30. Swanson JW, Swartz, MS, Borum R, Hiday VA, Wagner HR, Burns BJ. Involuntary outpatient commitment and reduction of violent behavior in persons with severe mental illness. *British Journal of Psychiatry* 2000; 176: 224–231.

31. Vaughan K, Mcconaghy N, Wolf C, Myhr C, Black T. Community treatment orders: Relationship to clinical care, medication compliance, behavioural dis-turbance and readmission. *Australian and New Zealand Journal of Psychiatry* 2000; 34(5): 801–808.
32. O’Keefe CD, Potenza DP, Mueser KT. Treatment outcomes for severely mentally ill patients conditionally discharged to community based treatment. *The Journal of Nervous and Mental Disease* 1997; 185: 409–411. [PubMed: 9205429]
33. Hiday VA, Scheid-Cook N. The North Carolina experience with outpatient commitment: A critical appraisal. *International Journal of Law and Psychiatry* 1987; 10: 215–232. [PubMed: 3692660]
34. Erickson SK. A retrospective examination of outpatient commitment in New York. *Behavioral Sciences & the Law* 2005; 23: 627–645. [PubMed: 16170788]
35. Hough WG, O’Brien KP. The effect of community treatment orders on offending rates. *Psychiatry, Psychology and Law* 2005; 12(2): 411–423.
36. Hiday VA, Swartz MS, Swanson JW, Borum R, Wagner HR. Impact of outpatient commitment on victimization of people with severe mental illness. *American Journal of Psychiatry* 2002; 159:1403–1411.
37. Busch A, Wilder C, Van Dorn R, Swartz M, Swanson J. Changes in guideline-recommended medication possession after implementing Kendra’s law in New York. *Psychiatric Services* 2010; 61:1000–1005. [PubMed: 20889638]
38. Hiday VA, Scheid-Cook TL. A follow-up of chronic patients committed to outpatient treatment. *Hospital & Community Psychiatry* 1989; 40(1): 52–59. [PubMed: 2536353]
39. Hiday VA, Scheid-Cook TL. Outpatient commitment for “revolving door” patients: Compliance and treatment. *The Journal of Nervous and Mental Disease* 1991; 179:83–88. [PubMed: 1990075]
40. O’Brien AM, Farrell SJ, Faulkner S. Community treatment orders: Beyond hospital utilization rates examining the association of community treatment orders with community engagement and supportive housing. *Community Mental Health Journal* 2009; 45: 415–419. [PubMed: 19728089]
41. Dye S, Dannaram S, Loynes B, Dickenson R. Supervised community treatment: 2-year follow-up study in Suffolk. *Psychiatriis* 2012; 36:29.
42. Van Dorn RA, Swanson JW, Swartz MS, Wilder CM, Moser LL, Gilbert AR, Cislo AM, Robbins PC. Continuing medication and hospitalization outcomes after assisted outpatient treatment in New York. *Psychiatric Services* 2010; 61(10): 982–987. [PubMed: 20889635]
43. Swartz MS, Swanson JW, Wagner HR, Burns BJ, Hiday VA. Antipsychotics on treatment adherence in persons with severe mental illness. *Journal of Nervous and Mental Disease* 2001; 189:583–592.
44. Ozgul S, Brunero S. A pilot study of the utilisation and outcome of CTOs: Client, care, case manager and MHRT perspective. *Australasian Mental Health Review* 1997; 20:70–83.
45. Frank D, Fan E, Georghiou A, Verter V. Community treatment order outcomes in Quebec: A unique jurisdiction. *Canadian Journal of Psychiatry* 2019 10.1177/0706743719892718.
46. Kisely S, Preston N, Xiao J, Lawrence D, Louise S, Crowe E, Segal SP. An eleven-year evaluation of the effect of community treatment orders on changes in mental health service use. *Journal of Psychiatric Research* 2013; 47: 650–656. [PubMed: 23415453]
47. Segal SP, Burgess P Conditional release, a less restrictive alternative to hospitalization? *Psychiatric Services* 2006; 57: 1600–1606.S. [PubMed: 17085608]
48. Swartz MS, Wilder CM, Swanson JW, Van Dorn RA, Robbins PC, Steadman HJ, Monahan J. Assessing outcomes for consumers in New York’s assisted outpatient treatment program. *Psychiatric Services* 2010; 61(10): 976–981. [PubMed: 20889634]
49. Hunt A, da Silva A, Lurie S, Goldbloom D. Community treatment orders in Toronto: The emerging data. *Canadian Journal of Psychiatry* 2007; 52(10): 647–655. [PubMed: 18020112]
50. Segal S, Preston N, Kisely S, Xiao J. Conditional release in Western Australia: Effect on hospital length of stay. *Psychiatric Services* 2009; 60(1): 94–99. [PubMed: 19114577]
51. Muirhead D, Harvey C, Ingram G. Effectiveness of community treatment orders for treatment of schizophrenia with oral or depot antipsychotic medication: Clinical outcomes. *The Australian and New Zealand Journal of Psychiatry* 2006; 40: 596–605. [PubMed: 16756586]

52. Van Putten RA, Santiago JM, Berren MR. Involuntary outpatient commitment in Arizona: A retrospective study. *Hospital and Community Psychiatry* 1988; 39(9): 953–958. [PubMed: 3215643]
53. Gerrand V Transforming mental health services from 1993 to 1998 in Victoria, Australia: A case study of policy implementation. University of Melbourne: Department of Political Science. 2005
54. Segal SP. Hospital utilization outcomes following assignment to outpatient commitment. *Administration and Policy in Mental Health and Mental Health Services Research*. 2021 Feb 3. doi: 10.1007/s10488-021-01112-y. Published on-line prior to print publication.

Table I:

Evidence Ranking Supporting Positive Associations with OCC Assignment

| Outcome | Number of Studies Addressing the Designated Outcome | Total Number of Patients included in Reviewed Studies | Combined BER and NOS Ranks* | | | | |
|--|---|---|--|------|--------|------|-------|
| | | | Weighted Mean | Mean | Median | Mode | Range |
| A. Mortality Risk | 6 | 63,461 | 2.48 | 2.61 | 3.00 | 3.00 | 2-4 |
| B. Access to Physical Health Care | 2 | 33,029 | 2.00 | 2.00 | 2.00 | 2.00 | 2 |
| C. Crime Against Persons, Violence, Suicide, Arrests | 11 | 29,700 | 2.01 | 2.90 | 2.50 | 2.00 | 2-4 |
| D. Victimization | 2 | 27,797 | 2.00 | 2.00 | 2.00 | 2.00 | 2 |
| E. Medication Compliance | 10 | 12,510 | 2.68 | 2.95 | 3.00 | 2.00 | 2-5 |
| F. Less Restrictive Alternative to Hospitalization | 8 | 62,839 | 2.47 | 2.86 | 2.50 | 3.00 | 1-5 |
| All Study Outcomes | N _{Outcomes} =39 | | M _{of Outcome Groups} = 2.27 | 2.55 | | | |

* 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.

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Table II

Studies with Measured Outcomes that Directly Address Outpatient Commitment’s Legal Mandate: Providing Needed-treatment to Protect Health and Safety with a Less Restrictive Alternative to Hospitalization.

| A. Mortality Risk and Number of Deaths | | | | | | | | | | | | |
|---|---------------------|---|------------------|---|--|--------------------------------------|---|------------------------------|-----------------------------|--|--|--|
| Study | Jurisdiction | Sample Size (N) by Group Membership | Outcome Criteria | Design & Analysis features | Summary of finding(s) | “No impact” Expectation ^a | Berkeley Evidence Rank (BER) ^b | Newcastle-Ottawa Score (NOS) | NOS re-Ordered ^c | | | |
| A. 1. Segal, Hays, Rimes 2016, <i>Psychiatric Services</i> 68(12): 1247–1254. ¹⁷ | Victoria, Australia | CTO N=11,424 vs. Non-CTO = 16,161 | Mortality Risk | Case Control Design: Propensity Score Adjustment (Regression); Confounding Factor Adjustment (via Matching and Regression); 12-year risk period | CTO placement was associated with a 15% reduced mortality risk and CTO placement interacting with access to acute medical care was associated with a 22% reduced risk of non-injury related death. CTOs, when used with individuals who had perpetrated a crime against persons, accounted for a 33% reduction in their probability of death due to assault, self-harm, and undetermined intent compared with those who had perpetrated a similar crime not offered a CTO. On average, CTOs saved 3.8 years of life for men and 2.4 years of life for women. | > mortality risk | 2 | 8 | 2 | | | |
| A. 2. Kisely et al. <i>CMAJ</i> , 2013a, 185(1): E50–6. ¹⁹ | Western Australia | CTO N=2958 vs. Non-CTO matched control N=2958 | Mortality Risk | Case Control Design: 2-year follow-up; Confounding Factor Adjustment (via Matching and Regression) | CTO associated with 38% reduced all-cause mortality risk. No difference between groups after control for contacts with health services in the community. | > mortality risk | 2 | 8 | 2 | | | |
| A. 3. Segal & Burgess 2006c <i>Psychiatric Services</i> 57:1607–1613. ¹⁸ | Victoria, Australia | CTO N=8,879 vs. Non-CTO N=16,094 | Mortality Risk | Case Control Design; Propensity Score Adjustment (Regression); Confounding Factor Adjustment (via Matching and Regression); 10-year risk period | CTO-assignment associated with 14% reduced mortality-risk among psychiatrically hospitalized patients. | > mortality risk | 2 | 7 | 3 | | | |

Q. Author manuscript; available in PMC 2023 March

A.4. Pollak et al 2005
Psychiatric Services
56(7):863–866.²³

Portland, Oregon, U.S.A.

OCC N=150; Non-OCC=140

Number of deaths in 3-year follow-up period due to suicide and unnatural causes.

Adjusted Comparison Group Design: Brief OCC plan involving contract with patient. Compared patients assigned to the plan with patients who for some reason (refusal, dementia, or resource availability) were eligible but were not selected.

While the groups may have been equivalent in character, the OCC group had more subacute (locked residential) admissions than those in the comparison group (overall admissions, 33 percent compared with 15 percent; involuntary admissions, 19 percent compared with 8 percent; and voluntary admissions, 19 percent compared with 9 percent).

> number of deaths, given that the CTO group spent significantly more time in locked residential supervision.

3

5

5

Psychiatr
A.5. Power, 1992
unpubl
extensiv
et al.
A.6. Barkhuizen et al 2020
BMJ Open.
doi:10.1136/bmjopen-2019-035121.²²

Victoria Australia

CTO N=104 vs. Non-CTO N=104

Number of deaths in follow-up period.

Adjusted Comparison Group Design; Confounding Factor Adjustment (via Matching)

Lesser number of deaths in CTO group

> number of deaths

3

Not Ranked

Not Ranked

A.7. Barkhuizen et al 2020
BMJ Open.
doi:10.1136/bmjopen-2019-035121.²²

South London

CTO N=830; Vs. Non-CTO N=3659

Mortality Risk

Adjusted Comparison Group Design; Confounding Factor Adjustment (via Logistic regression)

The mortality rate for the control group was 2.27% per year. The mortality rate for the CTO group was 1.53% per year (HR compared with controls 0.66; 95% CI 0.50 to 0.88, p=0.004). CTO-assignment associated with 14% reduced mortality-risk among psychiatrically hospitalized patients.

> mortality risk

3

Not Ranked

Not Ranked

B. Access to Imminently Needed Physical Health Diagnoses and Procedures

Study
B.1. Segal, Hays, Rimes 2018a
Social Psychiatry & Psychiatric Epidemiology 53(6): 597–606.²⁵

Victoria, Australia.

CTO N=11,424 vs. Non-CTO = 16,161 vs. Outpatients without CTO or hospitalization N=12,229

Access to a diagnosis of physical illness requiring acute medical care

Design & Analysis features
Case Control Design; Propensity Score Adjustment (Regression); Confounding Factor Adjustment (via Matching and Regression); 12-year risk period;

CTO-supervision associated with access to physical health care in acute care settings.

< access to physical health care

2

Not Ranked

2

Not Ranked

Not Ranked

B.2. Kisely, et al, 2014,
Canadian J. Psychiatry
59(1):54–58.²⁶

Western Australia

CTO N=2757 vs. non-CTO N=2687

Medical Procedures

Case Control Design

No difference in access to procedures. CTO patients had less access thus no significant difference in the number of procedures may be an indication that once you

< access to physical health care.

2

Not Ranked

Not Ranked

“No impact” Expectation^a

Berkeley Evidence Rank (BER)^b

Newcastle-Ottawa Score (NOS)

NOS re-Ordered^c

can access a diagnosis you get a procedure.

C. Perpetration of Crime Against Persons, Violence, and Suicide-risk

| Study | Jurisdiction | Sample Size (N) by Group Membership | Outcome Criteria | Design & Analysis features | Summary of finding(s) | “No impact” Expectation ^a | Berkeley Evidence Rank (BER) ^b | Newcastle-Ottawa Score (NOS) | NOS re-Ordered ^c |
|---|--------------------------|-------------------------------------|---|---|--|---|---|------------------------------|-----------------------------|
| C.1. Segal, Hays, Rimes, 2019, <i>European Psychiatry</i> . 2019; 56, 97–104. ²⁷ | Victoria, Australia. | CTO = 11,424 vs. Non-CTO = 16,161 | Risk of initial perpetration of a major crime against a person and repeating such crimes. | Case Control Design; Propensity Score Adjustment (Regression); Confounding Factor Adjustment (via Matching and Regression); 12.4-year risk period | CTO supervision is associated with reduced risk of initial and repeat involvement in major crimes against persons. CTO-assignment was associated with reduced safety-risk: 17% in initial-perpetrations and 22% for repeat-perpetrations. Each ten-community-treatment-days in interaction with CTO-assignment was associated with a 3.4% reduced-perpetration-risk. CTO-initiated-re-hospitalization was associated with a 13% reduced-initial-perpetration-risk. | > involvement in crimes | 2 | Not Ranked | 2 |
| C.2. Link et al 2011 <i>Psychiatric Services</i> 62:504–508. ²⁸ | New York, USA | OCC N=86 vs. Non-OCC N=97 | Risk of arrest | Case Control Design; Propensity Score Adjustment (Matching); Confounding Factor Adjustment (via Matching and Regression) | OCC assignment associated with reduced arrest-risk. Non-OCC patients had double the risk of arrest in the same time- period. | for during vs before & after.; > for the comparison group | 2 | 8 | 2 |
| C.3. Phelan et al 2010 <i>Psychiatric Services</i> , 61:137–143. ²⁹ | New York, U.S.A. | OCC N=76 vs. Non-OCC N=108 | Serious violence perpetration and suicide risk. | Case Control Design; Propensity Score Adjustment (Matching); Confounding Factor Adjustment (via Matching and Regression) | Serious violence perpetration and suicide risk were lower in the OCC group than in the comparison group. | > violence perpetration and suicide risk | 2 | 8 | 2 |
| C.4. Pollak et al 2005 <i>Psychiatric Services</i> 56(7):863–866. ²³ | Portland, Oregon, U.S.A. | OCC N=150; Non-OCC=140 | Number of arrests in 3-year follow-up period | Adjusted Comparison Group Design: Brief OCC plan involving contract with patient. Compared patients assigned to the plan with patients who for some reason (refusal, dementia, or “some logistical reason”) (e.g. resource availability) were eligible but were not selected. | While the groups may have been equivalent in character, the OCC group had more subacute (locked residential) admissions than those in the comparison group (overall admissions, 33 percent compared with 15 percent; involuntary admissions, 19 percent compared with 8 | > number of arrests, given that the CTO group spent significantly more time in locked residential supervision and was not able to be arrested during locked supervision.. | 3 | 5 | 5 |

| | | | | | | | | | | |
|---|----------------------------------|--|--|---|--|----|---------------|---------------|---|---------------|
| C.5. Swanson et al 2000 <i>British J of Psychiatry</i> 176:324–331. ³⁰ | North Carolina, U.S.A. | OCC N=148 vs. non- OCC N=114 | Incidents of violence reported from four sources: self-report, pick-up by police for assault on another person, family and case- managers | Case Control Design; 1-year risk period; Confounding Factor Adjustment (via Matching and Regression) | percent; and voluntary admissions, 19 percent compared with 9 percent). | 2 | 8 | 2 | < violent behavior. Because 46 of the OCC subjects were preselected for violent behavior and such subjects were not included in non- OCC group | 2 |
| C.6. Vaughan et al 2000 <i>Australian & New Zealand J of Psych</i> 34(6):801–8. ³¹ | New South Wales, Australia | CTO N=123 pre, during, & post-CTO | Duration and level of behavioral disturbance of readmitted patients during or after continuation of CTO. | Own-Control Pre/post compared to during design. | Shorter duration of disturbed behavior during CTO vs Pre or Post CTO | NA | 7 | 3 | duration of disturbed behavior | 3 |
| C.7. O'Keefe et al 1997 <i>JAMA</i> 278: 409–411. ³² | New Hampshire, U.S.A. | OCC N=26 two year pre/post study | Episodes of violence | Own-Control Pre/post design | Reduced episodes of violent behavior | NA | 6 | 4 | episodes of violence | 4 |
| C.8. Power, 1992 unpublished, reported extensively in Churchill et. al 2023 | Victoria, Australia | CTO N=125 vs. Non-CTO N=104 | Violence | Simple Comparison Group Design, Pre/post design, CFA | Reported reduction in violence by 63% during CTO, although violent behavior increased post CTO. | 4 | Not Ranked | Not Ranked | During Post | Not Ranked |
| C.9. Hiday and Scheid- Cook, <i>JLIP</i> 1987 10(2):15–232; 1989; <i>HOSP</i> 1991; <i>J Nerv Ment Dis</i> 179:83– 88. ^{33,38} | North Carolina, U.S.A. | OCC release from civil commitment hearing N=69 Involuntarily Hospitalized from civil commitment hearing N=84 Released after civil commitment hearing N=12 | Dangerous behavior; arrests | Simple Comparison Group Design | No difference between OCC and IVH groups | 4 | 5 | 5 | > involuntary hospital admission | 5 |
| C.10 Erickson, 2005. <i>Behav Sci Law</i> 23: 627– 45. ³⁴ | New York, U.S.A. | Review of 100 OCC patients, Pre vs during OCC, Average OCC duration: 18.05 months, with a range of 3–57 months. | Arrests and Incidents of interpersonal aggression (i.e. domestic violence, threats, and assaults) | Pre period vs during OCC | Notable reduction in the number of arrests during OC treatment across all types: violent, nonviolent, and nuisance crimes. Also there was a reduction in the incidence of interpersonal aggressions including: domestic | NA | 8 | 2 | Arrests and incidents of interpersonal aggression | 2 |

Not Ranked

Not Ranked

NA

Crime and Violent Crime Rate

violence, threats, and assaults.
Significantly reduced rate of offending per person (50% reduction) and of violent offending per person while on a CTO as well as in the year following discharge compared with the year before being issued a CTO

Pre/During/Post CTO comparison.

Crime and violent crime rates

CTO N=553

South Australia

C.11 Hough & O'Brien 2005 *Psychiatry, Psychology and Law*. 12(2):411–423.³⁵

D. Victimization

Study

NOS re-Ordered^c

Newcastle-Ottawa Score (NOS)

Berkeley Evidence Rank (BER)^b“No impact” Expectation^a

Summary of finding(s)

Design & Analysis features

Outcome Criteria

Sample Size (N) by Group Membership

Jurisdiction

D. E. Segal Hays 2019, *European Psychiatry*. 2019; 56, 97E-104.²⁷

Not Ranked

Not Ranked

2

> Victimization

CTOs were associated with reduced risk of initial and repeat victimizations.

Case Control Design; Propensity Score Adjustment (Regression), Confounding Factor Adjustment (via Matching and Regression); 12.4-year risk period

Risk of initial victimization by a major crime against a person and of repeated victimization.

CTO N=11,424 vs. Non-CTO N=16,161

Victoria, Australia

D. E. Segal Hays 2019, *European Psychiatry*. 2019; 56, 97E-104.²⁷

Not Ranked

Not Ranked

2

> Victimization

OCC group were significantly less likely than Control group to experience any criminal victimization.

Case Control Design; OCC vs Non-OCC groups. Regression analysis.

Victimization

OCC N=85 vs. Non-OCC=88 vs. Patients with history of serious violence N=39.

North Carolina, U.S.A.

D. E. Hiday et al 2002 *Am J Psych* 59:1403–1178

E. Medication Adherence and Outpatient service compliance

Study

NOS re-Ordered

Newcastle-Ottawa Score (NOS)

Berkeley Evidence Rank (BER)[†]

“No impact” expectation

Summary of finding(s)

Design & Analysis Features

Outcome Criteria

Contrast Samples

Jurisdiction

E. F. Busch et al. 2010 *Psychiatr. Serv* 61:1000–1005.³⁷

Not Ranked

Not Ranked

2

increase in MPR

CTOs associated with a greater increase in MPR

Case Control Design

Medication Possession Ratio (MPR)

OCC=2,847; ACT alone=2564; Neither OCC or ACT=2351

New York, U.S.A.

E. F. Busch et al. 2010 *Psychiatr. Serv* 61:1000–1005.³⁷

Not Ranked

Not Ranked

NA

< medication compliance during, Post

OCC duration of 6 months or more were significantly associated with medication compliance.

Own-Control Pre/post Design

Medication compliance rate

OCC=3,576

New York, U.S.A.

E.2. Van Dorn et al. 2010 *Psychiatr. Serv*, 61(10), 982–87.⁴²

4

6

3

< use of psychotropic medications, given past history of non-adherence.

Though having a previous history of being less likely to adhere to psychotropic medications, patients assigned to the plan with the OCC plan used significantly more

Adjusted Comparison Group Design: Brief OCC plan involving contract with patient. Compared patients assigned to the plan with patients who for some reason (refusal, dementia, or

Use of psychotropic medications in 3-year follow-up period

OCC N=150; Non-OCC=140

Portland, Oregon, U.S.A.

E.3. Pollak et al 2005 *Psychiatric Services* 56(7):863–866.²³

| | | | | | | | | | |
|---|------------------------------|---|--|---|--|--|---------|--------------------------|--------------------------|
| E.4. Swartz et al. 2001 <i>Journal of Nervous and Mental Disease</i> 189:583–592. ⁴³ | North Carolina, U.S.A. | OCC=145; non OCC 113. | Medication compliance | Case Control Design | psychotropic medications during the study (OCC=75%, Comparison Group=63%, p=.03) | increase in medication compliance | 2 | Not ranked | Not Ranked |
| E.5. Orgul and Brunero 1997 <i>Australian Mental Health Rev</i> 20:80–83. ⁴⁴ | South West Sydney, Australia | CTO N=46 | Neuroleptic medication dosage | Own-Control Pre/Post Design | Reduced dosage; increased medication compliance. | dosage increase | NA | 7 | 3 |
| E.6. Power, 1992 unpublished, reported extensively in Churchill et al. ²¹ | Victoria, Australia | Two studies: 1 CTO N=125 2 CTO N=104 vs. Non-CTO N=104 | Medication compliance | 1 Own-Control Pre-During-Post Design 2 Adjusted Comparison Group Design, CFA(Matching) | 1 Medication compliance changed from poor to good during CTO but declined again post CTO. 2 No difference in medication compliance between CTO vs Non-CTO | 1 < medication compliance during Post undeterminable CTO. 2 CTO < Non-CTO | NA 3 | Not Ranked Not Ranked | Not Ranked Not Ranked |
| E.7. Hiday and Scheid-Cook, <i>ILJP</i> 1987; <i>H&CP</i> 1988; <i>J Nerv Ment Dis</i> 175:83–88, 1991. ³⁹ | North Carolina, U.S.A. | OCC release from hearing N=69 IHV from hearing N=84 Released hearing=12 | Medication compliance; CMHC visits; general compliance | Simple Comparison Group Design | OCC group did better on all measures | medication refusals and non-compliance | 4 | 5 | 5 |
| E.8 Erickson, 2005. <i>Behav Sci Law</i> 23: 627–45. ³⁴ | New York, U.S.A. | Review of 100 OCC patients, Pre vs during OCC | Compliance with medication, therapy, and substance abuse treatment | Pre period vs during OCC | During OCC there was an increase in compliance with medication, therapy, and substance abuse treatment. | Compliance | NA | 8 | 2 |
| E.9. O'Brien et al 2009 <i>Community Ment Health J</i> 45:415–419. ⁴⁰ | Ontario, Canada | N=84 patients issue a CTO during a three year period | Engagement with case Management and housing services | Pre/Post comparison of engagement. | Patients previously registered but unengaged with services increased their engagement with both case management and housing services | engagement with services | NA | 7 | 3 |

| Study | Jurisdiction | Sample Size (N) by Group Membership | Outcome Criteria | Design & Analysis features | Summary of finding(s) | "No impact" Expectation ^a | Berkeley Evidence Rank (BER) ^b | Newcastle-Ottawa Score (NOS) | NOS re-Ordered ^c |
|--|---------------------|--|---|---|---|--|---|------------------------------|-----------------------------|
| E.10 Dye, et al., 2012, <i>Psychiatrist</i> 2012, 36: 298–302. ⁴¹ | Suffolk, U.K. | N=21 patients during two year follow-up period | Engagement with medication and service | Simple follow-up | Patients evidenced significantly increased engagement with treatment. They moved from an average rating indicating "minor engagement (some appointments attended and doubtful adherence to medication) to ratings indicating good engagement (i.e. most appointments attended and generally adherent to treatment) | engagement with services | NA | 8 | 2 |
| E.11 Frank et al 2019, <i>Canadian J. of Psychiatry</i> , 2019. ⁴⁵ | Quebec, Canada | N=367 | Adherence to LAIs, average time , outside the hospital, and duration of hospitalization | Simple follow-up over five years | CTO and non-CTO patients did not differ with respect to demographics, but CTO patients were significantly more severely ill. Following a CTO, adherence to LAIs increased over time (P < 0.001). The average time the patients spent in the community, that is, outside the hospital, was significantly longer under a CTO, and the duration of hospitalizations was decreased. | adherence to LAIs; time outside hospital, inpatient episodes | NA | NR | NR |
| F.1 Segal Hays Rimes 2017a, <i>Psychiatric Services</i> 68(12): 1247–1254. ¹⁷ | Victoria, Australia | CTO=11,424 vs. Non-CTO = 16,161 | Average inpatient episode duration | Case Control Design; Propensity Score Adjustment (Regression), Confounding Factor Adjustment (via Matching and Regression); 10-year risk period | Inpatient days reduced per inpatient episode associated with CTO placement. | > number of inpatient episode days | 2 | Not Ranked | Not Ranked |
| F.2 Kisely et al. 2013b <i>J Psychiatry Research</i> 47:650–656. ⁴⁶ | Western Australia | CTO N=2,958 vs. Non-CTO N=2,958 | Hospital Episode Duration; Community service. | Adjusted Comparison Group Design | Hospital Episode duration decrease; community service increase. | Inpatient episode days; Community outpatient contacts | 3 | Not Ranked | Not Ranked |
| F.3 Segal and Burgess 2006b <i>Psychiatric Services</i> 57:1600–1606. ⁴⁷ | Victoria, Australia | CTO N=8,879 vs. Non-CTO N=16,094 | Hospital Episode Duration; | Case Control Design , Propensity Score Adjustment (Regression), Confounding Factor Adjustment (via | Episode duration decreased and increased community service in | Hospital Episode Duration; Outpatient Service Provision | 2 | 7 | 3 |

| | | | | | | | | |
|---|---------------------|---|--|---|--|----|------------|------------|
| F.4. Swartz et al. 2010, <i>Psychiatric Services</i> , 61(10), 976–981. ⁴⁸ | New York, U.S.A. | CTO N=3,576 | Community service. Admission length; Number of admissions; Community service use | Matching and Regression); 12-year risk period Own-Control During-Post Design During-post study | association with CTO-assignment. CTOs associated with reduced admission length, number of admissions, and increased community service use | NA | 5 | 5 |
| F.5. Hunt et al. 2007 <i>Can J Psychiatry</i> 52(10):647–655. ⁴⁹ | Toronto, Canada | CTO N=224 vs. Non-CTO N=92 | Admission length; Number of admissions; Community service | Simple Comparison Group Design | CTO associated with reductions in hospital days and admissions. | 4 | 6 | 4 |
| F.6. Segal et al. 2009, <i>Psych Services</i> 60(8):94–99. Reanalysis of Weston et al 2002 <i>BMC</i> 524: 1244–46. ⁵⁰ | Western Australia | CTO N=129 vs. Non-CTO N=117 | Admission length | Adjusted Comparison Group Design, CFC (Matching and Regression) | Reduced admission length | 3 | 8 | 2 |
| F.7. Muirhead et al. 2006 <i>Aust NZ J Psychiatr</i> 40:596–605. ⁵¹ | Victoria, Australia | CTO: N=94 | Admission length; Admissions; Community service use | Own-Control Pre-Post Design | CTO period associated with reduced admissions, and reduced admission length, reduced crisis team referrals. | NA | 9 | 1 |
| F.8. Van Putten, Saffelago, Berren 1988 <i>Health Comm Psychiatry</i> 39(9) 953–958. ⁵² | Arizona, U.S.A. | Pre-OCC N=133 vs. 1 st 6-Months of OCC N=104 vs. 2 nd 6-Months of OCC N=147 | Admission length; Inpatient length of stay prior to and after initiation of OCC-law. | Own-Control Pre-Post Design | Reduced admission duration | NA | Not Ranked | Not Ranked |

^a“No impact” expectation: Symbol (<, >, =) indicating relation to baseline or comparison group outcome-measure that the OCC-outcome measure would have in order to be considered a “failure to find an OCC-effect or to indicate that such a finding was “not determinable” in this study.

^bNA indicates “Not applicable” since the BER system only ranks comparison group studies as opposed to cohort follow-up studies.

^cNOS reordered: The BER and NOS systems are coded in opposite directions, with the top rank in BER=1 and in NOS=9. In order to enable a causal ranking for a given study 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.