Utah Cost of Crime

Therapeutic Communities in Secure Settings for Substance-abusing Offenders (Adults): Technical Report

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The University of Utah

Utah Criminal Justice Center

College of Social Work
College of Social & Behavioral Sciences
Utah Commission on Criminal and Juvenile Justice
S.J. Quinney College of Law
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Between 70% and 85% of the U.S. prison population is in need of some level of substance abuse treatment (Office of National Drug Control Policy, 2009). The link between drug use and crime has been substantiated in an extensive body of research, leading many to the conclusion that treatment is a necessary component of preventing offenders from reoffending after release from custody (Harrison & Groerer, 1992; Lipton, 1998; Wexler, 1995). Therapeutic communities (TCs) are a treatment option commonly used in prisons or jails to address the substance abuse treatment needs of offenders while they are incarcerated. TCs are residential settings that use a hierarchical model of care combined with treatment stages that reflect increased levels of personal and social responsibility. Unlike other treatment models, TCs utilize a “community as method” approach that sees treatment staff and those in recovery as agents of change. TC members interact in structured and unstructured ways to influence attitudes, perceptions, and behaviors associated with drug use and antisocial activities. Another fundamental component of a TC is “self-help,” where the individuals themselves are main contributors to the change process. Of all incarceration-based drug treatment programs, TCs are the most intensive and typically the longest in duration (6 to 12 months).

Therapeutic Communities (TCs) were first implemented in U.S. psychiatric hospitals in the 1950s, extending to community-based substance abuse programs in the 1960s, and eventually to prisons in the late 1960s (Canode, 2007). The development of the prison TC model can be attributed to a rapidly increasing prison population and a growing awareness of the link between drugs and crime (Wexler & Prendergast, 2010). TCs were developed as an offshoot of the Alcoholics Anonymous (AA) model in order to treat “hard core” heroin-dependent criminals. Subsequently, the model has evolved to include a broader perspective and population, serving individuals from a diverse demographic who are severely dependent on drugs (Gerstein, 1992; Wexler, 1995). The success of the TC model has led to its application with specific populations including women (Sacks et al., 2008), inmates with co-occurring disorders (Sacks, Banks, McKendrick, & Sacks, 2008), and youth (Gordon, 2002).

Prior Research
Growth in the acceptance of prison TCs has been fueled by the increase in outcome research starting in the 1980s. The main program evaluations were conducted by Cornerstone in Oregon (Field, 1985, 1989), Stay ‘n Out in New York (Wexler, et al., 1990), KEY/CREST in Delaware (Inciardi et al, 1997; Martin et al., 1999), New Vision in Texas (Knight, K. Simpson, D., & Hiller, M., 1999), Amity in California (Wexler et al., 1999, Prendergast et al., 2004), and the Federal Bureau of Prison programs (Pelissier et al. 2000). Results have generally been positive, favoring in-prison TC treatment over comparison groups.

Meta-analytic reviews of the effectiveness of TCs targeting substance abuse for reducing criminal behavior (Aos, Miller, & Drake, 2006; Holloway, Bennett, & Farrington, 2006; Mitchell, Mackenzie, & Wilson, 2007; Pearson & Lipton, 1999; Perry et al., 2009; Smith, Gates, & Foxcroft, 2006) suggest promising results. However these reviews include offenders involved in a variety of substance abuse interventions; in community-based, correction-based, and outpatient treatments; and in one case include studies evaluating
populations of offenders and non-offenders. As a result, the findings are limited and not
generalizable; nonetheless, when compared to treatment as usual, secure TCs for substance
abusing offenders are associated with lower rates of future offending. No meta-analyses
have been conducted to evaluate the impact of the TC model on recidivism among females
or juveniles.

TCs have emerged as one of the primary approaches for the treatment of substance abuse
for criminal offenders in a secure-care setting (Prendergast & Wexler, 2004), in part
because research supports their impact on recidivism. Questions persist in the literature
and research is being conducted to identify which particular program characteristics (e.g.,
length of treatment, the combination of TC and aftercare, implementation practices) are
associated with the largest effects (Farabee et al., 1999; Linhorst, Knight, Johnston, &
Trickey, 2001; Wexler & Prendergast, 2010).

Methods

Inclusion Criteria
A systematic review was conducted, in accordance with the protocol outlined by PRISMA,
to identify studies for inclusion in this meta-analysis (Moher, Liberati, Tetzlaff, & Altman,
2009). The study authors identified eligibility criteria for population, intervention, setting,
outcome, and methodology (see Methods Report for further explanation of the search
strategy). Studies had to meet the following criteria to be eligible:

a) Both experimental and quasi-experimental evaluations were eligible for
inclusion. Quasi-experimental studies had to use matching or statistical methods
to demonstrate equivalence between the treatment and comparison group. The
comparison group could receive treatment as usual, alternative treatment, or no
treatment; however, the comparison group could not consist of program drop
outs.

b) Evaluations had to utilize a therapeutic community with the following elements:
residents live in a separate unit within a secure facility (prison, jail, or
psychiatric hospital); treatment focused on substance use; peer influence,
mediated through a variety of group processes, used to help individuals learn
and assimilate social norms and develop more effective social skills; strict and
explicit behavioral norms reinforced with specific contingencies (rewards and
punishments); and progression through a hierarchy of privileges and
responsibilities. No work release, community- and/or probation-based TCs
were included. TCs for sex offenders or inmates with co-occurring disorders
were not included.

c) Evaluations had to report a post-treatment measure of criminal recidivism, such
as arrest, conviction, or incarceration – as an outcome. Recidivism data from
official sources was preferred, but studies using only self-report recidivism
measures were also eligible.

d) Included studies had to provide sufficient quantitative results to compute an
effect size. Given the interest in recidivism, dichotomous data were preferred
(e.g. odds-ratios). If the study only included continuous measures, effect sizes
were calculated and converted into odds-ratios using log odds (see Methods Report).

Retrieving and Screening Studies
The initial literature search identified 1,108 citations, from which researchers pulled 111 studies for further evaluation. Full articles were screened by one researcher, which resulted in 30 studies that met inclusion criteria. After removal of studies that were ineligible or used overlapping samples, 21 studies met inclusion criteria and were coded. Twenty-percent (20%) of the full text articles (k=22) were double-screened for inclusion by a researcher. Nine of the included studies were identified as follow-up reports on the same study population. In order to avoid statistical dependence created by using multiple effect sizes from the same population, outcomes were included for only one timeframe from each study. Because the cost model was based on three to five year recidivism rates, the outcome closest to this timeframe was used in the analysis. In total, 20 studies (representing 25 comparisons and 29 manuscripts) were included in the final analysis (see Appendix A for PRISMA chart).

Extracting Data
The research team developed a detailed code sheet and manual, which included variables related to study quality, program characteristics, participant characteristics, and treatment variables (see Methods Report for a full description of coding variables). One author coded all of the studies and entered the data into an Excel spreadsheet. Ten percent (10%) of included studies were double-coded (k=2), by a second researcher; discrepancies were resolved through discussion. To assess study quality, the authors used a modified version of The Maryland Scale of Scientific Rigor (Aos, Phipps, Barnoski, & Lieb 2001; Gottfredson, MacKenzie, Reuter, & Bushway, 1997). Studies that received a rating lower than “3” (unmatched comparison group or no comparison group) out of five possible points, were excluded. Where studies reported multiple measures of recidivism, researchers selected the broadest measure (e.g., arrest over conviction). Outcome data were collected on general recidivism only. Studies were classified as secure-based if the intervention took place in a prison, jail, or psychiatric hospital. Studies were classified as including aftercare if participation was mandatory following secure TC completion. In cases where aftercare was voluntary, the TC-only group comparisons were included and the TC with aftercare group was excluded.

Analysis
Data were coded into an Excel spreadsheet, which allowed researchers to calculate descriptive statistics for the full sample. The authors then recoded variables, to condense data into comparable units wherein each study contributed only one effect size to each outcome measure, and entered those into Comprehensive Meta-Analysis (CMA, version 2). Using CMA, the authors assessed heterogeneity using the Q and I-squared statistics (see Results section). The Q statistic is a test of the null hypothesis: a significant value (p<.05) indicates that the variation between studies was greater than one would expect if the difference could be explained entirely by random error (Borenstein, Hedges, Higgins, & Rothstein, 2009). Because the Q statistic is not a precise measure of the magnitude of dispersion between studies, the authors conducted additional analyses to quantify the
proportion of variance that could be attributed to differences in study characteristics (such as setting, population, and intervention). The I-squared statistic (values range from 0% to 100%) provides an estimate of how much of the variation between studies can be explained by random error: values near 0 indicate that all of the difference can be explained by random error. Values at 25%, 50% and 75% are, respectively, considered low, moderate, and large heterogeneity (Piquero & Weisburd, 2010). Given the range of study characteristics present in this sample, a random effects model, which assumes variability between studies differences (Piquero & Weisburd, 2010), was used to generate a summary effect size for each outcome measure. All data was coded and transformed into odds-ratios, with values above one (1) indicating a negative treatment effect and values below one (1) indicating a positive treatment effect (i.e., reduced recidivism rates for offenders who participated in treatment).

Results

Sample Characteristics
All studies evaluated secure TCs for substance abusing offenders in the United States. Five of the reports were unpublished technical reports, conducted by government or private entities, and the remaining studies were published in peer-reviewed journals (15). Two studies received a score of five out of five on study quality and the remaining studies (90%) received a score of three or four. Three studies reported the outcomes for more than one TC, which were analyzed as separate samples. Six studies, representing seven comparisons, examined TCs that only served female offenders. Only one comparison evaluated a TC with mandatory aftercare. One evaluation was conducted in jail, with all others occurring in prisons. The majority of comparisons (21) evaluated TC participation as the treatment condition, compared to “treatment as usual.” Most of the studies (65%) included multiple outcome variables and follow-up periods. Follow-up periods ranged from six months to five years. The 20 included studies represent 25 independent comparisons. The total sample size ranged from 217 to 12,230 and the entire sample describes 10,611 offenders participating in TC and 15,158 offenders in comparison groups (see Appendix B for characteristics of included studies).

Table 1 Characteristics of studies included in meta-analysis (N=20)

<table>
<thead>
<tr>
<th>Study Characteristics</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Publication type</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peer-reviewed journal</td>
<td>15</td>
<td>75</td>
</tr>
<tr>
<td>Unpublished technical report</td>
<td>5</td>
<td>25</td>
</tr>
<tr>
<td><strong>Sample location</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U.S.</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>Canada</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Other</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Methodological Quality</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5: Random Control Trial (RCT)</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>4: High quality quasi-experimental</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Study Characteristics</td>
<td>Frequency</td>
<td>%</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>-----------</td>
<td>----</td>
</tr>
<tr>
<td>3: Quasi-experimental with testing or matching</td>
<td>17</td>
<td>85</td>
</tr>
<tr>
<td>Dropouts enumerated</td>
<td>14</td>
<td>70</td>
</tr>
</tbody>
</table>

1 Employs a quasi-experimental research design with a program and matched comparison group, controlling with instrumental variables or Heckman approach to modeling self-selection; May also include RCT with problems in implementation.

**Meta-analysis**

General recidivism for both male and female offenders combined was examined in 25 comparisons. In 20 of those, results favored the intervention (15 were significant at p<0.05). The odds-ratios for general recidivism ranged from 0.25 to 1.14. The random effects mean odds-ratio was 0.68 (95% CI of 0.60 to 0.75, p<0.001), indicating that the treatment groups had significantly lower rates of general recidivism than the comparison groups (see Appendix C). The Q test revealed significant heterogeneity between studies ($Q=60.74, df=24, p<0.01, I^2=60.49$), which means that the studies did not share a common effect size. Following the omnibus meta-analysis, studies were grouped by gender for further moderator analysis.

**General recidivism by gender.** Secure TCs for males were the most commonly evaluated program (18 comparisons). Fourteen comparisons favored treatment (12 significant at p<0.05). The random effects mean odds-ratio was 0.69 (95% CI 0.61 to 0.78, p<.001) indicating a significant reduction in recidivism for the intervention group. The Q test revealed significant heterogeneity (p<0.001). Secure TCs for females were evaluated in 7 comparisons (6 studies), of which 6 favored the treatment (3 significant at p<0.05). The random effects mean odds-ratio was 0.63 (95% CI 0.5 to 0.79, p<.001) indicating a significant reduction in recidivism for the intervention group. The Q test was not significant (p=0.31), which means that the effects are generally homogeneous and the mean OR is representative of the effects across studies. The between-groups Q test was not significant ($Q =0.46, df=1, p=0.50$). This suggests that although there is a slightly larger effect for females in TCs than males (OR 0.63 vs. 0.69), this difference is not statistically significant.

None of the included studies that followed TC participation with aftercare allowed us to make a direct comparison between TCs with and without aftercare; however, findings point to the effectiveness of coupling the two approaches.

**Limitations**

Any meta-analysis is only as good as the comprehensiveness of the sample of included studies. While the authors sought to identify all eligible studies, the possibility exists, nonetheless, that the search did not identify all the extant research on Therapeutic Communities (TC) in secure settings. In some cases, the researchers identified studies that appeared to meet inclusion criteria, but were unable to obtain those studies, despite extensive searching. Furthermore, the results of a meta-analysis depend on the quantity and quality of the available primary research. Only two of the included studies were random control trials. Finally, the studies included here reflect significant heterogeneity in terms of offenders, settings, dosage, study quality, and outcome measures. While the
researchers created narrow inclusion criteria to account for study-level differences, future research should examine those study characteristics in moderator analyses, to identify specific treatment characteristics that are associated with the largest treatment effects.

References


**Included Studies**

Note: The studies marked with the asterisk (*) were included in the analyses reported here. Studies without an asterisk are eligible but statistically dependent.


APPENDIX A: Search Results

Search: Title and Abstract
Search Limiters: Date Range
(1987-2011), English

Records identified through database searching and other sources

Articles screened by reviewing abstracts:
1. Exclude reviews, theoretical articles, or correlational studies
2. Exclude studies that do not have a comparison group
3. Exclude dissertations
4. Exclude articles unable to be obtained
5. Exclude studies conducted outside the U.S. or Canada that are not published in peer reviewed journals

111 reports meet inclusion criteria
Full text of all articles procured and printed for screening and review.

Articles screened by reading full-text articles.
Criteria 1-5 above plus additional criteria:
6. Must report on a quantitative outcome variable of recidivism
7. Must demonstrate equivalence between treatment and comparison groups
8. Must meet specific TC program criteria

21 studies meet final inclusion criteria.

1 study excluded for statistical dependence

20 primary studies of secure TCs for substance abusing offenders coded and included in Meta-analysis (reflecting 29 reports)
## APPENDIX B: Table of Included Studies

<table>
<thead>
<tr>
<th>Author</th>
<th>Date</th>
<th>Population</th>
<th>N in Each Group</th>
<th>Study Design</th>
<th>General Recidivism</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Treatment</td>
<td>Control</td>
<td></td>
</tr>
<tr>
<td>Daley et al.</td>
<td>2004</td>
<td>Adult Male</td>
<td>72</td>
<td>545</td>
<td>Convenience with testing</td>
</tr>
<tr>
<td>Duwe</td>
<td>2010</td>
<td>Adult Male</td>
<td>926</td>
<td>926</td>
<td>Matched</td>
</tr>
<tr>
<td>Fabelo &amp; Eisenberg</td>
<td>1999</td>
<td>Adult Male</td>
<td>279</td>
<td>395</td>
<td>Convenience with testing</td>
</tr>
<tr>
<td>Inciardi et al.</td>
<td>1997</td>
<td>Adult Male</td>
<td>37</td>
<td>180</td>
<td>Convenience with testing</td>
</tr>
<tr>
<td>Inciardi et al.</td>
<td>1997</td>
<td>Adult Male</td>
<td>43</td>
<td>180</td>
<td>Convenience with testing</td>
</tr>
<tr>
<td>Klebe &amp; O’Keefe</td>
<td>2004</td>
<td>Adult Male</td>
<td>418</td>
<td>232</td>
<td>Convenience with testing</td>
</tr>
<tr>
<td>Messina et al.</td>
<td>2003</td>
<td>Adult Female</td>
<td>168</td>
<td>125</td>
<td>Matched</td>
</tr>
<tr>
<td>Mosher &amp; Phillips</td>
<td>2006</td>
<td>Adult Female</td>
<td>279</td>
<td>279</td>
<td>Matched</td>
</tr>
<tr>
<td>Olson &amp; Rohzon</td>
<td>2011</td>
<td>Adult Male</td>
<td>4152</td>
<td>8078</td>
<td>Convenience with testing</td>
</tr>
<tr>
<td>Pealer &amp; Latessa</td>
<td>2002</td>
<td>Adult Male</td>
<td>273</td>
<td>258</td>
<td>Convenience with testing</td>
</tr>
<tr>
<td>Pelissier et al.</td>
<td>2000</td>
<td>Adult Male</td>
<td>948</td>
<td>894</td>
<td>Convenience with testing</td>
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<tr>
<td>Pelissier et al.</td>
<td>2000</td>
<td>Adult Female</td>
<td>245</td>
<td>228</td>
<td>Convenience with testing</td>
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<tr>
<td>Peters et al.</td>
<td>1993</td>
<td>Adult Male</td>
<td>168</td>
<td>252</td>
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<tr>
<td>Prendergast et al.</td>
<td>2004</td>
<td>Adult Male</td>
<td>341</td>
<td>235</td>
<td>Random</td>
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<tr>
<td>Sacks et al.</td>
<td>2008</td>
<td>Adult Female</td>
<td>163</td>
<td>151</td>
<td>Random</td>
</tr>
<tr>
<td>UDC – Con-Quest</td>
<td>2011</td>
<td>Adult Male</td>
<td>395</td>
<td>395</td>
<td>Matched</td>
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<tr>
<td>UDC – Ex-Cell</td>
<td>2011</td>
<td>Adult Female</td>
<td>115</td>
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<td>UDC – Hope</td>
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<td>Watson et al.</td>
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<td>Adult Male</td>
<td>164</td>
<td>173</td>
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<tr>
<td>Welsh</td>
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<td>Adult Male</td>
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<td>491</td>
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<tr>
<td>Wexler et al.</td>
<td>1990</td>
<td>Adult Male</td>
<td>435</td>
<td>159</td>
<td>Convenience with testing</td>
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<td>Wexler et al.</td>
<td>1990</td>
<td>Adult Male</td>
<td>435</td>
<td>261</td>
<td>Convenience with testing</td>
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<tr>
<td>Wexler et al.</td>
<td>1990</td>
<td>Adult Female</td>
<td>247</td>
<td>38</td>
<td>Convenience with testing</td>
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<tr>
<td>Wexler et al.</td>
<td>1990</td>
<td>Adult Female</td>
<td>247</td>
<td>113</td>
<td>Convenience with testing</td>
</tr>
<tr>
<td>Zhang et al.</td>
<td>2009</td>
<td>Adult Male</td>
<td>294</td>
<td>403</td>
<td>Matched</td>
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</table>

**Total Sample = 25,769**