CRIME AND JUSTICE BULLETIN

An evaluation of Local Coordinated Multiagency (LCM) offender management

Sara Rahman

AIM

To evaluate whether Local Coordinated Multiagency (LCM) offender management, a multiagency case management approach providing wraparound services to serious offenders, reduces reoffending.

METHOD

We use a dataset of 711 Community Corrections episodes involving individuals referred to LCM and 49,574 other Community Corrections orders between 1 September 2017 and 31 March 2021. We compare reoffending between LCM offenders and control groups derived using propensity score matching. We supplement this with an event study analysis, comparing LCM offenders' patterns of offending before and after referral to offenders on similar orders around the same time.

RESULTS

We find that LCM is associated with a small but statistically non-significant increase in reoffending. We also find no association between LCM and serious or domestic violence reoffending, or any other measure of reoffending in an event study analysis. We also find that LCM is associated with a 10 percentage point increase in returning to custody within 12 months of referral. Subgroup analyses provide suggestive evidence that the poor outcomes of some offenders on the program outweigh any benefits experienced by the quarter of offenders who successfully engage with the program.

CONCLUSION

LCM is not associated with a significant reduction in reoffending and may be associated with higher return to custody rates. However, these results are limited by our inability to identify whether comparison offenders have multiagency needs.

KEYWORDS

Recidivism / reoffending   Rehabilitation   Program evaluation
Propensity score matching   Event study

INTRODUCTION

Persistent reoffenders contribute significantly to crime in New South Wales (NSW). Just 2% of offenders in NSW born in 1984 accounted for 15% of that cohort's court appearances between 1994 and 2005 (Hua, Baker, & Poynton, 2006). Of offenders convicted in 2011 in NSW, just 1.7% had four or more contacts in the previous two years but these offenders contributed 16.8% of all the cohort's contacts in those years (Nelson, 2015). The disproportionate contribution of prolific offenders to crime is also apparent when measured as costs to the criminal justice system. Research from Queensland, for example, found that prolific offenders in Queensland cost the criminal justice system between $111,819 and $157,679 by the age of 26. This is 20 times more than the cost of occasional offenders (Allard et al., 2014).

The NSW Government's Priority Offenders Reform (NSW Department of Communities and Justice, 2018a) seeks to reduce reoffending among prolific offenders. While there could be significant public benefit in targeting this group for intensive rehabilitation programs given their disproportionate contribution to crime rates, prolific offenders also tend to have complex criminogenic needs. A study using a linked service usage dataset in the United Kingdom (U.K.) showed that health and social service usage was markedly higher among frequent offenders compared to occasional offenders (Rodriguez, Keene, & Li, 2006). Similarly, a Canadian study (Somers et al., 2015) examined health, social, and justice service usage among two cohorts of prolific offenders – those in the top 10% of prison time (measured by prison days) and those in the top decile in days spent under community supervision – and found that 99% among both groups had been diagnosed with at least one mental health disorder. Four in five (80%) of these prolific offenders had both substance use and mental health disorders. These studies complement a host of other Australian and international prevalence studies that quantify the co-occurrence of various social and health issues and offending (Ferrante et al., 2018; Jacobs & Gottlieb, 2020; Keene & Rodriguez, 2011; Kosson et al., 2006).

Studies of Australian prison populations also indicate significant overlap between offending, drug and alcohol addiction, and mental health conditions. Research by the Australian Institute of Health and Welfare (AIHW, 2018) identified that: a) 40% of those entering prison have had a mental health condition at some stage in their lives; b) nearly one-quarter (23%) were currently taking mental health-related medication; c) one-fifth (21%) had a history of self-harm; and d) nearly two-thirds (65%) reported having used illicit drugs in the 12 months prior to entry into prison, with almost half (46%) having injected drugs at some point in their lives; and e) about 1 in 3 (34%) prison entrants were at high risk of alcohol-related harm during the previous 12 months. These issues are even more prevalent among Aboriginal prisoners due to intergenerational disadvantage and trauma (Wundersitz, 2010).

The common co-occurrence of these social and health afflictions with offending behaviour has resulted in a focus on the provision of integrated services (e.g., offender programs, housing assistance, drug and alcohol treatment) to support offenders, including through local multiagency approaches and partnerships. Multiagency approaches are premised on the idea that an offender's complex needs can be resolved more efficiently by agencies working together rather than agencies operating in isolation. They target a defined population (e.g., high-risk offenders, women offenders with substance abuse problems, young offenders with family issues) for treatment, operate in geographically-defined sites, and have membership from several government agencies and/or non-government organisations (NGOs).

Each organisation's scope of participation is governed by formal structures such as steering committees and agreements. The latter may include data sharing provisions which allow organisations to exchange information about offenders' service interactions to facilitate the management of offenders' needs. Organisations may play a range of roles in such approaches, from being observers, consulted partners, service delivery agencies, or simply providing resources and/or enforcement. A key element of these programs are coordination meetings, where local agency representatives meet to discuss offender needs and decide upon an appropriate course of action for each offender. This includes the development of a case management plan documenting the actions to be taken and the agencies responsible for ensuring that offender goals are met. Coordination meetings also include aspects of monitoring and accountability,

where offenders' progress over time is discussed and agencies can follow up on the delivery of services to offenders. Agencies may monitor offender risk over time, to decide whether offenders should remain on the program or graduate to allow for new offenders to be managed.

Scholars have argued that these collaborations may result in larger and more sustained rehabilitative benefits through several mechanisms. First, better decision-making from pooled agencies' resources, data, and expertise (Fox & Butler, 2004). Second, the broader availability of interventions may enable better management of offenders' needs (Rosenbaum, 2002). Third, that providing offenders with services that resolve their other challenges may improve their ability to engage with rehabilitative programs and reduce their likelihood of further criminal involvement.

Local Coordinated Multiagency (LCM) offender management

A key strategy implemented as part of the NSW Priority Offenders Reform is Local Coordinated Multiagency Offender Management (LCM). LCM has been operating since September 2017 in Liverpool, Parramatta, and Dubbo, and since 2019, in Campbelltown, Mount Druitt, Wollongong, Newcastle, Moree, Taree, and Wagga Wagga.

LCM brings together the NSW Department of Communities and Justice (including Corrective Services and Family and Community Services), the NSW Police Force and NSW Health to manage high-risk offenders in the community. These agencies work in partnership to provide case management support to LCM offenders. This support is additional to the usual Community Corrections supervision that they would receive while on parole or serving a supervised community-based court order. The objective of LCM is to reduce the risk of reoffending among persistent reoffenders by: a) identifying the risks and needs of the individual; b) tailoring services and police monitoring to manage their risk areas; and c) stabilising the priority offender. LCM aims to contribute toward two NSW Premier's Priorities: 1) reducing recidivism in the prison population; and 2) reducing the number of domestic violence reoffenders by 2023. It also seeks to increase confidence in how serious offenders are managed in the community (NSW Department of Communities and Justice, 2018).

The referral and case management of offenders occurs largely through the operation of a two-tiered governance structure. This consists of a practitioner group (PG) consisting of local agency service delivery staff who coordinate offender case management, and the Multiagency Coordination Group (MCG), who provide high-level oversight, including approving selections for and exits from LCM, and setting local selection criteria.

Generally, offenders are referred to LCM by Community Corrections, although partner agencies can request the referral of an offender known to them. To be considered for LCM an offender must be:

- 18 years old or older;
- Assessed as a medium to high level risk of reoffending on the Level of Service Inventory-Revised (LSI-R);
- in need of multiple services that can be organised by more than one of the agencies involved;
- residing (or about to reside) in a community where LCM operates;
- under the supervision of Corrective Services NSW;
- not managed under another multiagency program;
- willing to consent to LCM exchanging personal and health information with other agencies.

The LCM Coordinator analyses and summarises information about eligible individuals who have consented to be referred to LCM in a Profile Summary Report. This Report includes the LCM Coordinator's recommendation about the individual's selection for LCM and is circulated prior to the PG meeting to help inform the joint decision by PG members about whether the eligible individual should be selected for

LCM.[1] When choosing offenders to be selected into LCM (given more offenders than available spaces), the PG primarily considers those who have the highest risk and need. The LSI-R assessment, which assesses offenders' risk of offending based on a range of criminogenic factors including their criminal history, is primarily used to inform the PG about offenders' level of risk (and thus suitability) to receive LCM.

Offenders who are accepted onto LCM then receive coordinated case management through monthly meetings of the PG. These meetings are intended to incorporate Risk-Need-Responsivity (RNR) principles (Bonta & Andrews, 2007) to case management, in that a participant's behaviours, attitudes, and issues that have led to their repeated contact with the criminal justice system inform case plan development and ongoing monitoring. Specifically, the PG is meant to consider offender risk based on their most recent LSI-R assessment, their multiagency needs, and relevant factors to the offender's ability to engage with the programs. Decisions made at each LCM site are also intended to reflect local circumstances, particularly the availability of resources to service participant needs. PG members can provide referrals to housing services, disability services, health and mental health services, drug and alcohol services, victim services, and relationship services in addition to any rehabilitation programs they are referred to as part of their Community Corrections supervision. While the lead case manager (typically from Community Corrections) maintains carriage and responsibility over the offender's supervision, the LCM Coordinator provides coordination of referrals and administrative support to the MCG, PG and to lead case managers. This support is more intensive than that typically provided under regular supervision, where the LCM Coordinator may provide significant support to offenders in completing housing applications.

In summary, LCM offender management differs from standard Community Corrections offender management in several respects. First, LCM includes greater focus on offender's multiagency needs, instead of only those which are thought to contribute towards risk of recidivism. Second, LCM coordinators use the information contained in offenders' Profile Summary Reports and other information from LCM partner agencies in managing referrals to external services (in contrast to Community Corrections Officers using standard referral forms and being limited to the information collected by Community Corrections). Third, LCM Coordinators provide more intensive support across these domains, and may provide greater assistance to offenders in securing places on services. Fourth, partner agencies take on the responsibility of managing and providing oversight on relevant aspects of an offender's case plan, including coordinating referrals to services and assessments provided by their agencies. In summary, multiple agencies monitor and report on offenders' progress through both rehabilitation and other social services, as opposed to a single Community Corrections Officer working with offenders to address criminogenic needs. The increased resourcing, information, and visibility over offenders' progress is expected to contribute towards improved offending outcomes.

Literature review

The emergence of wraparound services for adults is partly a product of reasonably positive evidence that they improve outcomes for troubled youth. A meta-analysis by Suter and Bruns (2009) presented seven outcome evaluations of wraparound services for young people with various needs. Among the groups studied in evaluations were young people in contact with the welfare system, young offenders, and those with mental health problems. They estimated that wraparound services were associated with significant improvements in outcomes for young people's living situations, functioning, mental health, and juvenile justice outcomes.[2]

Some early evidence supported the use of multiagency wraparound services for adults, particularly those recently released from prison. An evaluation of the Prisoner Re-entry Initiative (PRI), which provided returning prisoners with employment-centred services including job training, housing referrals, mentoring and other transitional services, suggested that such programs may work. PRI participants had lower rates of recidivism one year after release (7.5% with any new offence) when compared to the national average. This simple comparison however, failed to account for (and thus cannot rule out) possible

---

1   Prior to an update to the LCM Memorandum of Understanding in August 2020, decisions about offender selection into LCM were made by the MCG.
2   Notably, a more recent meta-analysis (Olson et al., 2021) finds non-significant effects of wrapround services on juvenile justice outcomes.

differences in PRI participants and the general cohort of released offenders from U.S. prisons. Another study which found benefits associated with wraparound services is the Washington State Reentry Housing Pilot Program (RHPP) (Lutze, Rosky, & Hamilton, 2014). The program targeted high risk/need prisoners facing homelessness upon release. Police, community corrections, housing, and social service providers coordinated to deliver housing and other services for participants in the year after they were released from prison. The program included: a) case management plans for offenders; b) targeted treatment services; c) offender accountability strategies; and d) established partnerships with corrections, law enforcement, and treatment providers. Notably, 41% of RHPP participants were terminated for non-compliance. Even so, comparing the 208 program participants to a matched sample drawn from 1,132 high-risk offenders from the same counties identified significant reductions in reoffending in favour of RHPP. The authors reported that 21.6% of RHPP participants recidivated in the 12 month follow-up period compared with 35.6% in the matched comparison group. A key weakness of this study is that does not observe (and thus control for) post-release housing needs and was unable to rule out the influence of selection bias in the estimates. One randomised evaluation of wraparound service provision was that of the Minnesota Comprehensive Reentry Plan (MCORP) (Duwe, 2012), which involved supervision agents in the community referring services to offenders based on their criminogenic needs. As with LCM, the LSI-R was used as the key risk assessment and offender needs planning tool, with community supervision officers referring offenders to relevant social services. The authors collected a battery of measures of social service provision, such as receipt of employment, housing, social support, and education services. On all these measures, MCORP resulted in a greater probability of service provision. This, the authors argued, contributed towards better recidivism outcomes for those on MCORP, who were 10 p.p. less likely to be re-arrested and 9.8 p.p. less likely to be reconvicted with a new offence than offenders randomised to the comparison group. However, this program may be of limited to relevance to LCM as it did not involve multiagency collaboration.

Despite these promising early studies, a more recent review of the available evidence does not support the effectiveness of wraparound services. Doleac (2019) summarised findings from four U.S. randomised controlled trials of wraparound services. Randomised trials are less susceptible to the evaluation challenges presented by wraparound programs, which tend to enlist offenders who either have more complex needs and/or are more willing to engage with programs, than the average offender. This has the potential to create bias in quasi-experimental evaluations because these types of studies are only able to account for offender differences that can be observed by researchers. None of the experimental studies of wraparound service provision in the U.S. reviewed by Doleac found a reduction in reoffending. Of these four studies, one intervention closely mirrors the LCM model. A Michigan corrections program involved caseworkers and clinicians developing and monitoring case plans for offenders to address their needs across multiple domains including housing, substance abuse, employment, and family support. Grommon, Davidson, and Bynum (2013) examined outcomes for 511 high and medium-risk parolees who were either randomly assigned to this program or to traditional supervision only. Offenders referred to the program offering the wraparound services were no less likely to be re-arrested or re-incarcerated than those in the comparison group.

There are several possible reasons for the apparent ineffectiveness of these approaches in reducing offending. One possibility is that individual components and services delivered as part of wraparound services may be ineffective. However, many multiagency approaches include the provision of services which have shown to be individually effective in addressing reoffending, such as cognitive behavioural therapy (Lipsey et al., 2007)[3]. Another possibility raised by Doleac (2019) is that multiagency and wraparound services try to do 'too much' and place significant load on participants' time and energy, inadvertently reducing their ability to engage with each element of the program.

Another explanation for why multiagency approaches fail is imperfect implementation. While multiagency approaches could in theory facilitate quicker or more referrals to relevant services, actual receipt of these services is often contingent on the availability of (typically scarce) places on programs and offenders' willingness to take up and engage with these services. Grommon, Davidson, and Bynum (2013)

---

3   Notably, recent evidence from a meta-analysis of randomised controlled trials indicates that CBT approaches, at least among custodial populations, may not be effective (Beaudry et al., 2021).

noted for example, that the dosage of substance abuse treatment experienced by treated offenders fell short of program intentions and that weekly attendance at treatment sessions plummeted over the duration of the program. They also found that offenders who engaged more with treatment were significantly less likely to be rearrested or reincarcerated, although they could not rule out motivational factors influencing both these outcomes and engagement in treatment programs. Another process evaluation of a wraparound service in the U.K. identified that 'referral rates were substantially lower than originally planned' and around half of the participants were only involved with a single service despite having multiple needs (McSweeney & Hough, 2006). Similarly, an evaluation of the Diamond Initiative (Dawson et al., 2011), an integrated offender management approach implemented in the U.K., found no differences in reoffending between those referred to the program and a matched comparison group over a year of follow-up. The process evaluation of this initiative revealed that the services offered under the multiagency partnership were inadequate in addressing offender needs and were sometimes inappropriate for offenders' risk levels. While this issue commonly afflicts community-based rehabilitation programs more generally, it may be particularly problematic for multiagency approaches that hinge on the availability of multiple treatments for participants.

While the outcomes of LCM have yet to be evaluated, there have been two brief reviews into its operation. The first was a service review (NSW Department of Communities and Justice, 2018b) conducted early in the program's existence which examined how the model was being implemented. This service review gathered information from a broad range of sources including observations of LCM meetings and a review of management records at the three LCM sites at the time, surveys and interviews of agency representatives and Community Corrections staff involved in LCM, and LCM data from the first six months of its operation. The scope of the review largely pertained to agency participants' perspectives of how the program was operating. Stakeholders identified that LCM was generally operating well, with: a) well-attended meetings at each governance level and site; b) consistent and increasing referrals and participants accepted onto the program; and c) high levels of satisfaction among stakeholders. The review generally indicated that some of the theorised organisational benefits of multiagency approaches were occurring, such as better interagency working relationships. One finding was that LCM meetings were not being run in accordance with the Risk-Need-Responsivity principle. The report noted, in relation to meetings, that 'there was little evidence of members explicitly linking identified services or interventions to participants' views and goals, or their risks, needs and responsivity as identified in their most recent LSI-R'. The review also uncovered several inefficiencies in how LCM was operating at the time. The most critical among these were that LCM coordinators were being underutilised, compared to their defined roles in the LCM Practice Guidelines and the Memorandum of Understanding, and that little attention was being paid to an offender's existing Community Corrections case plan, assessment outcomes, and the timeframes for delivery of identified services and interventions.

LCM was examined again in a review by Lobo and Howard in 2020, who interviewed 22 partner agency representatives (including Community Corrections Officers) to identify the differences in service provision between LCM and standard case management. Again, this study affirmed that the collaborative aspects of the model were occurring. Interviewees perceived that interagency working resulted in a greater understanding of offenders' needs and improved offender engagement. The report also suggested that some of the frictions uncovered by the earlier review may have been resolved, with stakeholders reporting that LCM more efficiently managed offenders' needs compared to standard case management and that LCM Coordinators provided useful support. Even so, stakeholders reported that LCM offenders remained subject to the same acceptance processes for services as offenders under standard case management and with high demand in some areas, had to endure long waiting lists. However, currently there is no data on LCM offenders' rates of participation or completion of the programs they are referred to, making it difficult to test the veracity of this claim.

Thus, while some early literature supported the benefits associated with wraparound services, more recent, rigorous studies suggest that these programs generally fail to reduce further offending. Chief among the reasons for their ineffectiveness is poor implementation. Even so, we should be conscious of several factors limiting the relevance of this literature to LCM. First, most of the randomised evaluations

of wraparound services examine those released from prison, and not all offenders under community supervision, although parolees are a significant group of LCM offenders. Second, it is difficult to assess whether LCM suffers from the implementation issues that have plagued other multiagency programs based on the studies conducted so far. Existing process evaluations of LCM primarily draw from the perspectives of those delivering the program, and do not report on the rates of service provision and program engagement. The third caveat is that the design of wraparound programs and the services covered by these programs may differ from LCM. Many of the international wraparound programs include employment support, for example, whereas LCM primarily focuses on housing, mental health, and drug and alcohol service provision.

The present study

No outcome evaluation of LCM has been undertaken in NSW to date. This study aims to address this gap by answering the following research questions:

1. Are offenders referred to LCM less likely to reoffend than a comparable group of offenders?

2. Are offenders referred to LCM less likely to commit a serious or domestic violence reoffence than a comparable group of offenders?

3. Are offenders referred to LCM less likely to return to custody than a comparable group of offenders?

METHOD

We used two methods to evaluate LCM. First, we used a matching approach to obtain a group of observably similar offenders who were not referred to LCM and examined whether LCM offenders reoffend less than this group. Our second approach compared offending rates of participants before and after referral to LCM with a matched comparison group of offenders who were serving similar orders around the same time. This second approach attempted to account for potential selection bias associated with referral to LCM, which may bias results against LCM if participants are being compared to those without multiagency needs.

Data

Data pertaining to 711 first-time referrals to LCM between 1 September 2017 and 31 March 2021 were linked to the BOCSAR Re-offending Database. We used a comparison cohort of 49,574 orders for 35,486 offenders obtained from Corrective Services NSW's Offender Information Management System (OIMS). Offenders commencing an intensive corrections order, community corrections order, conditional release order, or parole order from 1 September 2017 onward were included in the sample.[4] For those on community-based sentences, we identified their index appearance by matching the start of their community order to their sentence date. For those released on parole, we identified their index court appearance using the expiry date of the custodial order associated with their prison sentence.

These records were linked to the BOCSAR Re-offending Database using the offender's Master Index Number (MIN), sentence date (for those on sentenced community orders) or parole date (for parolees), and type of principal[5] offence at index.

---

4   We tested the robustness of our findings to several alternative sample specifications as this sample is relatively broad and draws comparison offenders from both LCM and non-LCM sites based on observable LCM eligibility criteria. The specifications were a) dropping drug offenders, offenders in remote and very remote areas, and offenders with a Conditional Release Order, who comprise only a small proportion of the LCM sample; and b) only considering offenders in LCM sites. Under both these definitions the matched group diminished, but the results were qualitatively similar to those we report here.
5   The principal offence is the offence which received the most severe penalty, and in the case of a person having multiple offences with the same penalty and length, the most serious offence.

Variables

Our main outcome variables included:

1. The probability of a reoffence in 12 months' free time following referral. A proven reoffence excluding breaches of sentencing and non-violence orders (ANZSOC subdivisions 151, 152, and 153) and excluding offences committed in custody;[6]

2. The probability of a serious drug, violent, or property reoffence within 12 months free time of referral. A proven reoffence as defined above but limited to ANZSOC divisions 1 (Homicide and related offences), 2 (Acts intended to cause injury), 3 (Sexual assault and related offences), 6 (Robbery, extortion and related offences), 7 (Unlawful entry with intent/burglary), 8 (Theft and related offences), 9 (Fraud, deception and related offences), and ANZSOC subdivisions 051 (Abduction and kidnapping);

3. The probability of a proven domestic violence-related offence within 12 months free time of referral; and

4. The probability of returning to custody within 12 months calendar time of referral.

Outcomes 1, 2, and 3 capture the extent to which LCM affects outcomes related to the two Premier's Priorities it is linked to (i.e., to reduce reoffending and to reduce domestic violence reoffending). Outcome 4 is intended to capture the extent to which LCM may increase compliance with community orders, or alternatively increase the likelihood of a breach, for example through more stringent supervision.

We use a selection of variables relating to offenders' demographics, index court appearance, index community corrections episode, and criminal history. The demographic variables are: age at the start of the index community order; Aboriginality (ever recorded; coded Aboriginal, non-Aboriginal or unknown); gender (female, male, unknown); remoteness category of area of residence (coded as major cities, inner regional, outer regional, remote/very remote, or missing; Australian Bureau of Statistics 2016a); and quartile of Socioeconomic Indexes for Areas (SEIFA; Australian Bureau of Statistics, 2016b) of postcode of residence. We also include the start date for the index community episode, the most recent Level of Service Inventory-Revised (LSI-R) score, and the type of index community order being served[7] (supervised parole, intensive corrections order, community corrections orders). Relating to the index court appearance, we include the category of principal offence (classified into serious violence, property, drug, breach, or other), the number of concurrent offences at index (1, 2-4, or 5 or more), and separate dummy variables for whether they had a violent or a property offence. Our set of criminal history variables included age at first criminal contact (categorised as 10-17, 18-24, 25-44, and 45 and above), the number of prior court appearances with a proven offence as an adult or juvenile (0-2, 3-6, 7-12, 13 or more), and separate dummy variables for a prior violent offence, property offence, domestic violence offence, and a prison sentence. We also include a variable denoting their Community Correction office to control for site-specific factors affecting offending.

We also have several program variables. First, the dates of referral to LCM. We use these two to calculate two metrics: (1) the number of days from the start of the index community episode to the referral; and (2) their various multiagency needs (as recorded at the point of entry). Second, each offender's primary reason for exiting LCM, as recorded in the LCM database. We classify the various reasons into four groups: unplanned exits (due to death, moving away from the LCM site or receiving another multiagency service, and other unplanned exits), successful treatment (being deemed as either no longer needing multiagency support or having their risk reduced to acceptable levels), community corrections supervision expiry (either because their supervision period has ended or they have returned to custody), and withdrawal of consent/refusal to engage. Note that these outcomes are recorded by LCM Coordinators

---

6   Breaches are typically excluded from reoffending measures due to the greater influence of policing in detecting such offences.
7   This includes the equivalent orders prior to the 2018 NSW Sentencing Reforms. Supervised parole orders are orders for offenders released from prison to Community Corrections supervision. Intensive Correction Orders are custodial sentences of no more than two years that can be served in the community and typically include a range of conditions to ensure the community's safety. Community Corrections Orders are less serious than Intensive Correction Orders and are essentially good behaviour bonds with conditions attached.

and thus represent program delivery staff's views of offenders' status. A potentially useful program variable that is not available to us is which agencies referred LCM offenders to services, and the outcomes of individual referrals.

Identification strategy

The ideal method of evaluation would be to compare reoffending outcomes for offenders on LCM with outcomes for offenders with similar attributes who were serving a community order but who were not referred to LCM. There are two reasons why we are unable to do this. First, we do not have information on all offenders' housing, mental health, and/or drug and alcohol treatment needs and therefore do not know which non-LCM offenders on a community order have multiagency needs[8]. Further, we cannot use our data to approximate the considerable prioritisation and deliberation that occurs when offenders are referred to LCM. LCM referrals are accepted based on recommendations from the LCM Coordinator and may be based on various factors, including local availability of programs and offender needs.

The second challenge is that there is no source of variation in LCM availability or eligibility which strongly predicts participation in the program and is unrelated to offending (i.e., an exogenous factor). Given that LCM was made available at different courts at different times, one possibility would be to use the introduction of LCM in a community corrections office to estimate changes in outcomes for LCM-eligible offenders before and after its introduction at LCM sites, compared to non-LCM sites. However, we do not observe all the eligibility criteria (such as multiagency needs) for LCM and therefore are unable to discern potentially eligible groups in the LCM and non-LCM sites who would be most affected by the introduction of the program.

We attempt to address these issues by complementing a propensity score matching analysis with an event study approach, which compares rates of offending for LCM participants before and after their index community episode with a comparison group who were serving similar orders in the community. This allows us to compare offenders with similar demographic (age, Aboriginality, gender, socioeconomic disadvantage, remoteness) and criminal history variables while also accounting for other unobserved factors which may affect offending (such as fixed differences in risk arising from complex needs).
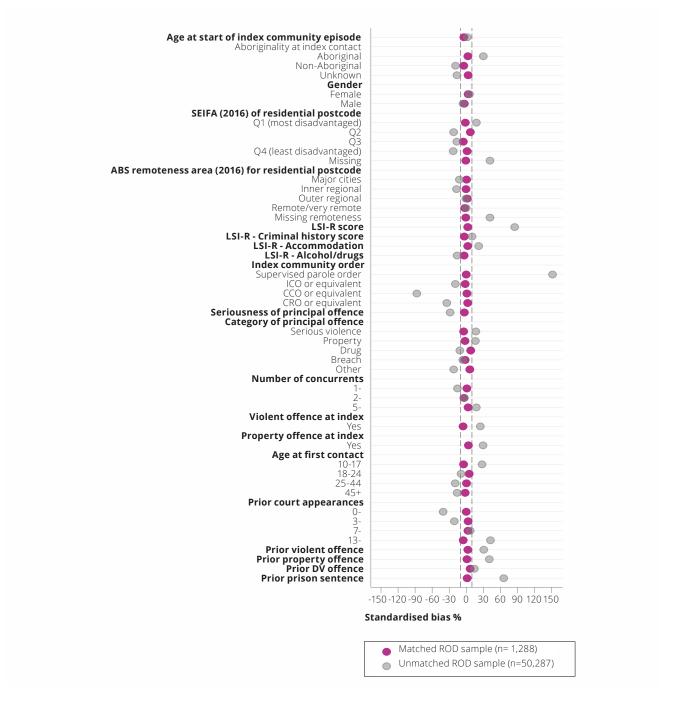
Propensity score matching

Propensity score matching (PSM) is a method developed by Rosenbaum and Rubin (1983) to create observably similar groups whose outcomes can be compared to infer the effect of a policy. Instead of selecting matches who are similar on every observable characteristic (which can be difficult in practice, particularly with smaller samples), propensity score matching matches individuals based on their similarities on a score summarising the different covariates. The main advantage it provides over exact (i.e., Mahalanobis) matching on characteristics is that it can yield balanced samples even when numerous covariates are available. This method is robust provided there are no residual unobserved differences between groups.

We implemented the PSM approach as follows. First, we estimated a logistic regression model predicting referral to LCM (Appendix Table A1). We included the following variables in the model: age, remoteness of area of residence; SEIFA quartile; the type of index community order; the number of concurrent offences at index; LSI-R category; LSI-R domain scores for accommodation, criminal history, and drug and alcohol (respectively), the principal offence category; age at first offence; prior court appearances; prior court appearances with a proven prison sentence; and the start of the index community episode. Second, we obtained each observation's predicted likelihood of referral based on these characteristics (i.e., the propensity score). Third, we matched treatment observations with the nearest control observation within 0.1 absolute distance of the propensity score. This caliper was chosen to maximise the number of matches while maintaining balance on the full range of covariates we test balance on. Matches are selected without replacement, meaning a control observation can only be matched to a single LCM offender (at most).

---

8   These needs are sometimes recorded in case notes but are not systematically recorded as variables in OIMS.

Figure 1 (with estimates presented in Table A2) summarises the quality of our matching approach, presenting the standardised bias over our full complement of available covariates before and after matching. The standardised bias expresses how similar or different groups are across a range of variables on a common metric. The two vertical lines at -10 and 10 represent the thresholds within which a variable is considered balanced (Apel & Sweeten, 2010). On average, matching reduced absolute standardised bias across all these covariates from 26.1 to 3.0. This indicates that our matching approach was successful and that our LCM and non-LCM groups are similar on these observable characteristics.

Figure 1. Standardised bias between LCM and non-LCM offenders before and after propensity score matching

We compare outcomes for these matched samples using linear regressions.[9] Several specifications are estimated: (1) without controls or fixed effects; (2) adding the covariates described above as control variables; and (3) adding Community Corrections office fixed effects. Community Corrections office fixed effects capture potential differences in the quality of supervision, availability of programs in different locations, or any other site differences that could affect reoffending. Standard errors in these analyses are clustered at the offender level.

We undertake two extensions of this analysis. First, we re-run our analyses excluding use/possess drug and stalking reoffences to minimise detection bias arising from increased police monitoring of LCM participants. Second, we examine outcomes based on why offenders exited LCM (excluding 104 offenders recorded as having exited LCM due to returning to custody). This provides us with some understanding of potential heterogeneity in outcomes between offenders with different levels of engagement with the program after referral to LCM.

Event study approach

The estimates from our propensity score analyses can be construed as causal only if there are no major unmeasured differences between the groups which affect reoffending. As we have already noted, absent multiagency needs and variables approximating the local decision-making context, it is unlikely that we can account for all variables influencing selection into LCM.

Given these limitations, we supplement the propensity score matching analysis with an event study approach, which is arguably more robust to unobserved differences between our treatment and comparison groups. This approach compares offending rates of LCM participants before and after referral with the offending rates of individuals in the matched comparison group of offenders over a similar period.

We estimate an event study analysis of referral to LCM as follows. We transform our data into a quarterly longitudinal panel of offending and time in custody consisting of 12 quarters before and four quarters after an offender's referral to LCM. As the non-LCM offenders do not have a referral date, we impute a referral date for these offenders using the median number of days from index finalisation to referral for LCM offenders. Then, we compare the groups' offending rates before and after their referral to LCM. Specifically, we estimate:

$$Y_{it} = \alpha + \beta_1 \, (LCM_{it} * post_{it}) + \beta_2 \, LCM_{it} + \beta_3 \, (post_{it}) + X'\gamma + \varepsilon_{it}$$

where Y_{it} is the outcome of interest for offender i at time t, LCM_{it} is the LCM group indicator (i.e.,1 if an offender is referred to LCM and zero otherwise), β_3 is an indicator for whether the time period is after referral to LCM, X is the vector comprising individual-level covariates, and ε_{it} is an error term (with standard errors clustered at the person level). Note that we do not examine return to custody in this analysis as this outcome is relatively infrequent and we are unlikely to be able to derive prior trends in this measure.

As the point of referral is arguably more important in this analysis, we use a second matched sample, with LCM offenders nearest-neighbour (i.e., Mahalanobis) matched to offenders with similar propensity scores, order dates, and order types. This ensures that each offender is matched to an offender with a similar likelihood of referral to LCM (at least based on the variables we can observe), similar episode start date, and the same type of community order. This ensures that the results we observe are not occurring due to differences in when offenders are referred and other time-related factors. As this match is more restrictive than that used in our main propensity score analysis, it results in a smaller matched cohort of 399 (56% of all) LCM offenders and the same number of comparison offenders.[10] The diagnostics for this match are presented in the Appendix (Table A7).

---

9   We present the logistic regression analogues in Appendix Table A4.
10   We tested the characteristics of LCM offenders included in this secondary matched cohort to those who were not included in this analysis and find little difference between the groups.

The event study approach is robust to all time-invariant (static) differences between groups, and estimates a causal impact of LCM on offending provided that two conditions are met:

1. LCM participants and their matched counterparts have similar patterns of offending prior to referral to LCM;

2. There are no other time-varying differences between LCM offenders and the control group following their referral to LCM (i.e. any other changes affect offenders in both groups in a similar way).

To support assumption 1, we undertake a simple test of differences in offenders' pre-LCM offending. This involves constructing a series of interactions between binary variables for each quarter prior to referral ($t - t_{LCM} = m$) and the LCM indicator (LCM_{it}), equivalent to the difference in rates of offending between groups in each quarter prior to referral to LCM. This tests whether this group has similar patterns in offending in the months preceding the 'referral' to LCM. Formally, we test the joint significance of the interacted coefficients. In other words, we expect that there are no 'effects' of being referred to LCM before the actual point of referral. This reassures us that other factors affecting offending behaviour over time are similar between groups absent LCM. We present evidence for assumption 1 in the Appendix (Figure A1).

If our assumptions are met, and we observe a reduction in offending among LCM offenders after the point of referral relative to the matched control group, we can assume that this is likely caused by LCM. However, our ability to detect this impact with precision (i.e., to find a statistically significant effect) depends partly on our sample size. A smaller sample size increases our standard errors, thereby making it difficult to detect small differences in reoffending. This method is also unable to control for any time-varying bias (for example, if LCM offenders are selected partly because of a spike in their offending, or recent changes in their circumstances which warrant multiagency intervention).

RESULTS

Descriptive statistics

Table 1 shows the characteristics of offenders referred to LCM and those in our control group. Panel A shows their demographic characteristics. More LCM offenders were aged between 25 and 45 compared to those in our comparison group. Furthermore, nearly four in ten of those in the LCM group were Aboriginal, versus one-quarter of comparison group offenders. Men comprised three-quarters of those among LCM referrals and those in the comparison group. Nearly 40% of those referred to LCM originated from postcodes in the most disadvantaged quartile of SEIFA. Meanwhile, a larger proportion of LCM referrals do not have a SEIFA at index recorded, a likely consequence of more LCM offenders being imprisoned at their index court appearance.

Panel B examines each group's index contact characteristics. On average, LCM offenders' index contacts tended to involve more serious offending. More offenders referred to LCM had their index contact finalised in the District Court (12.0%) than those in the comparison group (approximately 1%), and LCM offenders' principal offences had a lower average Median Sentence Ranking (which indicates greater severity). One-third (33.9%) of LCM offenders were convicted of a serious violent offence at index, compared with a quarter (26.2%) of those in the comparison group. Meanwhile, nearly half (44.7%) of all LCM offenders were on remand at the time of finalisation compared with only a fifth (18.3%) of those in our comparison group. On average, LCM offenders had more concurrent offences; a third (34.0%) had five or more concurrent offences at the index contact. More LCM referrals had violent (50.5%), property (38.3%), and domestic violence (37.8%) offences at index than comparison offenders. They had fewer drug and driving offences than those in our comparison groups. Almost half (49.0%) of LCM offenders received a prison sentence at index, compared with only five percent of comparison offenders. Thus, there are substantially more parolees and discharged prisoners in our LCM sample than our comparison group.

Table 1. Descriptive statistics, LCM offenders and comparison offenders

Variable	LCM group (n=711)	All comparison offenders (n=49,487)
Panel A. Demographics		
Age categories (%)		
18-24	18.28	22.27
	(0.19)	(1.45)
25-34	36.43	32.94
	(0.21)	(1.80)
35-44	29.54	26.93
	(0.20)	(1.71)
45-54	13.78	14.17
	(0.16)	(1.29)
55+	1.97	3.69
	(0.08)	(0.52)
Aboriginality (%)		
Aboriginal	38.68	24.81
	(0.19)	(1.83)
Non-Aboriginal	54.71	63.95
	(0.22)	(1.87)
Unknown	6.61	11.24
	(0.14)	(0.93)
Gender (%)		
Female	24.61	22.28
	(0.19)	(1.62)
Male	75.39	77.72
	(0.19)	(1.62)
SEIFA of postcode (%)		
Q1 (most disadvantaged)	39.94	31.37
	(0.21)	(1.84)
Q2	18.99	28.35
	(0.20)	(1.47)
Q3	17.86	24.62
	(0.19)	(1.44)
Q4 (most advantaged)	4.22	10.09
	(0.14)	(0.75)
Missing	18.99	5.56
	(0.10)	(1.47)
Remoteness area of postcode (%)		
Major cities	52.60	58.64
	(0.22)	(1.87)
Inner regional	19.41	26.59
	(0.20)	(1.48)
Outer regional	7.59	7.80
	(0.12)	(0.99)
Remote/very remote	1.41	1.41
	(0.05)	(0.44)
Missing remoteness	18.99	5.56
	(0.10)	(1.47)

Standard errors in parentheses

Table 1. Descriptive statistics, LCM offenders and comparison offenders (continued)

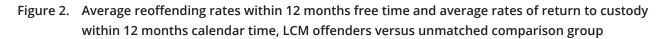| Variable	LCM group (n=711)	All comparison offenders (n=49,487)
Panel B. Index contact characteristics		
Jurisdiction of index contact (%)		
District Court	11.95	2.55
	(0.07)	(1.22)
Local Court	86.64	96.87
	(0.08)	(1.28)
Other	1.41	0.57
	(0.03)	(0.44)
Category of principal offence (%)		
Serious violence	33.90	26.18
	(0.20)	(1.78)
Property	23.77	17.22
	(0.17)	(1.60)
Drug	4.64	7.33
	(0.12)	(0.79)
Breach	20.25	22.75
	(0.19)	(1.51)
Other	17.44	26.52
	(0.20)	(1.42)
Seriousness index (Median Sentence Ranking) of principal offence (mean)	57.24	64.96
	(0.12)	(1.01)
Bail status at finalisation (%)		
Not on bail	44.73	18.27
	(0.17)	(1.86)
In custody for a prior offence	18.57	3.68
	(0.08)	(1.46)
On bail	36.71	78.05
	(0.19)	(1.81)
Number of concurrent offences at index (%)		
1	20.08	26.61
	(0.20)	(1.51)
2-4	45.97	47.55
	(0.22)	(1.87)
5 or more	33.95	25.85
	(0.20)	(1.78)
Any acts intended to cause injury offence at index (%)	50.49	38.28
	(0.22)	(1.88)
Any property offence at index (%)	39.94	26.18
	(0.20)	(1.84)
Any domestic violence-related offence at index (%)	33.05	30.02
	(0.21)	(1.76)
Any drug offence at index (%)	15.61	18.50
	(0.17)	(1.36)
Any driving offence at index (%)	14.06	23.43
	(0.19)	(1.30)

Standard errors in parentheses

Table 1. Descriptive statistics, LCM offenders and comparison offenders (continued)

Variable	LCM group (n=711)	All comparison offenders (n=49,487)
Principal penalty at index (%)		
Prison	48.95	5.02
	(0.10)	(1.87)
Custodial alternative	16.60	30.24
	(0.21)	(1.40)
Community order	31.50	62.79
	(0.22)	(1.74)
Other	2.95	1.95
	(0.06)	(0.63)
Order type at index (%)		
Supervised parole order	56.42	1.53
	(0.06)	(1.86)
ICO or equivalent	23.13	31.64
	(0.21)	(1.58)
CCO or equivalent	18.90	57.67
	(0.22)	(1.47)
CRO or equivalent	1.55	9.17
	(0.13)	(0.46)
Panel C. Criminal history variables		
Age at first contact (%)		
10-17	56.28	42.50
	(0.22)	(1.86)
18-24	28.49	32.69
	(0.21)	(1.70)
25-44	14.53	21.99
	(0.19)	(1.32)
45+	0.71	2.81
	(0.07)	(0.31)
Number of prior finalised court appearances (%)		
0-2	8.30	22.73
	(0.19)	(1.03)
3-6	17.44	26.03
	(0.20)	(1.42)
7-12	29.25	26.13
	(0.20)	(1.71)
13+	45.01	25.11
	(0.19)	(1.87)
Prior prison sentence (%)	60.06	28.97
	(0.20)	(1.84)
Prior proven violent offence (%)	60.34	45.13
	(0.22)	(1.83)
Prior proven property offence (%)	58.23	38.31
	(0.22)	(1.85)
Prior proven drug offence (%)	48.52	37.10
	(0.22)	(1.87)
Prior proven domestic violence offence (%)	44.73	37.69
	(0.22)	(1.86)

Standard errors in parentheses

Lastly, Panel C describes the criminal history of offenders referred to LCM and our comparison cohort. Unsurprisingly, these figures also show that LCM offenders had longer and more extensive criminal histories than those in our comparison group. More (56.3%) LCM offenders had a first criminal contact before turning 18 than those in the comparison group. They also had more prior finalised court appearances. Three in five (60.1%) LCM offenders had a prior prison sentence compared with roughly 30% of comparison offenders. More of those referred to LCM had prior violent (60.3%), property (58.2%), drug (48.5%) and domestic violence (44.7%) offences than the comparison group offenders.

Figure 2. Average reoffending rates within 12 months free time and average rates of return to custody within 12 months calendar time, LCM offenders versus unmatched comparison group
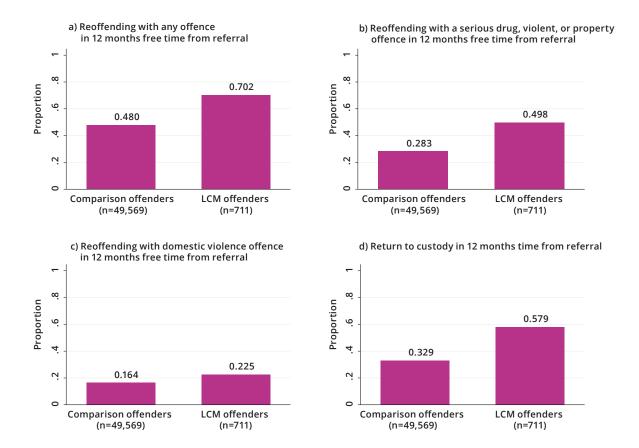

Figure 2 shows unadjusted rates of reoffending and return to custody within 12 months free time and calendar time respectively, for LCM offenders and the comparison cohort. Panel (a) shows these figures for any type of reoffending. Around 7 in 10 (70.2%) LCM offenders reoffended with any offence within 12 months free time, compared to 48.0% of comparison offenders. Panels (b) and (c) show the same statistics for serious drug, violent, and property offending and domestic violence reoffending respectively. Again, LCM offenders had higher rates of these types of reoffences (49.8% and 22.5% respectively) relative to comparison offenders (28.3% and 16.4% respectively). LCM offenders also returned to custody within 12 months at a higher rate than their comparison counterparts (Panel (d); 57.9% vs. 32.9%).

The higher rates of reoffending and return to custody for LCM offenders are unsurprising. As Table 1 demonstrated, LCM offenders have longer criminal histories and have committed more serious offences than those in our comparison cohort. These factors, and any differences in unobserved need for multiagency services may contribute to these disparities in reoffending. Given the significant differences between LCM and non-LCM offenders' characteristics, these differences are unlikely to reflect the "true" impact of LCM. This highlights the need to at the very least, adjust for criminal history and other offender characteristics when examining the effect of LCM on reoffending, and ideally, also accounting for any fixed differences in risk between LCM and non-LCM offenders.
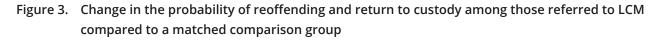
Table 2 presents descriptive statistics pertaining to LCM participation for our sample. The median time from order start date to referral to the program was 125 days. The most common offender needs (recorded in the LCM database) identified at the time of referral were drug and alcohol (90.6%), housing (85.1%) and mental health (81.6%). The median number of days between the referral date and the date of exit was 139 days. The most common reason for exiting LCM was the expiry of supervision (including due to returning to custody) (27.3%), followed by being successfully treated (25.6%). An almost equal proportion (24.9%) were classed as refusing to engage or withdrawing from LCM. Approximately 17.9% of offenders referred to LCM had unplanned exits.
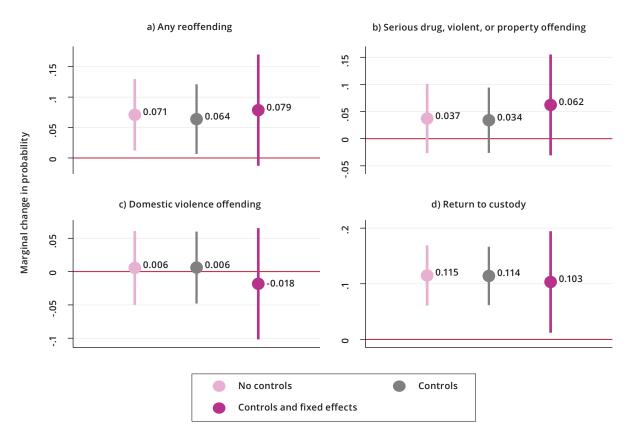
Table 2. Participation statistics, LCM offenders

Measure	
Median time to referral from start of index community episode (days)	125
Offender needs recorded by LCM staff at the point of referral (n (%))	
Drug and alcohol	644 (90.6%)
Housing	605 (85.1%)
Child protection	194 (27.3%)
Domestic and family violence	284 (39.9%)
Education	86 (12.1%)
Health	75 (10.5%)
Trauma	103 (14.5%)
Relationships	166 (23.3%)
Mental health	580 (81.6%)
Disability	103 (14.5%)
Median length of time on the program (time from referral to exit) (days)	139
Reasons for exit (n (%))	
Unplanned exit	127 (17.9%)
Successfully treated	182 (25.6%)
Supervision ended	194 (27.3%)
Refused to engage	177 (24.9%)
Missing	31 (4.3%)

Matched analysis

Figure 3 presents the estimated changes in the likelihood of reoffending of various types associated with referral to LCM. Panel (a) shows the estimated difference in the probability of any reoffence within 12 months of free time following referral between LCM offenders and a matched group of offenders. Comparing the groups without adjusting for any covariates (i.e., residual differences), we observe that LCM is associated with a 7.1 percentage point increase in the likelihood of a proven offence. Adding controls attenuates this slightly, but once we adjust for time and community corrections office fixed effects, this reduces to a non-significant 7.9 percentage point increase. Panel (b) demonstrates the same results for serious violent, property, and drug offending. LCM is associated with non-significant increases in the likelihood of such an offence in every specification we examine. Next, we examine DV offending. We do not observe any differences between the groups. The last panel presents our estimates for the association between LCM and a return to custody within 12 months (calendar) time. We observe that LCM is associated with a 10 percentage point increase in the likelihood of a return to custody in the 12 months following referral.

Figure 3. Change in the probability of reoffending and return to custody among those referred to LCM compared to a matched comparison group
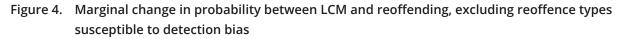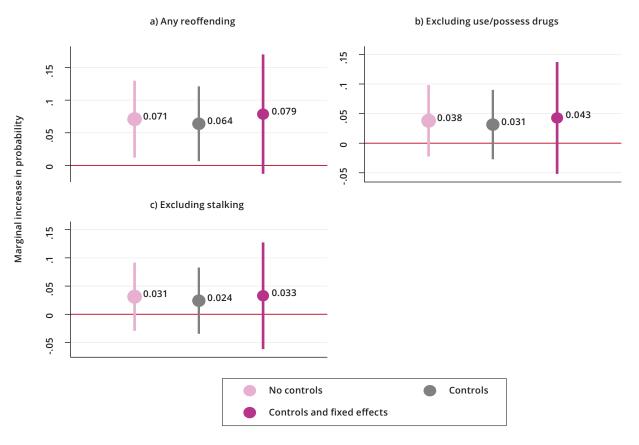

Overall, these results suggest that LCM may lead to worse outcomes for its participants. However, there are a few potential explanations for these effects, which we test in the subsequent sections. First, LCM offenders may be more likely to be detected for certain types of offences while on the program and therefore have higher reoffending rates. Second, the absence of a treatment effect for LCM could be due to low rates of engagement with the program. Last, these results could be driven by selection bias due to unobserved multiagency needs (i.e., those on LCM may have criminogenic needs our analysis is unable to correct for). Our event study analysis aims to mitigate some of this selection bias by correcting for any fixed differences between LCM offenders and matched comparison offenders caused by unobserved factors.

Detection bias

We examine the possibility that our findings from the matching analysis may be partly influenced by LCM increasing the likelihood of detection for some offences. For example, offenders who are receiving drug and alcohol treatment might be more likely to be detected for drug possession since they are engaging more often with service providers. Alternatively, increased police surveillance of LCM participants (which is an element of LCM) may increase the likelihood that an offender is caught in breach of their parole or community orders.

We make three iterative changes to our measure of reoffending to test this hypothesis. First, we exclude use/possess illicit drug reoffences (ANZSOC 1041). Second, we exclude all breach reoffences (ANZSOC division 15). We then exclude stalking reoffences as these have drastically increased over the last 10 years, most plausibly due to increased police focus on these offences in their efforts to tackle domestic violence (Ramsey, Kim, & Fitzgerald, 2022). Figure 4 shows the results of this analysis. We find some indicative evidence that detection may be partly responsible for the effects we observe. Once we exclude use/possess drug reoffences (Panel b)), the association between LCM and any reoffending halves to a non-significant 3 to 4 percentage point increase. Excluding stalking offences (Panel c)) further reduces our estimates of the association between LCM and reoffending to approximately 3 percentage points.
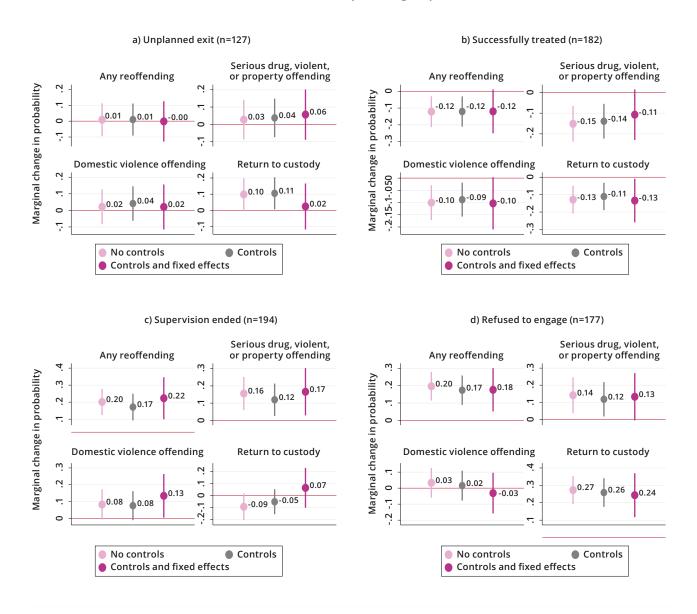
Figure 4. Marginal change in probability between LCM and reoffending, excluding reoffence types susceptible to detection bias

Successful engagement

Following the approach used by Grommon and colleagues (2013) we repeat our matched regression analyses comparing subsamples of LCM offenders who exited the program for different reasons against the matched comparison group. Recall from Table 2 that these groups were roughly equal in size. Note that among those whose supervision ended, 104 (53.6%) exited LCM because they re-offended or returned to custody.

Figure 5 shows our estimates for the association between referral to LCM and various measures of reoffending by the reason for exiting LCM. As seen here, those who were recorded as "successfully treated" are the only LCM referral group who offended less than the matched comparison group. Meanwhile, we observe much higher likelihoods of reoffending among those who refused to engage with LCM and those whose supervision ended versus the matched comparison group. Specifically, those who successfully completed the program were 12.0 percentage points less likely to reoffend with any offence. In contrast, those whose supervision ended and those who refused to engage were 22.3 and 17.6 percentage points more likely to reoffend. In relation to serious drug, violent, and property offending, those who were 'successfully treated' were 10.7 percentage points less likely to reoffend than the matched comparison group. Those whose supervision ended and those who refused to engage were 16.6 percentage points and 13.2 percentage points more likely to offend with this type of offence respectively. The same patterns hold for domestic violence offending and return to custody. Starkly, those successfully treated were 13.4 percentage points less likely to return to custody in 12 months, while those who refused to engage were 24.4 percentage points more likely to do so than the matched comparison group. Notably, there were no differences in rates of reoffending or return to custody between those who had unplanned exits from LCM and the matched comparison group once the full set of covariates and fixed effects were included in the model.

These results suggest that at least part of the reason why we fail to find a reduction in reoffending for LCM participants is that those who do not successfully exit the program, who have much higher rates of offending, outnumber those who are successfully treated. However, this analysis suffers from several critical flaws which preclude us drawing conclusions regarding the causal effect of successfully completing LCM on reoffending. These estimates include the influence of unobserved variables that likely influence their engagement with the program. For example, those who were successfully treated may be more motivated to change and this may account for some of the benefits attributed to the LCM program. Also, these estimates are relatively imprecise as each group only contains a quarter of the full LCM sample.

Figure 5. Change in the likelihood of reoffending and return to custody among those exiting LCM for various reasons, versus the matched comparison group

Event study analysis

A key assumption of our event study analyses is that the pre-intervention trends in offending for the two groups being compared are similar. We test this assumption for our second matched comparison (i.e., offenders with similar likelihoods of being referred to LCM, who are on the same type of community order starting around the same time). Figure 6 shows the trends in our reoffending outcomes for LCM offenders and the comparison group. Panel (a) presents these trends for any offending in the 12 quarters prior to and 4 quarters after referral to LCM. We observe that for both groups, offending rates increase and peak approximately four quarters prior to referral. After this period offending rates decline, albeit slightly more so for the matched comparison group. This pattern appears to hold for serious drug, violent, and property offending (Panel b) as well as domestic violence offending (Panel c). One minor difference for domestic violence offending is that the matched controls and LCM offenders appear to experience similar declines in the likelihood of an offence following the referral date. Our formal tests for the similarity of these trends before referral to LCM are presented in Appendix Figure A1, and indicate that the differences in trends between the groups prior to LCM referral are not statistically significant (i.e. that the common trends assumption has been met).

Figure 6.   **Trends in reoffending rates 12 quarters before and 4 quarters after referral to LCM, LCM offenders versus matched offenders with similar community order start dates**

Figure 7 presents the results of a difference-in-differences analysis. This compares offending of the LCM and matched comparison groups in the years (as opposed to quarters) before and after their referral. This analysis essentially estimates the reduction in the post-LCM likelihood of reoffending and is analogous to the results presented in Figure 3. Panel (a) shows our estimates of the change in the likelihood of any offence following referral to LCM. The results suggest that there is a non-significant two percentage point increase in the likelihood of any offence in the year after referral. Panel (b) presents the same estimates for serious drug, violent, and property offending. Again, we find a non-significant one percentage point increase in the likelihood of a reoffence. Finally, Panel (c) suggests that there is no difference in the likelihood of a domestic violence reoffence after referral when compared to a matched comparison group serving similar orders. These findings suggest that once we account for time-invariant selection bias, LCM has no effect on any of our measures of reoffending.

Figure 7.   **Difference-in-differences estimates of LCM on any reoffending, serious drug, violent or property reoffending, and domestic violence reoffending, LCM offenders versus matched offenders with similar community order start dates**

DISCUSSION

This study aimed to identify whether Local Coordinated Multiagency (LCM) offender management is associated with a lower likelihood and seriousness of recidivism among high-risk offenders in the community. We find that overall, LCM is not associated with reductions in reoffending or serious offending when compared with a matched comparison group. We also find that rates of returning to custody are higher among LCM participants even when compared to a matched group with similar criminal histories, index offences, and community orders.

We explored several potential explanations for these results. We tested the possibility that LCM increases the likelihood of certain offences being detected, potentially due to the increased attention from service providers or police. This analysis indicated that at least some of the negative association between LCM and outcomes obtained in the main analysis was due to detection bias. Our estimate of the association between LCM and reoffending halved and was no longer significant after we excluded use/possess drug reoffences. We also split our analyses by the reasons for exiting LCM. Here, we found that offenders deemed to have been successfully treated reoffended less than the matched comparison group (while all other groups do not) but we cannot rule out that this simply reflects the influence of unobserved factors, such as a greater willingness to change. The supplementary event study analysis attempts to better control for fixed differences (i.e., potential selection bias) between groups, or the possibility that LCM offenders remain at higher risk of a reoffence even when compared to observably similar offenders because of factors we cannot measure (such as multiagency needs). We find some evidence that selection bias drives part of our results, given that our event study analysis indicated no significant differences in reoffending for the LCM and comparison groups. This comparison, however, is not directly equivalent to our first analysis as it uses a smaller sample that is matched more restrictively on order types and start dates.

Collectively, these results add to the evidence from recent randomised controlled trials of wraparound post-release programs showing that these types of interventions do not reduce reoffending. Process evaluations of similar programs (Dawson et al., 2011; Grommon et al., 2013; McSweeney & Hough, 2006) suggest that implementation challenges are often a major impediment to effectiveness, with insufficient referrals and low uptake and completion of programs remaining challenges for most multiagency approaches. While process evaluations of LCM suggest there are high levels of coordination and collaboration between agencies, this may not necessarily translate to improved offender outcomes if there are low rates of uptake of, and engagement with, treatment. Our results are also consistent with findings from previous process evaluations of LCM (NSW Department of Communities and Justice, 2018b; Lobo & Howard, 2020) which suggest that there have been finding implementation issues with LCM. This included non-adherence to risk-needs-responsivity principles in administering LCM and that LCM offenders were not being prioritised by services they were referred to (Lobo & Howard, 2020). Our finding that the outcomes for those who were deemed successfully treated were better than those who refused to engage also echoes the results from other evaluations of wraparound support programs (Grommon et al., 2013). This finding suggests that LCM may be more successful if it were able to engage a larger proportion of its participants in completing treatment. Wraparound service provision may also be ineffective without concurrent treatment that targets criminogenic risk (such as cognitive behavioural therapy; Lipsey et al. 2007) to effectively reduce recidivism. However, absent data on programs that LCM offenders are referred to (and participate in) we are unable to test whether this is the reason that we do not find any reductions in reoffending associated with the program.

Even so, this study is subject to several limitations, the most important of which is that we cannot observe which offenders in our comparison sample possess multiagency needs. Thus, while we have attempted to derive observably similar groups of offenders to those referred to LCM, some offenders in our comparison group may not have multiagency needs. We have also made efforts to compare offending trajectories over time between LCM offenders and those in our comparison group but cannot rule out entirely that unobserved variable bias exists. Failing to account for such differences may be why we

find slightly (but not significantly) heightened rates of reoffending among LCM offenders versus those in the comparison group. It is unsurprising that at least some jurisdictions have chosen to undertake randomised controlled trials of similar types of programs given the complexity of offenders' circumstances (factors which influence both their participation in the program and their outcomes). A randomised evaluation would be better able to defend against potential unobserved bias, and provide stronger evidence regarding the effectiveness of LCM.

It may be possible that the effects of LCM are not apparent at this point because the process of rehabilitating high-risk offenders is a gradual one. At least some of the issues that LCM aims to tackle, such as mental health and substance abuse issues, may require longer-term support to prevent recurrence. In a defence of wraparound services, Buck Willison (2019) writes that wraparound services may need longer evaluation timeframes as "there is a chain of causal connections that must be made between teaching someone how to develop a resume, make better decisions, abstain from drugs and alcohol, and forsake crime". A process evaluation of a UK multiagency offender management approach also noted that the recurrence of complex issues derailed some offenders' progress on programs (Dawson et al., 2011), delaying their progress. It thus may be the case that LCM has improved criminogenic risk (e.g., by lowering drug use or increasing employment) but not yet offending. Recording intermediate outcomes would enable more nuanced evaluations which consider both measures of incremental progress in addition to reoffending. Even so, this argument implies that if programs seek to affect sustained change, they may also need to be extended in length to enable therapeutic benefits to be observed.

Ultimately, the fact that only a quarter of those in our sample were considered successful in exiting LCM (either due to a reduction in their risk or no longer requiring multiagency support) suggests that there is significant scope to improve program implementation. LCM records indicate that almost an equal number of offenders exit the program due to non-engagement as those who do so successfully. Multiagency programs require a range of intermediate outcomes to be achieved to effectively reduce recidivism. Offenders must have access to treatment options that are effective at addressing their criminogenic needs, and participants should be appropriately referred to, accepted into, and engage with these rehabilitative programs. More could be done to monitor whether LCM is achieving these intermediate goals. To illustrate, the process evaluation of Project imPACT, a program in Los Angeles (Holliday et al., 2021) providing behavioural health, legal services, and cognitive-behavioural therapy to released prisoners, reported on a battery of implementation measures, including the number of participants referred to, assessed for, accepted onto, and successfully engaging with various services. This enabled the evaluation to pinpoint key implementation problems, such as low awareness of the program among some service providers, sites where providers were experiencing high degrees of turnover, and periods when fewer offenders were being accepted into services. Collecting more information on the referrals made by agencies, and the outcomes of these referrals could be instrumental in highlighting gaps in service provision and where program uptake can be improved. Introducing additional mechanisms to engage offenders could assist participants on the LCM caseload to engage with services, and in so doing, help to maximise the likelihood of successful outcomes.

ACKNOWLEDGEMENTS

REFERENCES

Allard, T., Stewart, A., Smith, C., Dennison, S., Chrzanowski, A., & Thompson, C. (2014). The monetary cost of offender trajectories: Findings from Queensland (Australia). *Australian & New Zealand Journal of Criminology, 47*(1), 81-101.

Annison, H., Bradford, B., & Grant, E. (2015). Theorizing the role of 'the brand' in criminal justice: The case of Integrated Offender Management. *Criminology & Criminal Justice, 15*(4), 387-406.

Apel, R. J., & Sweeten, G. (2010). Propensity score matching in criminology and criminal justice. In A. R. Piquero & D. Weisburd (Eds.), *Handbook of Quantitative Criminology* (pp. 543-561). New York: Springer.

Australian Bureau of Statistics. (2016a). *Australian Statistical Geography Standard (ASGS): Volume 5–Remoteness Structure, July 2016* (cat. no. 1270.0.55.005). Retrieved from: https://www.abs.gov.au/AUSSTATS/abs@.nsf/ Lookup/1270.0.55.005Main+Features1July 2016?OpenDocument=

Australian Bureau of Statistics. (2016b). *Census of Population and Housing: Socio-Economic Indexes for Areas (SEIFA), Australia, 2016* (cat. no. 2033.0.55.001). https://www.abs.gov.au/ausstats/abs@.nsf/mf/2033.0.55.001

Australian Institute of Health and Welfare. (2019). *The health of Australia's prisoners, 2018* (cat. no. PHE 246). Canberra: AIHW. Accessed 20 Feb 2023 from: https://www.aihw.gov.au/getmedia/2e92f007-453d-48a1-9c6b-4c9531cf0371/aihw-phe-246.pdf.aspx?inline=true

Beaudry, G., Yu, R., Perry, A. E., & Fazel, S. (2021). Effectiveness of psychological interventions in prison to reduce recidivism: a systematic review and meta-analysis of randomised controlled trials. *The Lancet Psychiatry, 8*(9), 759-773.

Bonta, J. and Andrews, D.A., (2007). Risk-need-responsivity model for offender assessment and rehabilitation. *Rehabilitation, 6*(1), pp.1-22.

Bourke, A. (2021). J-ARC: An Interagency Initiative to Reduce Prolific Offending. *Irish Probation*, 244.

Buck Willison, J. (2019). Making The Case For Wrap-round Reentry Approaches: Considering The Evidence. *Journal of Policy Analysis and Management, 38*(2), 501-507.

Dawson, P., Stanko, B., Higgins, A. & Rehman, U. (2011*). An evaluation of the Diamond Initiative: year two findings.* London: Metropolitical Police Service.

Duwe, G. (2012). Evaluating the Minnesota Comprehensive Offender Reentry Plan (MCORP): Results from a randomized experiment. *Justice Quarterly, 29*(3), 347-383.

Doleac, J. L. (2019). Wrap-around services don't improve prisoner reentry outcomes. *Journal of Policy Analysis and Management, 38*(2), 508-514.

Ferrante, A., Randall, S., Boyd, J., Tubex, H., & Morgan, F. (2018). Use of cross-sectoral data linkage to predict high-rate offenders in Western Australia. *International Journal of Population Data Science, 3*(4).

Fox, C. & Butler, G. (2004). 'Partnerships: where next?' *Community Safety Journal, 3*(3), 36–44.

Grommon, E., Davidson II, W. S., & Bynum, T. S. (2013). A randomized trial of a multimodal community-based prisoner reentry program emphasizing substance abuse treatment. *Journal of Offender Rehabilitation, 52*(4), 287-309.

Holl, D. B., Kolovich, L., Bellotti, J., & Paxton, N. (2008). *Evaluation of the Prisoner Re-Entry Initiative*. Mathematica Policy Research. Accessed 22 Jan 2023 from: https://wdr.doleta.gov/research/FullText_Documents/Evaluation%20of%20the%20Prisoner%20Re-Entry%20Initiative%20-%20Final%20Report.pdf

Holliday, S. B., Martin, A., Migacheva, K., Goldman, A., Bracy, N., Awan, V., & Hunter, S. B. (2021). *Project imPACT Cohort 1 Final Local Evaluation Report.* RAND.

Hua, J., Baker, J., & Poynton, S. (2006). *Generation Y and Crime: A Longitudinal Study of Contact with NSW Criminal Courts Before the Age of 21* (Crime and Justice Bulletin no. 96). Sydney: NSW Bureau of Crime Statistics and Research.

Jacobs, L. A., & Gottlieb, A. (2020). The effect of housing circumstances on recidivism: Evidence from a sample of people on probation in San Francisco. *Criminal Justice and Behavior, 47*(9), 1097-1115.

Keene, J., & Rodriguez, J. (2005). Mentally disordered offenders: a case linkage study of criminal justice and mental health populations in the UK. *Journal of Forensic Psychiatry & Psychology, 16*(1), 167-191.

Kosson, D. S., Lorenz, A. R., & Newman, J. P. (2006). Effects of comorbid psychopathy on criminal offending and emotion processing in male offenders with antisocial personality disorder. *Journal of Abnormal Psychology, 115*(4), 798.

Lipsey, M. W., Landenberger, N. A., & Wilson, S. J. (2007). Effects of cognitive-behavioral programs for criminal offenders. *Campbell systematic reviews, 3*(1), 1-27.

Lobo, J., & Howard, M. (2020) *Evaluation of intermediate outcomes of Local Coordinated Multiagency (LCM) offender management* (unpublished research report). Sydney: Corrections Research Evaluation and Statistics.

Lutze, F. E., Rosky, J. W., & Hamilton, Z. K. (2014). Homelessness and reentry: A multisite outcome evaluation of Washington State's reentry housing program for high risk offenders. *Criminal Justice and Behavior, 41*(4), 471-491.

McSweeney, T., & Hough, M. (2006). Supporting offenders with multiple needs: Lessons for the 'mixed economy' model of service provision. *Criminology & Criminal Justice, 6*(1), 107-125.

Nelson, P. (2016). *Characteristics of prolific offenders in NSW* (Bureau Brief no. 112). NSW Bureau of Crime Statistics and Research. Retrieved 01 May 2023 from: https://www.bocsar.nsw.gov.au/Publications/BB/Report-2016-Characteristics-of-prolific-offenders-in-NSW-bb112.pdf

NSW Department of Communities and Justice. (2018a). *Priority Offenders Reform*. Retrieved 23 February 2023 from: https://www.justice.nsw.gov.au/Pages/Reforms/reducing-reoffending/priority-offenders.aspx

NSW Department of Communities and Justice. (2018b). *Service Review Report: Local Coordinated Multiagency offender management (LCM)* (unpublished research report). Sydney: NSW Department of Communities and Justice.

Olson, J. R., Benjamin, P. H., Azman, A. A., Kellogg, M. A., Pullmann, M. D., Suter, J. C., & Bruns, E. J. (2021). Systematic review and meta-analysis: Effectiveness of wraparound care coordination for children and adolescents. *Journal of the American Academy of Child & Adolescent Psychiatry, 60*(11), 1353-1366.

Ramsey, S., Kim, M-T., & Fitzgerald, J. (2022). *Trends in domestic violence-related stalking and intimidation offences in the criminal justice system: 2012 to 2021* (Bureau Brief no. 159). Sydney: NSW Bureau of Crime Statistics and Research.

Rodriguez, J., Keene, J., & Li, X. (2006). The substantial service demands of offenders and frequent offenders. *European Journal of Criminology, 3*(2), 149-179.

Rosenbaum, D. P. (2002). Evaluating multi-agency anti-crime partnerships: Theory, design, and measurement issues. *Crime prevention studies, 14*, 171-225.

Rosenbaum, P. R., & Rubin, D. B. (1983). The central role of the propensity score in observational studies for causal effects. *Biometrika, 70*(1), 41-55.

Somers, J. M., Rezansoff, S. N., Moniruzzaman, A., & Zabarauckas, C. (2015). High-frequency use of corrections, health, and social services, and association with mental illness and substance use. *Emerging themes in epidemiology, 12*(1), 1-10.

Suter, J. C., & Bruns, E. J. (2009). Effectiveness of the wraparound process for children with emotional and behavioral disorders: A meta-analysis. *Clinical child and family psychology review, 12,* 336-351.

Wundersitz, J. (2010). *Indigenous perpetrators of violence: Prevalence and risk factors for offending. Research and Public Policy Series* (no. 105). Canberra: Australian Institute of Criminology.

APPENDIX

Propensity score matching tables

Table A1. Logistic regression model used in propensity score matching

Variable	Coefficient (Standard error)
Type of order (relative to supervised parole order)	
ICO or equivalent	-4.216***
	(0.196)
CCO or equivalent	-4.914***
	(0.201)
CRO or equivalent	-5.495***
	(0.356)
LSI-R risk category (vs. medium)	
Medium-high	1.083***
	(0.122)
High	1.425***
	(0.186)
Age (relative to 18-24)	
25-34	0.094
	(0.135)
35-44	0.267
	(0.162)
45-54	0.539*
	(0.236)
55+	0.795
	(0.430)
Gender (relative to female)	
Male	-0.501***
	(0.111)
SEIFA (relative to most disadvantaged)	
Q1	-0.647***
	(0.123)
Q2	-0.695***
	(0.128)
Q3	-0.927***
	(0.220)
Q4	-0.907***
	(0.150)
Remoteness area (relative to major cities)	
Inner regional	-0.376**
	(0.118)
Outer regional	-0.360*
	(0.180)
Remote/very remote	-0.386

Table A1. Logistic regression model used in propensity score matching (continued)

Variable	Coefficient (Standard error)
	(0.371)
Seriousness index of principal offence	-0.002
	(0.002)
Number of concurrent offences (relative to 1)	
2-	0.176
	(0.121)
5-	-0.065
	(0.134)
Violent offence at index	0.514***
	(0.097)
Property offence at index	0.306**
	(0.103)
Prison sentence at index	-0.646***
	(0.188)
Age (in years) at first known caution, conference, or court appearance	-0.030**
	(0.011)
Number of prior finalised appearances with a proven offence (relative to 0-2)	
3-6	-0.242
	(0.191)
7-12	-0.168
	(0.201)
13 or more	-0.307
	(0.228)
LSI-R criminal history score	-0.063
	(0.036)
LSI-R accommodation score	0.254***
	(0.049)
LSI-R drug and alcohol score	-0.067*
	(0.029)
Prior proven domestic violence offence	-0.034
	(0.093)
Number of previous finalised court appearances at which given a full-time prison sentence	0.021
	(0.012)
Start of index community episode	-0.000*
	(0.000)
Constant	6.292*
	(2.587)
N	39,610

Table A2. Standardised bias before and after matching, main comparison

Variable	Unmatched			Matched		
	Mean (Treated)	Mean (Control)	Standardised bias	Mean (Treated)	Mean (Control)	Standardised bias
Age at start of index community episode	34.73	34.55	1.82	34.68	35.07	-4.11
Aboriginality at index contact						
Aboriginal	0.39	0.25	30.08	0.38	0.36	2.89
Non-Aboriginal	0.55	0.64	-18.82	0.56	0.58	-4.39
Unknown	0.07	0.11	-16.33	0.06	0.05	3.36
Gender						
Female	0.25	0.22	5.73	0.22	0.21	3.41
Male	0.75	0.78	-5.73	0.78	0.79	-3.41
SEIFA (2016) of residential postcode						
Q1 (most disadvantaged)	0.40	0.31	17.93	0.38	0.39	-1.60
Q2	0.19	0.28	-22.13	0.20	0.17	7.20
Q3	0.18	0.25	-16.58	0.18	0.20	-5.11
Q4 (least disadvantaged)	0.04	0.10	-22.93	0.05	0.04	1.52
Missing	0.19	0.06	41.79	0.20	0.20	-0.78
ABS remoteness area (2016) for residential postcode						
Major cities	0.53	0.59	-12.15	0.51	0.51	0.62
Inner regional	0.19	0.27	-17.17	0.20	0.20	-0.38
Outer regional	0.08	0.08	-0.74	0.07	0.07	1.82
Remote/very remote	0.01	0.01	-0.03	0.01	0.02	-2.51
Missing remoteness	0.19	0.06	41.79	0.20	0.20	-0.78
LSI-R score	35.98	31.46	85.29	35.74	35.60	2.63
LSI-R criminal history score	7.14	6.92	10.24	7.09	7.15	-3.43
LSI-R accommodation score	1.76	1.52	21.94	1.69	1.66	2.63
LSI-R drug and alcohol score	5.80	6.10	-16.14	5.78	5.84	-3.74
Index community order						
Supervised parole order	0.56	0.02	151.90	0.53	0.53	0.00
ICO or equivalent	0.23	0.32	-19.20	0.25	0.26	-1.78
CCO or equivalent	0.19	0.58	-86.95	0.20	0.20	1.16
CRO or equivalent	0.02	0.09	-34.26	0.02	0.01	2.51
Seriousness index of principal offence	57.24	64.94	-28.38	57.00	57.90	-3.30
Category of principal offence						
Serious violence	0.34	0.26	16.93	0.33	0.36	-4.57
Property	0.24	0.17	16.16	0.24	0.25	-2.18
Drug	0.05	0.07	-11.27	0.05	0.03	7.89
Breach	0.20	0.23	-6.06	0.21	0.21	-1.90
Other	0.17	0.27	-22.06	0.18	0.15	6.29
Number of concurrent offences at index						
1-	0.20	0.27	-15.48	0.20	0.20	1.16
2-	0.46	0.48	-3.16	0.45	0.47	-4.05
5-	0.34	0.26	17.78	0.34	0.33	3.29
Any acts intended to cause injury offence						
Yes	0.50	0.38	24.77	0.50	0.53	-5.59
Any property offence						
Yes	0.40	0.26	29.60	0.39	0.37	3.84

Table A2. Standardised bias before and after matching, main comparison (continued)

Variable	Unmatched			Matched		
	Mean (Treated)	Mean (Control)	Standardised bias	Mean (Treated)	Mean (Control)	Standardised bias
Age at first contact						
10-17	0.56	0.43	27.80	0.56	0.58	-4.70
18-24	0.28	0.33	-9.13	0.29	0.26	5.22
25-44	0.15	0.22	-19.39	0.15	0.15	0.43
45+	0.01	0.03	-16.09	0.01	0.01	-1.86
Number of prior finalised court appearances						
0-	0.08	0.23	-40.67	0.09	0.09	0.00
3-	0.17	0.26	-20.94	0.18	0.16	3.31
7-	0.29	0.26	6.99	0.29	0.28	3.09
13-	0.45	0.25	42.62	0.45	0.47	-5.30
Prior proven violent offence	0.60	0.45	30.79	0.60	0.59	2.84
Prior proven property offence	0.58	0.38	40.60	0.57	0.56	1.25
Prior proven domestic violence offence	0.45	0.38	14.33	0.45	0.41	6.90
Prior prison sentence	0.60	0.29	65.95	0.59	0.58	1.57

Main regression results

Table A3. Regression results, main analysis, comparing LCM offenders to matched comparison group

	(1)	(2)	(3)
Panel A. Any reoffence			
Referred to LCM	0.071*	0.064*	0.079
Standard error	(0.030)	(0.029)	(0.047)
N	1,181	1,181	1,181
Controls	No	Yes	Yes
Fixed effects	No	No	Yes
Panel B. Serious drug, violent, or property reoffence			
Referred to LCM	0.037	0.034	0.062
Standard error	(0.033)	(0.031)	(0.047)
N	1,158	1,158	1,158
Controls	No	Yes	Yes
Fixed effects	No	No	Yes
Panel C. Domestic violence reoffence			
Referred to LCM	0.006	0.006	-0.018
Standard error	(0.028)	(0.028)	(0.043)
N	1,091	1,091	1,091
Controls	No	Yes	Yes
Fixed effects	No	No	Yes
Panel D. Return to custody within 12 months			
Referred to LCM	0.115***	0.114***	0.103*
Standard error	(0.028)	(0.027)	(0.046)
N	1,288	1,288	1,288
Controls	No	Yes	Yes
Fixed effects	No	No	Yes

* $p < .05$ ** $p < .01$ *** $p < .001$

Table A4. Marginal effects from logistic regression of main analysis, comparing LCM offenders to matched comparison group

	(1)	(2)	(3)
Panel A. Any reoffence			
Referred to LCM	0.070*	0.070*	0.077
Standard error	(0.032)	(0.032)	(0.047)
N	861	861	830
Controls	No	Yes	Yes
Fixed effects	No	No	Yes
Panel B. Serious drug, violent, or property reoffence			
Referred to LCM	0.066	0.066	0.059
Standard error	(0.036)	(0.036)	(0.052)
N	840	840	803
Controls	No	Yes	Yes
Fixed effects	No	No	Yes
Panel C. Domestic violence reoffence			
Referred to LCM	0.027	0.027	0.001
Standard error	(0.032)	(0.032)	(0.044)
N	791	791	735
Controls	No	Yes	Yes
Fixed effects	No	No	Yes
Panel D. Return to custody within 12 months			
Referred to LCM	0.077*	0.077*	0.056
Standard error	(0.032)	(0.032)	(0.048)
N	956	956	910
Controls	No	Yes	Yes
Fixed effects	No	No	Yes

* *p* <.05 ** *p* < .01 *** *p* < .001

Regression tables – excluding detectable reoffences

Table A5. Regression tables, matching analysis, excluding detected reoffences

	(1)	(2)	(3)
Panel A. Any reoffence			
LCM referral or not	0.071*	0.064*	0.079
Standard error	(0.030)	(0.029)	(0.047)
Controls	No	Yes	Yes
Fixed effects	No	No	Yes
N	1181	1181	1181
Panel B. Excluding use/possess drugs	(4)	(5)	(6)
LCM referral or not	0.038	0.031	0.043
Standard error	(0.031)	(0.030)	(0.048)
Controls	No	Yes	Yes
Fixed effects	No	No	Yes
N	1180	1180	1180
Panel C. Excluding stalking	(10)	(11)	(12)
LCM referral or not	0.031	0.024	0.033
Standard error	(0.031)	(0.030)	(0.048)
Controls	No	Yes	Yes
Fixed effects	No	No	Yes
N	1180	1180	1180

* *p* <.05 ** *p* < .01 *** *p* < .001

Regression tables – subgroup analysis

Table A6. Regression analysis, subgroup analyses by primary reason for exit

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Panel A. Any proven reoffence												
Referred to LCM	0.009	0.010	-0.002	-0.121**	-0.121**	-0.120	0.087	0.102	0.159	0.196***	0.174***	0.176**
Standard error	(0.053)	(0.052)	(0.065)	(0.047)	(0.046)	(0.067)	(0.057)	(0.056)	(0.086)	0.042	0.043	0.064
Controls	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Fixed effects	No	No	Yes	No	No	Yes	No	No	Yes	No	No	Yes
Group	Unplanned exit	Unplanned exit	Unplanned exit	Successfully treated	Successfully treated	Successfully treated	Supervision ended	Supervision ended	Supervision ended	Refused to engage	Refused to engage	Refused to engage
N	652	665	665	725	725	725	636	636	636	707	707	707
Panel B. Serious drug, property, or violence reoffence												
Referred to LCM	0.028	0.038	0.056	-0.151***	-0.139**	-0.107	0.156**	0.120*	0.166*	0.141**	0.117*	0.132
Standard error	(0.058)	(0.057)	(0.074)	(0.044)	(0.043)	(0.062)	(0.049)	(0.048)	(0.070)	0.053	0.051	0.07
Controls	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Fixed effects	No	No	Yes	No	No	Yes	No	No	Yes	No	No	Yes
Group	Unplanned exit	Unplanned exit	Unplanned exit	Successfully treated	Successfully treated	Successfully treated	Supervision ended	Supervision ended	Supervision ended	Refused to engage	Refused to engage	Refused to engage
N	652	652	652	714	714	714	623	623	623	693	693	693

$* p < .05 ** p < .01 *** p < .001$

Table A6. Regression analysis, subgroup analyses by primary reason for exit (continued)

Panel C. Domestic violence reoffence

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Referred to LCM	0.022	0.041	0.02	-0.100**	-0.088*	-0.103	0.006	0.02	0.055	0.034	0.016	-0.031
Standard error	(0.054)	(0.053)	(0.069)	(0.036)	(0.035)	(0.054)	(0.058)	(0.056)	(0.083)	0.047	0.048	0.065
Controls	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Fixed effects	No	No	Yes	No	No	Yes	No	No	Yes	No	No	Yes
Group	Unplanned exit	Unplanned exit	Unplanned exit	Successfully treated	Successfully treated	Successfully treated	Supervision ended	Supervision ended	Supervision ended	Refused to engage	Refused to engage	Refused to engage
N	607	607	607	676	676	676	586	586	586	652	652	652

Panel D. Serious drug, property, or violence reoffence

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Referred to LCM	0.098	0.106*	0.024	-0.129**	-0.111**	-0.134*	0.230***	0.217***	0.308***	0.273***	0.259***	0.244***
Standard error	0.05	0.05	0.072	0.041	0.04	0.064	0.04	0.039	0.059	0.041	0.042	0.064
Controls	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Fixed effects	No	No	Yes	No	No	Yes	No	No	Yes	No	No	Yes
Group	Unplanned exit	Unplanned exit	Unplanned exit	Successfully treated	Successfully treated	Successfully treated	Supervision ended	Supervision ended	Supervision ended	Refused to engage	Refused to engage	Refused to engage
N	759	759	759	817	817	817	814	814	814	800	800	800

$* p < .05 ** p < .01 *** p < .001$

Event study comparison group matching diagnostics

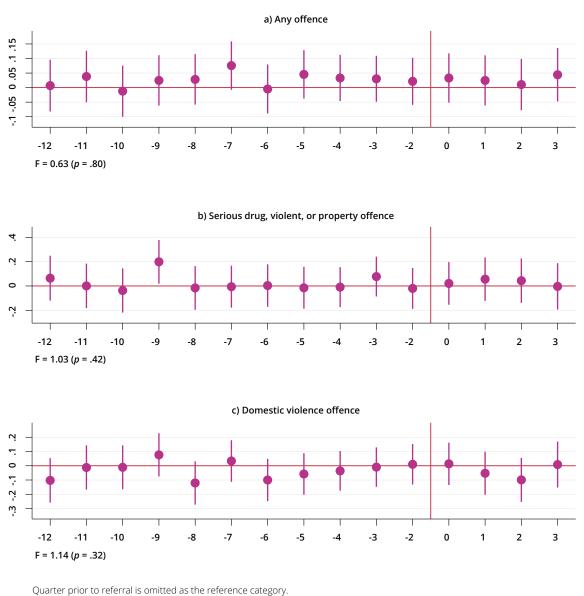### Table A7. Standardised bias, exact matched sample used in event study comparison

Variable	Mean (Treated)	Mean (Control)	Standardised bias	Mean (Treated)	Mean (Control)	Standardised bias
Age at start of index community episode	34.73	34.55	1.82	34.43	35.01	-6.01
Aboriginality as recorded by NSW Police for the index contact						
Aboriginal	0.39	0.25	30.08	0.36	0.34	4.19
Non-Aboriginal	0.55	0.64	-18.82	0.57	0.62	-9.69
Unknown	0.07	0.11	-16.33	0.07	0.04	12.22
Gender (Female, Male, Unknown)						
Female	0.25	0.22	5.73	0.27	0.28	-0.56
Male	0.75	0.78	-5.72	0.73	0.72	0.56
Unknown	0.00	0.00	-0.90	0.00	0.00	
Quartile within NSW of IRSD (SEIFA 2016) for residential postcode						
Q1	0.40	0.31	17.93	0.41	0.43	-3.04
Q2	0.19	0.28	-22.13	0.19	0.18	2.58
Q3	0.18	0.25	-16.58	0.18	0.20	-3.83
Q4	0.04	0.10	-22.93	0.05	0.04	3.67
Missing	0.19	0.06	41.79	0.17	0.15	3.42
ABS remoteness area (2016) for residential postcode						
Major cities	0.53	0.59	-12.15	0.56	0.52	7.03
Inner regional	0.19	0.27	-17.17	0.20	0.23	-7.34
Outer regional	0.08	0.08	-0.74	0.07	0.08	-5.70
Remote/very remote	0.01	0.01	-0.03	0.01	0.02	-2.15
Missing remoteness	0.19	0.06	41.79	0.17	0.15	3.42
LSI-R score	35.98	31.46	85.29	35.25	34.68	10.26
LSI-R criminal history score	7.14	6.92	10.24	6.86	6.87	-0.55
LSI-R accommodation score	1.76	1.52	21.94	1.70	1.59	10.44
LSI-R drug and alcohol score	5.80	6.10	-16.14	5.66	5.58	5.17
Index community order						
Supervised parole order	0.56	0.02	151.90	0.31	0.31	0.00
ICO or equivalent	0.23	0.32	-19.20	0.37	0.37	0.00
CCO or equivalent	0.19	0.58	-86.95	0.31	0.31	0.00
CRO or equivalent	0.02	0.09	-34.26	0.01	0.01	0.00
Seriousness index of principal offence	57.24	64.96	-28.44	60.66	59.13	5.75
Category of principal offence						
Serious violence	0.34	0.26	16.83	0.31	0.30	1.64
Property	0.24	0.17	16.20	0.25	0.28	-6.91
Drug	0.05	0.07	-11.29	0.05	0.05	0.00
Breach	0.20	0.23	-6.02	0.21	0.21	0.62
Other	0.17	0.27	-22.02	0.18	0.16	5.42
Number of concurrent offences at index						
1-	0.20	0.27	-15.45	0.17	0.19	-3.28
2-	0.46	0.48	-3.18	0.50	0.52	-2.53
5-	0.34	0.26	17.76	0.32	0.30	5.47

Table A7. Standardised bias, exact matched sample used in event study comparison (continued)

Variable	Mean (Treated)	Mean (Control)	Standardised bias	Mean (Treated)	Mean (Control)	Standardised bias
Any acts intended to cause injury offence						
No	0.50	0.62	-24.69	0.52	0.55	-7.10
Yes	0.50	0.38	24.69	0.48	0.45	7.10
Any property offence						
No	0.60	0.74	-29.57	0.62	0.60	3.11
Yes	0.40	0.26	29.57	0.38	0.40	-3.11
Age at first contact						
10-17	0.56	0.42	27.82	0.54	0.57	-5.09
18-24	0.28	0.33	-9.12	0.30	0.26	7.88
25-44	0.15	0.22	-19.43	0.15	0.16	-3.46
45+	0.01	0.03	-16.10	0.01	0.01	3.19
Number of prior finalised court appearances						
0-	0.08	0.23	-40.68	0.10	0.10	0.00
3-	0.17	0.26	-20.98	0.19	0.18	3.27
7-	0.29	0.26	7.00	0.31	0.30	1.65
13-	0.45	0.25	42.66	0.40	0.42	-4.11
Prior proven violent offence	0.60	0.45	30.82	0.57	0.58	-1.53
Prior proven property offence	0.58	0.38	40.62	0.53	0.54	-2.53
Prior proven domestic violence offence	0.45	0.38	14.36	0.44	0.41	5.12
Prior prison sentence	0.60	0.29	65.95	0.53	0.52	1.52

Event study plots and estimates

Figure A1. Event study plot of referral to LCM on each measure of reoffending, 12 quarters prior to and 4 quarters post-referral

Quarter prior to referral is omitted as the reference category.

F statistic (and associated *p*-values) test significance of pre-period differences between the groups.

Difference-in-differences regression tables

Table A8. Difference-in-differences in offending for LCM offenders versus matched offenders with similar likelihood of referral, type of community order, and episode start date

	(1)	(2)	(3)
Panel A. Any reoffence			
Estimate	0.027	0.026	0.026
Standard error	(0.018)	(0.018)	(0.018)
N	12,432	12,432	12,432
Controls	No	Yes	Yes
Fixed effects	No	No	Yes
	(4)	**(5)**	**(6)**
Panel B. Serious drug, violent, or property reoffence			
Estimate	0.015	0.015	0.015
Standard error	(0.014)	(0.014)	(0.014)
N	12,432	12,432	12,432
Controls	No	Yes	Yes
Fixed effects	No	No	Yes
	(7)	**(8)**	**(9)**
Panel C. Domestic violence reoffence			
Estimate	0.002	0.002	0.002
Standard error	(0.010)	(0.010)	(0.010)
N	12,432	12,432	12,432
Controls	No	Yes	Yes
Fixed effects	No	No	Yes

*p <.05 ** p < .01 *** p < .001*