Nanaimo Correctional Centre Therapeutic Community Preliminary Impact Analysis

Research Report

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Executive Summary

This report is a preliminary examination of the impact of the Therapeutic Community (TC) pilot project on recidivism. The pilot began in September 2006 at Nanaimo Correctional Centre (NCC) under the name of Guthrie House. The first TC program participant was released on February 1, 2007.

The evaluation period was from February 1, 2007 (January 2007 for the comparison group) to September 16, 2009 when data was retrieved from Corrections Network System (CORNET). At the time of data collection, 121 participants had completed the TC program and were released from custody. Completion indicates the participant successfully met the goals at each phase of the TC program. Of the 121 offenders who completed the TC program, 28 participants were omitted from the evaluation sample due to missing or insufficient data required to conduct reliable and valid statistical analysis. The remaining sample consisting of 93 offenders was compared to an equivalent group of 93 NCC inmates who did not participate in the TC.

This study analyzes the impact of the TC program by examining four different periods of time at risk to reoffend in the community: a full study period, and three, six, and twelve months post release. A logistic regression[1] used to compare and contrast the recidivism rates accounted for the main differences between the groups that were shown to be significant, i.e. time at risk, sentence length, history of sexual offending, and participation in IOM. These items were identified and investigated, as they tend to influence recidivism rates in various ways.

In the full study period analysis, the TC group recidivated at 38%, which is significantly less than the comparison group who recidivated at 56%. At the fixed tracking periods of three, six and twelve months, the six and twelve month categories provided significant differences, with the TC group recidivating at 25% and 45% respectively (compared to 44% and 61% for the comparison group).

Although not statistically significant, those individuals who completed the TC but recidivated, on average committed a lower average number of offences, violent or property offences, and drug and alcohol related offences, and were less varied in the types of crimes. In addition, of the convicted offences, the TC group had a higher proportion of breaches than the comparison group (and therefore less violent, property or other offences). Future studies that include a larger sample of TC completers will provide more information.

Combining the recidivism and re-offence analyses, there are three main conclusions to draw from this report. First, those individuals who complete the TC reoffend significantly less than those who do not complete the TC. Second, the results show that the program has the potential to significantly increase the amount of offence free time. Third, of those who do reoffend, there are indications that they offend in a less severe manner. Future evaluations will include a cost benefit analysis that speaks to potential savings through decreased rates of reoffending and longer survival times in the community for those that do reoffend.

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[1] See the footnote in the Analysis section for a definition of logistic regression and Appendix A for an interpretation guide.

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PART I: Introduction and Background

Therapeutic Communities

The therapeutic community (TC) at Nanaimo Correctional Centre (NCC) began taking offenders in the fall of 2006. By the fall of 2007 it had fully implemented the goals and principles associated with therapeutic communities housed within correctional facilities. The TC's fundamental approach is to use peer communities to treat the whole person. The main goal of a TC is to change established patterns of negative thoughts, feelings, and behaviours that lead to drug use and criminal behaviours (De Leon, 2000). A majority of TCs in correctional settings are based on the following four principles (other principles exist, this list highlights the main four)(Barnett, 2009):

1. Complete separation from the general or segregated population;
2. A highly structured environment;
3. Constant engagement; and
4. Priority for those with substance abuse issues that leads to criminal behaviours.

A growing body of research demonstrates that individuals who complete TC programming in custody centres have a lower rate of recidivism and drug use and increases in employment, social and emotional functioning, and quality of life (Barnet, 2009; De Leon, 2000; Jensen & Kane, 2010; Aos, Miller & Drake, 2006; Welsh, 2007).

The TC at NCC

The TC at NCC is a minimum four-month residential substance abuse treatment program consisting of three phases: orientation, primary treatment phase, and re-entry/transition phase. A fourth phase, aftercare, occurs in the community after release from NCC. Each phase has a set of goals to be met and a minimum time requirement before they can graduate to the next phase (described further below). Successful completion of the TC requires moving through each phase, taking on increasing responsibilities, accepting responsibility for their behaviours, and holding other residents accountable.

The criteria for referral to the TC are the following:

- Documented substance abuse issues, preferably moderate to severe. Documented means that it is indicated on the Corrections Risk Needs Assessment (CRNA) or Inmate Assessment (IA) OR the person was referred/attended/completed SAM. The majority of referrals come from the IA.
- Is medium to high risk to reoffend in the community as documented on an on-glass review or CRNA if IOM client.
- No pattern of institutional violence.
- Be psychiatrically stable.
- Originally sentenced to 180 or more days, with approximately 120 days remaining.

Phase I: Orientation

After referral, intake, and consent to engage in the TC, the first three to four weeks focus on integration into the TC. Orientation activities include program introduction, referral and participation in CORE programs, development of relationships, personal assessment, building an understanding of the addictive disorder, and random drug screens. To meet Phase I goals successfully and to move to Phase II, a resident must demonstrate the following:

- An understanding of TC policies, procedures, philosophy, and expectations.
- A trusting relationship with at least some staff and community members.
- An initial understanding of their circumstances and the need for support and assistance in recovery.
- An understanding of the TC view of substance use disorder as a disorder of the whole person.
- Initial insight into what is needed for recovery.
- A commitment to remain in treatment.
- Self-discipline.
- Attendance at all community meetings.
- Successful completion of the Early Recovery Skills Program.
- Completion of the client evaluation of self and treatment (CEST) Intake.
- Completion of the Criminal Thinking Scales.
- Completion of the Addiction Severity Index.
- An inmate needs assessment and appropriate referral into Work, Core and educational programs.
- Clean drug screens[2]

Phase II: Primary Treatment Phase

The main goals of the second phase of treatment are socialization, personal growth and psychological awareness typically occurring over two to three months. During this phase community expectations for full participation in activities markedly increases, as does the intensity of group process and peer and staff counseling. Job functions become more complex, privileges grant wider latitude, and seminar content expands to address a wide variety of themes relating to recovery and right living. Treatment activities include ongoing assessment, individual treatment planning, attendance to didactic encounter groups (a core component), cognitive restructuring (a core component), family and relationship enhancement, and finally, release planning. To meet Phase II goals successfully and to move to Phase III, a resident is expected to demonstrate the following:

- Conformity to the rules and procedures of the TC.
- Consistent participation in daily activities.
- Verbal acknowledgment of the seriousness of their substance use and other problems.

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[2] There is an initial drug screen upon program entry and then tests are performed randomly regardless of treatment phase, typically once per month or if drug use is evident or in question.

- Increased responsibility in work assignments.
- Setting a positive example for others.
- Accepting TC staff members as rational authorities.
- Accepting responsibility for own behaviour, problems, and solutions.
- Co-facilitated group sessions and meetings with senior residents.
- Earned privileges Preparation of individual treatment plan.
- Successful completion the reading assignments.
- Successful completion of at least 100 hours of clinical group.
- A release plan.
- Clean drug screens.

Phase III: Re-entry/Transition Phase

The primary objectives of re-entry are to facilitate the individual's separation from the TC and entry to an aftercare program in the larger society. To meet Phase III goals successfully and to move to Phase IV, a resident is expected to demonstrate the following:

- Be an active participant in group sessions and meetings and frequently co-facilitate groups with other senior residents.
- Adopt self-management skills and develop the ability to handle privacy appropriately.
- Become involved with school or vocational training.
- Develop a positive social network of peers during furloughs.
- Become an established role model and provide leadership in the TC community.
- Successfully complete Relapse Prevention Training.
- Prepare a comprehensive aftercare plan.

Phase IV: Aftercare Stage:
The fourth phase begins at release and lasts a minimum of six months. Aftercare activities can include outpatient clinics, day intensive programs, residential treatment, and so on. Residents who have completed the TC program successfully and are eligible for graduation have demonstrated the following:

- Remained alcohol and drug free.
- Are employed or are in school or a training program.
- Resolved or are in good standing regarding legal issues.
- Resolved issues related to housing, health, and family estrangement.
- Accepted that they need to continue to work on particular problem areas and on themselves in general.
- Have a regular therapist, if necessary.
- Attendance at NA or AA meetings regularly (not formal A & D).
- Firm commitment to continued abstinence.

- Have stayed in touch with the TC via telephone and/or in person with the Outreach Worker.
- Are actively involved with a support network and/or have followed their Release Plan (which may include items above.)

The Evaluation

The purpose of this report is to provide a preliminary review of the TC at NCC to determine if there has been an impact on recidivism, an increase in time to reoffending and/or a change in the types of offences committed by those who have participated in the TC.

PART II: Methodology

Participants

The TC

The TC program started in late 2006. The first offender to complete the TC program was released from NCC on February 1, 2007. By September 16, 2009, when data preparation for this evaluation started, 167 offenders had participated and discharged from the TC. Of these 167 offenders, 121 were classified as having completed the TC program because they successfully met the goals at each of the four phases of the TC program. Of the 121 offenders in the TC group, 28 were missing a significant amount of data. These individuals were therefore dropped from further analysis, leaving 93 remaining for analysis.

Comparison group

- A comparison group was retrieved from CORNET that met the following conditions:
    - Discharged from NCC from January 1, 2007 to June 30, 2009;
    - Prior custody sentence;
    - Custody sentence length 120 days or longer;
    - High or medium CRNA rating (the one closest to their NCC Intake date if there were multiple);
    - History of substance abuse issues, indicated by a score of C or D on the substance abuse item on a CRNA;
    - Not refused admission to or removed from the TC.

Five hundred and seventeen offenders met these criteria. By partial matching with the TC group on CRNA Overall rating and CRNA substance abuse rating, 93 offenders were matched with the TC group. Many TC participants did not have a CRNA rating available that was recent to their intake, therefore an actual matching was not possible for this variable. Instead, any CRNA rating (most recent pre NCC if available or first one completed after NCC release) on record for the TC participants was used to create an approximate group profile (ratio of High, Medium, and Low Overall ratings) that was applied to the selection of the comparison group. The existence and length of probation to follow was not examined for two reasons: first because it is not a requirement of the TC and second, this is a preliminary analysis.

Measures

Baseline data for the TC group was extracted on September 16, 2009 for the participant list compiled by NCC TC program facilitators. The data variables selected for inclusion in this analysis included offenders' Corrections Service Number (CS number), TC intake and discharge dates, and program completion status. Additional data variables for the evaluation retrieved from CORNET included date of custody admission and discharge, sentence length, CRNA ratings, demographics (i.e. gender, age, etc.) offending history, and recidivism data. This information was also retrieved for a comparison group selected from a sample of NCC offenders released from custody during the same time period as the TC participants. Some members of both TC and comparison groups were involved with Integrated Offender

Management (IOM). Participation in IOM was therefore included as a possible confounding variable during analysis.

Analysis

The data was analyzed using significance-testing procedures that are based on probability (p) calculations. Probability is the likelihood that something will occur (e.g. the chance that the flip of a coin will come up heads). These procedures do the following:

➢ Evaluate differences between two or more groups on a particular measure (or measures); and
➢ Determine if differences are reliable enough that they are unlikely to occur by chance or error. If so, these results are statistically significant.

A "statistically significant difference" means there is statistical evidence of a reliable difference; it does not indicate that the difference is important. The standard in criminological studies is to only accept differences that are unlikely to occur by chance or error 95 times or more out of 100 ($p<.05$). The reliability of the statistical findings is closely associated to sample size. Therefore, as the sample size decreases, it becomes more difficult to find reliable statistically significant differences.

The statistical procedures used in this evaluation were

(a) *Pearson chi-square*[3] for comparing differences between binomial variables,
(b) *t-test for equality of means*[4] to ensure the comparison group matched the TC group on key background characteristics,
(c) *logistic regression*[5] to assess the impact of the program on recidivism while taking into account variables seen to be significantly different between the groups (i.e. sentence length and history of sexual offending), and
(d) *Kaplan-Meier survival analysis*[6] to assess possible differences in the length of time it took to reoffend (for those who recidivated).

Definition of recidivism

For the purpose of this evaluation, recidivism was defined as a sentencing document (recorded in CORNET) for a criminal offence, or a breach, following the offenders release from custody. This is different than the reported branch recidivism rate is not directly comparable. The date of the offence was used to calculate time to first offence. In the few cases where the offence date was not available, the sentence date was used. Breaches that resulted in an additional conviction were included in this analysis for two reasons: First, the sample size of this evaluation is small and therefore all available data is important and second, one of the goals of the TC is to reduce behaviour that would result in a breach.

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[3] **Pearson chi square** is the most common test for significance of the relationship between categorical variables. This measure computes *expected* frequencies in a two-way table (i.e., frequencies that we would expect if there was no relationship between the variables) and compares them to actual frequencies. A statistically significant finding indicates a reliable relationship between the variables.

[4] The **t-test** is the most commonly used method to evaluate the differences in means between two groups. A statistically significant finding indicates a reliable difference between the two groups.

[5] **Logistic regression** predicts which of two categories a person is likely to belong to (such as recidivist or non-recidivist), given certain information (such as treatment completion, length of criminal history, and so on).

[6] **Kaplan-Meier survival analysis** (KMSA) estimates possible differences between groups in the length of time it takes to reoffend, aka survival time. Not all participants reoffend; this will result in censored (artificially shortened) time lines. KMSA provides a reliable estimate even with censored data.

Recidivism Tracking Periods

This study analyzed the impact of the TC program by examining four different follow up periods of time at risk (to reoffend) in the community: a full study period, and at three, six, and twelve months post release. In the full study period, all 93 TC completers and 93 comparison group members (all from NCC) were included in the analysis. The TC Completers' time at risk varied from 81 days for the latest TC release to 958 days for the earliest TC release with the mean value being 515 days. The comparison group members' time at risk varied from 81 to 983 days, with the mean value being 602 days. Since completed TC participants released from custody have different lengths of time at risk in the community to reoffend, different numbers of TC participants are included for each fixed tracking period. Table 1 shows the numbers of participants included in each analysis.

Table 1. Number of Participants Used in the Study for Different Recidivism Tracking Periods

Group	All Inclusive	3 Months	6 Months	12 Months
TC	93	91	81	64
Comparison	93	92	84	71
Total	186	183	165	135

PART III: Results

Background characteristics

Offender background characteristics were analyzed to serve two purposes:

- Present a profile of the TC group.
- Ensure that the comparison group used in the evaluation was matched to the TC group.

In this evaluation, CRNA rating, history of substance abuse, previous criminal history, and sentence length are compared between groups because research demonstrates that these variables significantly influence reoffending (Andrews & Bonta, 2006). There were 53 TC participants who had a CRNA that was within 6 months of their intake (either before or after), and 23 TC participants who did not but did have a CRNA on record within 2.5 years. Seventeen offenders in the TC group did not have a CRNA completed at TC intake or during their time at the TC.

The comparison group was matched on the CRNA ratings available, using the one closest to their NCC Intake date if there were multiple. The initial selection criteria for TC intake includes a risk rating of medium or high, therefore the comparison group was matched accordingly. Tables 2, 3A, and 3B provide a breakdown of these background characteristics measured by t-test for comparison of means and by Pearson chi-square for binomial variables. The two groups differed significantly in sentence length and history of sexual offending; therefore these variables are addressed in the analyses. The time at risk (days in follow-up period) is also significantly different, and this is addressed in the overall comparison by means of logistic regression, which accounts for time at risk differences; the fixed follow-up periods correct for differing time at risk between the groups.

Table 2. Group Characteristics

	TC Group n=93	Comparison group n=93	p (2-tailed)
Average age in years (at extraction)[7]	34.6 (SD = 8.22)	33.0 (SD = 7.95)	.167
Average number of days in TC	165.3 (SD = 74.61)	n/a	n/a
Average sentence length (days)	331.1 (SD = 145.62)	263.1 (SD = 168.12)	.004
Proportion with community sentence following custody[8]	57.0%	64.5%	.293
Average time at risk (days)	514.7 (SD=239.03)	602.3 (SD=265.96)	.019
Proportion history of violent offences(s)	58.1%	63.4%	.453
Proportion history of sexual offence(s)	5.4%	16.1%	.018

Shaded areas indicate significance differences

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[7] Age for the participants included in the 3, 6, and 12 month follow-up periods was also examined, no significant differences were found.

[8] "Community sentence" includes probation orders that began after custody stay, pre-existing probation orders that hadn't yet expired at end of custody stay, and conditional sentences (COS) that continued after custody stay.

Table 3A. Demographics

	TC Group n=90		Comparison group n=92	
Ethnicity	Frequency (n)	Proportion (%)	Frequency (n)	Proportion (%)
Caucasian	71	78.9	73	79.3
Aboriginal	16	17.8	14	15.2
Other (East Indian, Asian, Black and Hispanic)	3	3.3	5	5.5
Education	TC Group n=93		Comparison group n=92	
Grade 8 or Less	10	10.8	10	10.8
Grade 9 - 10	43	46.2	42	45.7
Grade 11 - 12	35	37.6	29	31.5
Grade 11 - 12 + Voc	4	4.3	6	6.5
University	1	1.1	5	5.4
Prior indicator	TC Group n=93		Comparison group n=93	
No previous formal contact	1	1.1	1	1.1
No previous time in jail	2	2.2	2	2.2
No previous jail sentence	19	20.4	12	12.9
Previous jail over 2 yrs ago	6	6.5	6	6.5
Previous jail within 2 yrs	65	69.9	72	77.4

Table 3B. Demographics – CRNA

	TC Group n=76		Comparison group n=93	
CRNA - Overall Risk Rating	Frequency (n)	Proportion (%)	Frequency (n)	Proportion (%)
High	65	85.5	80	86.0
Medium	11	14.5	13	14.0
Low	-	-	-	-
CRNA - Substance Abuse Rating	TC Group n=74		Comparison group n=93	
B	5	6.8	6	6.5
C	12	16.2	16	17.2
D	57	77.0	71	76.3

Impact Analysis

Full study period tracking period

In this analysis, all 93 offenders comprising the TC group and all 93 offenders in the comparison group were included. The evaluation period was from February 1, 2007 when the first TC participant was released from custody until September 16, 2009 when data was retrieved from CORNET. The comparison group included offenders released from NCC from January 7, 2007 to September 16, 2009. The average time at risk was 515 days (with a range of 81 to 958 days) for the TC group and 602 days (with a range of 81 to 983 days) for the comparison group[9]. Recidivism rates for the full study period analysis are presented in Table 4.

Table 4. Full study period Tracking Period – Recidivism Rates

	Total Number of Offenders	Offenders Re-offended in the Study Period		Number of Offenders Not Re-offended	Average Time at Risk (Days)
		Number	Percent		
TC Group	93	35	37.6%	58	515
Comparison Group	93	52	55.9%	41	602
Overall	186	87	46.8%	99	558

The initial results show that the participants in the TC group recidivated at 38% while the comparison group recidivated at 56%, a 33% reduction. As stated above, however, the two groups are significantly different on sentence length, time at risk (days in follow-up period) and history of sexual offences. The TC participants were more likely to have longer sentences while the comparison group participants had more time at risk to reoffend in the community and a higher proportion of individuals with a history of sexual offences (sex offenders typically take longer to reoffend). In addition, some TC completers participated in IOM and participants in the IOM program are significantly less likely to recidivate when compared to non-IOM inmates. To account for these differences the variables were included as covariates in a logistic regression; in other words, those background characteristics were entered into the statistical analysis to account for their possible influence on the recidivism rates.

Logistic regression compared the odds of the two groups, while accounting for the significant differences in offender characteristics, and determined if the odds were (a) statistically significant and (b) operationally significant. Table 5 presents the impact of the TC on recidivism with the adjustment of the four offender characteristics. As can be seen in Table 5, participation in IOM, time at risk, and completing TC were significant predictors of recidivism rates. The odds ratio (the odds of the TC group recidivating compared to the odds of the Comparison group recidivating) is .40 to 1 (or 1 to 2.5), which means that completing the TC decreased the participants' *odds of recidivating* by a factor of .40 or 60%, when holding the offender characteristics equal. The adjusted probability of reoffending for the TC completers is 34%.

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[9] Time at risk was defined by the extraction of data, not an offence.

TABLE 5. Full study period Tracking Period – logistic regression analysis

	Sig.	Exp(B)	95% C.I.for EXP(B)	
			Lower	Upper
SENLEN	.745	1.000	.998	1.002
IOM	.001	.330	.167	.653
SEXHIST	.685	.856	.403	1.817
TIME_RISK	.000	1.003	1.001	1.004
COMPLETE	.007	.401	.207	.774

Figure 1 shows the cumulative survival rates of the two groups over time. At day one (0.00 on X-axis, day of release), the survival rates of the two groups were 100% (1.0 on Y-axis). At day 983 (the maximum follow-up length for either group), the TC group survival curve is significantly higher than the comparison group, indicating that the survival rate (the cumulative survival probability) of the TC group is considerably and reliably higher than the comparison group[10]. For those who did recidivate, the average number of days to a reoffence was 593 for a TC participant and 463 days for a comparison group member.

Figure 1. Survival Function for Full study period Tracking Period
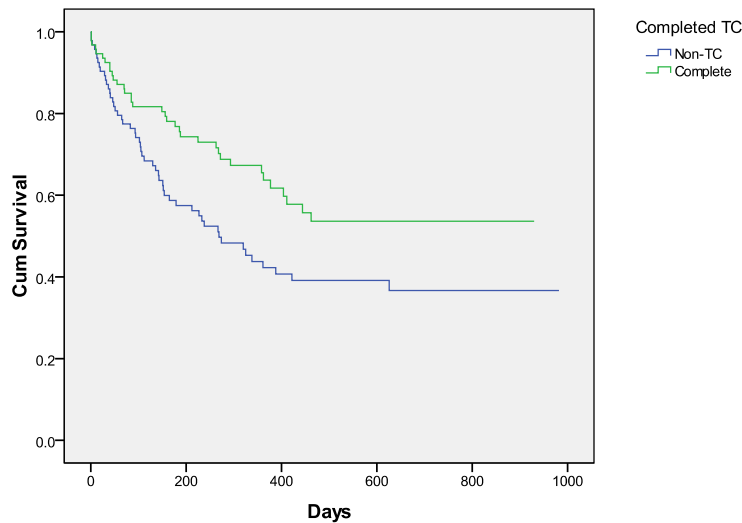
Three-month tracking period

The members of the TC and comparison groups who had at least 90 days between their release date and the date of extraction were included in the three-month tracking analysis. There were 183 participants (91 TC group and 92 comparison group) who met this criterion. Only re-offences that occurred in their first three months were considered in this analysis. During the evaluation period, 19% of the TC group re-offended versus 24% of the comparison group (Table 6), a 22% reduction.

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[10] Wilcoxon Chi-square = 6.43, p < .05.

Table 6. Three-month Tracking Period - Recidivism Rates

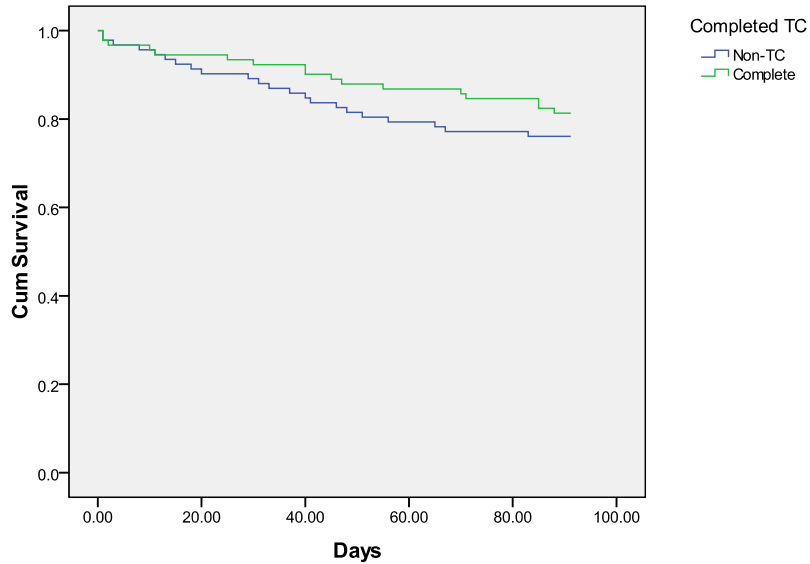|	Total Number of Offenders	Offenders Re-offended in the Study Period		Number of Offenders Not Re-offended
		Number	Percent	
TC Group	91	17	18.7%	74
Comparison Group	92	22	23.9%	70
Overall	183	39	21.3%	144

Table 7 presents the impact of the TC on recidivism with the adjustment of the three measured offender characteristics (sentence length, IOM participation, and history of sexual offending) through logistic regression. Time at Risk is dropped as a covariate as all participants in this analysis were examined at their three-month mark. The odds ratio (the odds of the TC group recidivating compared to the odds of the comparison group recidivating) is .72. Therefore, completing the TC lowered their odds of recidivating by a factor of .72 or 28%. The result is not statistically significant, however, and therefore may be due to chance (or small sample size).

Table 7. Three-month Tracking Period – logistic regression analysis

			95% C.I.for EXP(B)	
	Sig.	Exp(B)	Lower	Upper
SENLEN	.149	.998	.996	1.001
IOM	.122	.593	.306	1.150
SEXHIST	.333	.692	.328	1.458
COMPLETE	.396	.724	.343	1.528

Figure 2 shows the cumulative survival rates of the two groups over time. At day one (0.00 on X-axis, day of release), the survival rates of the two groups were 100% (1.0 on Y-axis). At day 90, the TC group survival curve is slightly but not significantly higher than the comparison group, indicating that the survival rate (the cumulative survival probability) of the TC group is only slightly higher than the comparison group, which mirrors the recidivism results.

Figure 2. Survival Function for Three-Month Tracking Period

Six-month tracking period

Members of the TC group and comparison group who had at least 182 days between their release date and the date of extraction were included for the six-month tracking analysis. There were 165 participants (81 TC group and 84 comparison group) who met this criterion. Only re-offences that occurred in their first six months were considered in this analysis. During the six-month evaluation period, 25% of the TC group re-offended versus 44% of the comparison group (Table 8), a 44% reduction.

Table 8. Six- month Tracking Period - Recidivism Rates

|	Total Number of Offenders	Offenders Re-offended in the Study Period		Number of Offenders Not Re-offended
		Number	Percent	
TC Group	81	20	24.7%	61
Comparison Group	84	37	44.0%	47
Overall	165	57	34.5%	108

Table 9 presents the impact of the TC on recidivism with the adjustment of the three measured offender characteristics (sentence length, history of sexual offending and participation in IOM) through logistic regression. Completing the TC was a significant predictor of recidivism but not the offender characteristics. The odds ratio (the odds of the TC group recidivating compared to the odds of the Comparison group recidivating) is .38 to 1 (or 1 to 2.63), which means that completing the TC decreased the participants' *odds of recidivating* by a factor of .38 or 62%. The adjusted probability of recidivating after completing the TC is 23%.

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Table 9. Six-month Tracking Period – logistic regression analysis

	Sig.	Exp(B)	95% C.I.for EXP(B)	
			Lower	Upper
SENLEN	.901	1.000	.998	1.002
IOM	.112	.600	.320	1.127
SEXHIST	.540	1.246	.617	2.516
COMPLETE	.007	.383	.191	.766

Figure 3 shows the cumulative survival rates of the two groups over time. At day one (0.00 on X-axis, day of release), the survival rates of the two groups were 100% (1.0 on Y-axis). At day 183 (six months), the TC group survival curve is significantly higher than the comparison group, indicating that the survival rate (the cumulative survival probability) of the TC group is considerably higher than the comparison group[11]. For those who did recidivate, the average number of days to a reoffence was 154 for a TC participant and 135 days for a comparison group member.

Figure 3. Survival Function for Six-Month Tracking Period
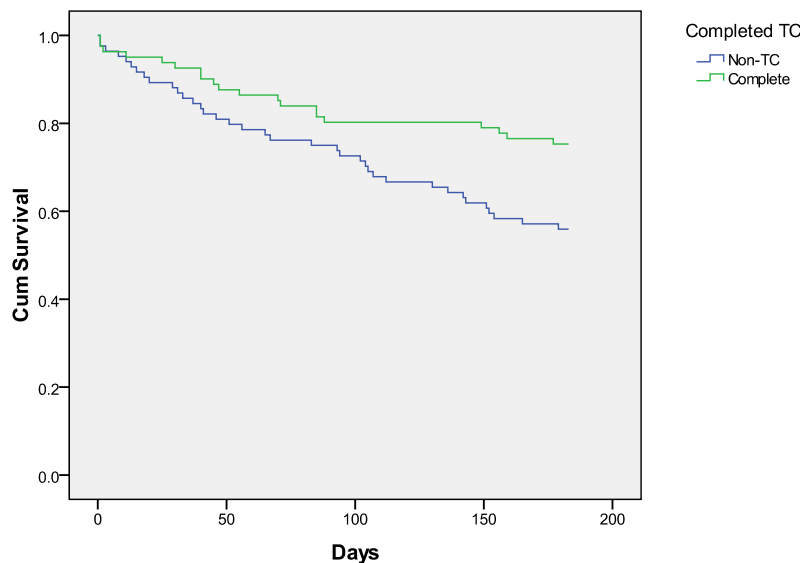
12 month tracking period

To have one year to track recidivism events, only TC group and comparison group members who had at least 365 days between their release date and the date of extraction were included for the 12 month tracking analysis. There were 135 participants (64 TC group and 71 comparison group) who met this criterion. Only re-offences that occurred in their first 12 months were considered in this analysis.

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[11] Wilcoxon Chi-square = 5.90, p <.05

During the evaluation period, 45% of the TC group re-offended versus 61% of the comparison group (Table 10), a 25% reduction.

Table 10. One year Tracking Period - Recidivism Rates

|	Total Number of Offenders	Offenders Re-offended in the Study Period		Number of Offenders Not Re-offended
		Number	Percent	
TC Group	64	29	45.3%	35
Comparison Group	71	43	60.6%	28
Overall	135	72	53.3%	63

Table 11 presents the impact of the TC on recidivism with the adjustment of the three other offender characteristics (sentence length, history of sexual offending and participation in IOM) through logistic analysis. History of sexual offences and TC completion were significant predictors for the 12 month analysis. The odds ratio is .45 which indicates that completing the TC lowered the *odds of recidivating* by .45 or 55%. The adjusted probability of reoffending for the TC completers is 41%.

Table 11. Twelve-month Tracking Period – logistic regression analysis

	Sig.	Exp(B)	95% C.I.for EXP(B)	
			Lower	Upper
SENLEN	.480	1.001	.999	1.003
IOM	.142	.602	.306	1.186
SEXHIST	.050	2.153	1.000	4.635
COMPLETE	.031	.450	.218	.928

Figure 4 shows the cumulative survival rates of the two groups over time. At day one (0.00 on X-axis, day of release), the survival rates of the two groups were 100% (1.0 on Y-axis). At day 365, the TC group survival curve is higher, but not significantly, than the comparison group, due to a large amount of variation among the participants for this time period.

Figure 4. Survival Function for Twelve-Month Tracking Period
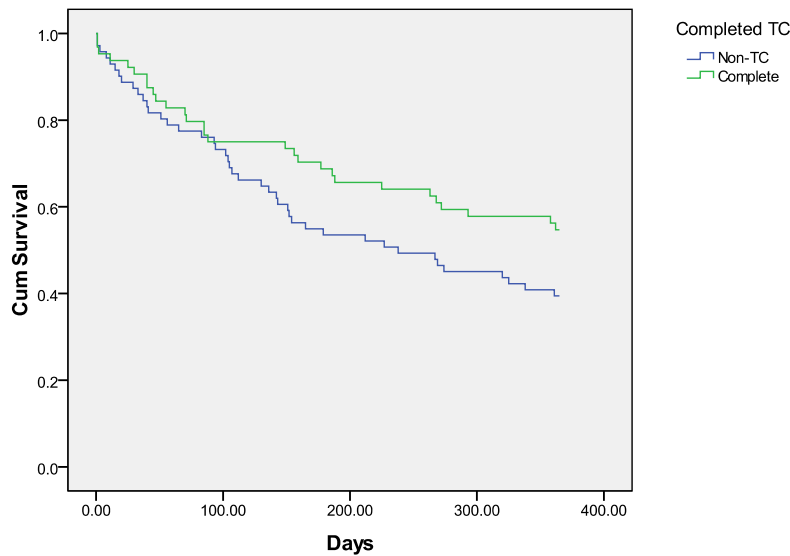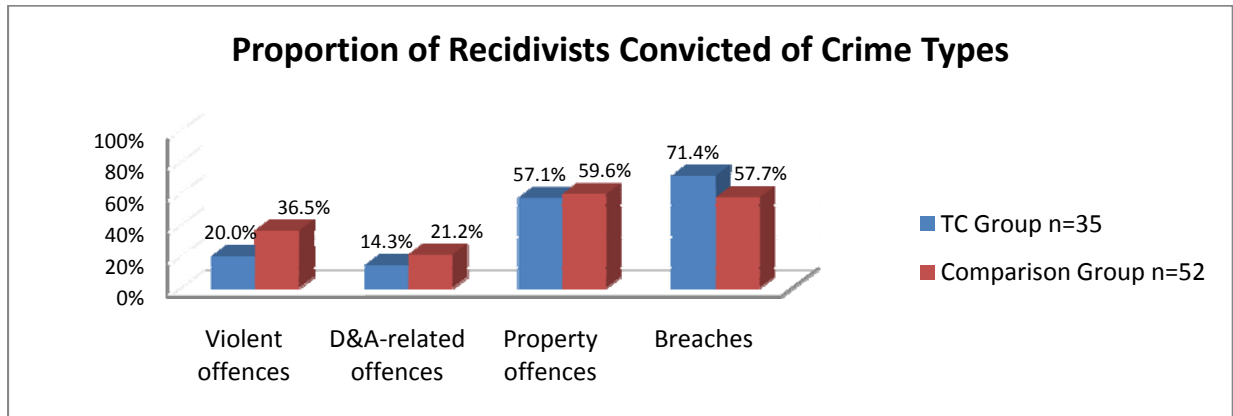

Recidivism: Offences

When investigating the types of offences committed during the full study follow-up period by each group (TC group and comparison group), the mean number offences committed by each recidivist was not significantly different between the groups (3.9 offences for TC group recidivists and 4.7 offences for comparison group recidivists, see Table 12), although there are indications of less severe crimes by TC completers. The percentages of convictions for violent offences, property offences, or drug/ alcohol-related offences were also not significantly different. Although the TC group had a higher percentage of recidivists with breach offences, on average, than the comparison group, the results were also not significant, likely due in part to the small sample size as well as the large amount of variation among the participants[12]. See Figure 5 for details.

Table 12. Number of Offences per recidivist

	TC Groups	Offenders	Offences	Mean	Std. Deviation	Std. Error Mean	t	p (2-tailed)
Number of convicted offences in full study tracking period	TC Group	35	137	3.91	3.329	.563		
	Comparison group	52	244	4.69	4.185	.580	.921	.360

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[12] Std. Deviations almost the same size as the means indicates significant variance by the participants.

Figure 5. Offence Data

Proportion of Recidivists Convicted of Crime Types

- Violent offences: TC Group 20.0%, Comparison Group 36.5%
- D&A-related offences: TC Group 14.3%, Comparison Group 21.2%
- Property offences: TC Group 57.1%, Comparison Group 59.6%
- Breaches: TC Group 71.4%, Comparison Group 57.7%

■ TC Group n=35
■ Comparison Group n=52

PART IV: Research Limitations

As with any evaluation, there are a few limitations and recommendations for future research, including better equivalency between the treatment and comparison groups, further analysis on conviction types and time at risk, and modifications in the program.

Equivalency between TC group and comparison group

The research design of the evaluation was a post-test comparison group. A major challenge to this design was the creation/selection of two matched groups. Despite efforts to match the two groups on background characteristics as described in the methodology section, it is important to consider possible sampling biases that would influence recidivism rates. The TC group, for instance, demonstrated willingness to improve, acquiring cognitive abilities to work with case co-ordinators and complete the case plan. The comparison group, on the other hand, may have included individuals who did not wish to change or lacked the cognitive ability of the TC group members. Care was taken to remove from the comparison group any individuals who 'failed' or were removed from the TC. As this evaluation was post TC completion, we were unable to measure or control for these biases for the comparison group.

It should be noted that there were significant differences between the two groups on important variables such as sentence length and history of sexual offending. While regression analysis was utilized to account for significant differences between the groups on these variables, future studies should match a comparison group on these variables. Also, it is recommended that a matched comparison group be created based on TC acceptance criteria variables such as CRNA rating, substance abuse rating, and absence of untreated psychiatric issues (as they are included in the TC selection criteria); this was not possible for this evaluation. Having CRNA ratings available for the groups would be essential, administered within a 6-month period of intake. Future evaluations should include these considerations to create a stronger comparison group.

 In general, larger sample sizes result in better statistical results. The only way to increase the sample size is to give the TC project more time so that more offenders will be enrolled in the program and more offenders from the program will be released from custody.

Type of re-convictions

The current evaluation analyzes all re-convictions, treating custody sentences and community sentences as matched. Additional analysis of re-convictions with custody sentences and sentence length is recommended for follow-up research.

Time at Risk

Another limitation is that the Time at Risk for each group was from release from custody to the date of data extraction; this period may or may not have included jail time for some individuals. Further analysis should account for any jail time, i.e. subtract it for each person to get actual Time at Risk (time in the community).

The New TC

In September 2007 a shift occurred and the TC participants were more secluded from the general population. There were 15 participants in the TC group who were discharged from custody

before September 2007; we considered removing this group from analysis but due to sample size issues, it was prudent to leave them in, especially considering the results were still significant. Future evaluations, having more subjects, could remove this group from analysis.

PART IV: Summary

Summary

This evaluation examined the impact of the TC at NCC on recidivism at various follow up time periods. Completing the TC significantly reduced the odds of recidivating by 62% at six months after release, 55% at twelve months, and 60% for the full study period (average time at risk was 515 days, with a range of 81 to 958 days). At six and twelve months, the probability of reoffending for those who completed the TC was 25% and 45% respectively, while the probability of the non TC group was 44% and 61% respectively. For the full study and six month analyses, the TC participants were offence free significantly longer than the comparison group.

An analysis was conducted to determine if there were significant differences in the number and types of re-offences committed. The TC group were consistently lower on average number of offences, convictions for violent, property, or drug-alcohol related offences, and higher for breaches. The group differences were not significant, however, likely due to the small sample of recidivists and variation among participants in each group.

Combining the recidivism and re-offence analyses, there are three main conclusions to draw from this report. First, those individuals who complete the TC reoffend significantly less than those who do not complete the TC. Second, the results show that the program has the potential to significantly increase the amount of offence free time. Third, of those who do reoffend, there are indications that they reoffend less often and in a less severe manner.

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Appendix A

Interpreting logistic regression

Logistic regression predicts which of two categories a person is likely to belong to (such as recidivist or non-recidivist), given certain information (such as treatment completion, length of criminal history, and so on). For the purposes of this report, there are three key items to look for in a results table: significance level, Exp(B), and the lower and upper limits of the 95% CI (confidence interval) for the Exp(B).

- A significance level of .05 or less indicates reliable differences and therefore statistically significant results.
- The Exp(B) is the odds ratio. An odds ratio that is greater than 1.00 means that as the predictor variable increases so does the odds of the predicted variable (in this case, recidivism). An odds ratio that is less than 1.00 means that as the predictor variable increases the odds of the predicted variable decrease. An odds ratio of 1.00 indicates no effect. The further away from 1.00 (higher or lower), the greater the effect of that variable (e.g. TC completion) on reducing/increasing the odds of the predicted variable (e.g. recidivism). For example, an odds ratio of 1.5 is better than 1.2 and an odds ratio of .4 is better than an odds ratio of .6.
- The 95% CI for the Exp(B) means that 95 times out of 100, the Exp(B) will be within this range. You want results that are either greater than 1.0 for both the lower and upper or less than 1.0 for both the lower and upper.