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Final Report:
**An Exploratory Analysis of Client Outcomes, Costs, and
Benefits of Day Reporting Centers**

National Institute of Justice Grant 97-IJ-CX-0006

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Abstract

The role of community corrections has expanded in recent years. As a result, day reporting centers have developed as an important approach to providing surveillance, as well as treatment and rehabilitation opportunities. This exploratory study first examined rearrest among clients in two day reporting centers that serve high risk/high need probationers with substance abuse problems. One program is located in a rural area and the other is located in an urban area. Next, it compared DRC clients to two comparison groups of probationers. One group corresponds to the population eligible for DRC programs and the other group consists of high risk/high need probationers who are the target population for the DRC programs. The study also examines the net benefits(costs) to the criminal justice system of both day reporting centers. Because of the small sample sizes and exploratory nature of the study, the results are suggestive and impressionistic rather than definitive.

Logistic regression models indicate that completion of the DRC program was associated with a lower chance of rearrest. This model also supports dominant findings in the literature that extent of prior record is a strong predictor of future criminality and that younger offenders tend to have higher recidivism.

Subsequent models compared DRC completers and the High Risk/Need Comparison Group. Rearrest was related to the commonly found personal characteristics of age, offense, and prior record, rather than factors important to DRC program participation. In other words, while bivariate associations indicate that DRC completers had significantly lower recidivism than those in the High Risk/High Need Comparison Group, the differences do not appear to be due their DRC participation.

In terms of annual economic impact, the average DRC program completer in the rural program appears to save the criminal justice system approximately \$1893 during the 12-month follow-up period. In the urban county, probation officers primarily referred their most troublesome supervisees (who also tended to be of highest risk and need) to the DRC as an alternative to revocation. Perhaps because of this characteristic of the DRC clients, the average program completer costs the system of approximately \$359. Without access to the DRC, however, cost to the system would have been much greater.

1. Introduction

Intermediate sanctions are increasingly important to courts and correctional systems as convictions increase and concomitant incarceration costs soar. Day reporting centers (DRCs) are one approach to providing intermediate sanctions that attempt to simultaneously respond to the above conditions and to meet several important goals, including providing equitable punishment, ensuring public safety, rehabilitating offenders, and providing cost-effective and cost-beneficial programs (Corbett 1992). This paper reports on a study of client outcomes in two DRCs that serve probationers.

Curtin (1992) describes DRCs as a "concept" that can be adapted to a variety of offender populations, treatment needs, and rehabilitation or supervision goals. Even so, they tend to have some relatively consistent purposes and characteristics. The National Institute of Justice (NIJ) identified several primary, frequently overlapping, purposes of DRCs: (1) provide enhanced surveillance for offenders who are having problems abiding by supervision conditions, or who require more supervision than normally available; (2) provide or broker treatment services; and/or (3) target offenders who would otherwise be confined, thereby reducing prison or jail crowding. As mechanisms to serve these purposes, NIJ found that DRCs generally contained the following three elements: (1) Offenders report to the center regularly and frequently as a condition of supervision; (2) The number of contacts per week is greater than clients would receive through normal community supervision; and (3) The programs provide or refer clients to services not available to offenders outside the DRC, or not available in as focused or intensive a manner (Parent et al. 1995).

2. Summary of Research on Day Reporting Centers

DRCs began in Great Britain in the late 1960s, but most centers in the United States began operating after 1990. Because of their relatively recent development, very few studies of DRC outcomes have been published. In the most comprehensive study to date, McDevitt and Miliano (1992) examined the six DRCs in Massachusetts. All of these DRCs were designed to provide early release from relatively short incarceration periods. All but one center required treatment for any problems identified, and all required urine testing for illegal drugs. In addition, clients who had a recent major violation of institutional rules could be admitted to the DRC. Analysis showed that the programs did, in fact, provide early release, and that clients' low rates of return to incarceration indicated that their presence in the community did not endanger the public. The average length of stay in the Massachusetts programs was six to eight weeks and most clients had been convicted of drug, alcohol, or property offenses. Overall, 79% successfully completed and 5% failed to complete; the remainder left early for administrative reasons. Notwithstanding these results, the fact that the selection criteria excluded individuals with disciplinary infractions may have yielded a DRC population of relatively low-risk offenders from whom one would expect better than average outcomes. Also, clients were routinely returned to custody if they did not complete the program successfully.

A recent study of a DRC in North Carolina found a completion rate of about 13.5% (Marciniak 1999). This program differs from the Massachusetts programs in important ways. It is of 12-months duration and aimed at more serious and primarily substance-abusing offenders, a substantial portion of whom would be prison-bound if the DRC were not available. Also the evaluation included consideration of program completion during the early implementation of the

program. Hence, the instability common in new programs no doubt contributed to the low completion rate. A subsequent study of 15 other similar DRCs in North Carolina, conducted after their initial implementation period, showed a 43% completion rate. Most of these programs were designed to last six months, although some were 12-month programs (Craddock and Overman 1999).

Some Massachusetts programs used electronic monitoring as an adjunct to DRC participation, but it had little effect on program security and absconding. Anecdotal evidence indicates that the presence of electronic monitoring may have deterred some individuals from misconduct, but its real value was in helping to allay the concerns of residents in the communities surround the DRCs. McDevitt and Miliano (1992) concluded that DRCs are very attractive because they can be flexible enough to serve a broad range of offenders and to implement a wide array of programs. These authors caution, however, that a DRC's flexibility should not be extended to the point that the structure of the program cannot provide the support and treatment necessary to help offenders make the transition away from crime.

In the absence of a substantial body of research on DRCs, studies of other forms of community corrections and supervision are instructive. Generally, studies suggest that some programs succeeded in providing adequate community supervision and treatment without increasing current recidivism rates, but evidence for success in actually reducing recidivism or rehabilitating offenders is weak and contradictory. One rather consistent finding, however, is that offenders who received treatment in addition to correctional services/supervision had more successful outcomes than those who received supervision alone (e.g., U.S. General Accounting Office 1990 ; Williams 1990; Jones 1991 ; Shaw and MacKenzie 1991 ; McDonald, Greene, and Worzella 1992 ; Petersilia and Turner 1991, 1993 ; Davies 1993; Diggs and Pieper 1994 ; Gendreau, Cullen, and Bonta 1994 ; MacKenzie and Souryal 1994).

3. Description of Programs in the Study

This study examined two DRCs in Wisconsin, one in Baraboo, a town of 9,000 in a mostly rural county of about 47,000, and the other in La Crosse, a small city of 50,000 in a county of almost 100,000. In this discussion, the former is referred to as the “rural” and the latter as the “urban” program (although it is in a relatively small urban area). Both programs operate under contract to the state Department of Corrections (DOC) and serve probationers throughout their respective counties. The DRCs are designed to serve offenders who are substance abusers, who are considered to be at high risk for reoffending, and who have a relatively high level of need for services, as determined by their initial probation classification assessment.

The primary therapeutic goal of these DRCs is to assist offenders in achieving responsible, crime- and drug-free living within their own community. Both centers are operated by the same private, nonprofit organization and have almost identical schedules and content. Phase I of the standard DRC program regimen (at both DRC locations) lasts four weeks and clients attend five days per week, five hours per day; Phase II also lasts four weeks, and required attendance reduces to three days per week, five hours per day; Phase III lasts four weeks and further reduces required attendance to two days per week, five hours per day. Phase IV is aftercare; it consists of three months of programming, beginning with one visit per week in the first month, reducing to once every two weeks in the second month, and one final meeting during the final month. DRC staff members reported that aftercare is rarely formally used. While most clients receive this standard programming, both centers also offer abbreviated programming. A twelve-week evening program, eight hours per week, is available to individuals who work full-

time during the day and are determined to need less than the full complement of treatment available. Case managers develop treatment plans based on clients' specific and greatest needs.

Movement to the next phase requires satisfactory progress toward completion of the treatment contract made at admission (including program attendance and no urinalyses positive for drugs). It is possible to move to the next phase more quickly than the prescribed four weeks. By the same token, individuals who do not progress satisfactorily may be retained in one phase until they successfully complete the goals of that phase and of their individual treatment plans. All clients have a case manager who works with them to develop a treatment plan, monitors their progress, provides limited individual counseling, and coordinates clients' activities with probation officers and representatives of other agencies.

Program content addresses three general areas: alcohol and other drug abuse (AODA), criminality, and independent living skills. AODA programming includes sobriety support groups, denial focus groups, drug education groups, treatment groups, individual counseling, family/significant other counseling (individual and group), and urine monitoring. Criminality issues are addressed via group treatment in rational behavior therapy, corrective thinking, and aggression replacement training. The independent living skills component of the program provides training in employment readiness, income management, and parenting, along with family and personal issues counseling. Some clients in the urban program live in monitored apartments as part of a program operated by the same organization as the DRCs, but it is not part of the DRC program. This transitional living program is not considered residential treatment because therapeutic programming does not occur nor is there full on-site staff coverage. A more comprehensive description of these programs and their process is available in Craddock and Graham (1996).

4. Research Design and Analysis Methodology

The two goals of the study were to describe the recidivism of DRC clients, and to compare those outcomes to relevant groups of probationers. The following research questions framed the analysis:

- ◆ Were DRC clients who completed the program less likely to be arrested than those who did not?
- ◆ Were DRC clients less likely than other probationers to have further arrests?
- ◆ What factors were associated with rearrest of DRC clients and probationers?
- ◆ Did the benefits of programs to the criminal justice system offset their costs?

4.1 Selection of Study Groups

The study included all DRC clients who were admitted on or after July 1, 1991 who were discharged by April 30, 1994. Individuals were defined either as “completers” if they were listed in the DRC’s management information system (MIS) as having completed the program or as referred to aftercare. “Noncompleters” consisted of those who dropped out, absconded, were rearrested, were withdrawn by the probation officer for violations or other reasons, or were discharged for noncompliance with program rules. Clients who did not complete the program due to administrative reasons (e.g., moved to another state) were deleted from the recidivism analysis because they had not technically had the opportunity either to complete or to fail to complete the program. Overall, 137 rural program clients and 94 urban program clients had sufficient data for inclusion in the analysis.

The comparison groups consisted of probationers in the two counties in the study who met the eligibility requirements for the DRCs but who did not participate in either program during the study period. The only formal eligibility or exclusion criteria for the DRCs were that individuals have an AODA problem and that they are at least 18 years of age. Next, the analysis examined the sex, age, racial/ethnic, and offense characteristics of the DRC clients to determine whether any general types of offenders were not represented in the programs, even though they were eligible. The rationale for doing so was that if no individuals of a particular type (e.g., females, Hispanics) participated in DRC programs, then this characteristic is a *de facto* exclusion criterion. Here, the only such characteristic applied only to the rural program, where no women participated in the program. Because the number of women probationers eligible for the rural program was relatively small, they did not participate in the regular DRC programming. It is generally considered therapeutically counterproductive to have treatment groups that include only one woman, so this center periodically offered a special program for female offenders.

Finally, the study required a follow-up period for DRC clients and the comparison group. The examination of outcomes followed DRC clients for 12 months after leaving the program. A preliminary analysis to determine the follow-up period for the comparison group indicated that individuals were typically admitted to the DRCs an average of 3.5 months after being placed on probation. For this reason, probationers who had not been rearrested before the middle of the third month of supervision were followed for 12 months beyond that point (i.e., 3.5 months to 15.5 months after probation admission). Therefore, offenders placed on probation in 1992-1993, who were at least 18 years of age, with a drug or alcohol problem of any severity, and who had not been rearrested in the first 3.5 months of their probation period comprised the pool from which DRC clients were most likely to be selected. This group is referred in the analysis as the

Full Comparison Group. The full comparison group for the rural program included 175 probationers, and the full comparison group for the urban program included 137.

The study also included a second comparison group for more detailed analysis. Preliminary analysis verified that DRC clients on average had significantly higher scores than the Full Comparison Group on the classification scales for risk of reoffending and need for various types of services. Therefore, a subset of the Full Comparison Group was created (for each county separately) based on whether individuals fell into the lower, middle, or upper third of the distribution of scores (in each county) on either risk or need. Preliminary analysis showed risk and need scores to be significantly and positively correlated, indicating that individuals with high-risk characteristics also tended to have a high need for services. Therefore, these measures were interchangeable for the present purposes. Those in the Full Comparison Group whose risk or need score fell into the upper third of the distribution of scores were defined as “high” risk or need. This group is designated as the *High Risk/High Need Comparison Group* in the analyses.

To summarize, the analyses compared the following groups: DRC completers vs. DRC noncompleters; all DRC clients vs. the Full Comparison Group; all DRC clients vs. the High Risk/High Need Comparison Group; DRC completers vs. the Full Comparison Group; and DRC completers vs. the High Risk/High Need Comparison Group.

Because of the exploratory nature of this project, this discussion reports results that had a significance level, indicating at least a 90% chance that any relationship observed did not occur by chance (i.e., $p < .10$). For continuous variables, difference of means tests ascertained whether the differences observed between two average values of a particular variable across study groups occurred by chance. Where multivariate modeling was possible, logistic regression analysis combined observations from both programs and their respective comparison groups to examine the (log) likelihood of rearrest.

4.2 Data and Measures

Three types of data were available for the study: personal characteristics of the DRC clients and comparison group members, prior record and rearrest data for DRC clients and comparison group members, and cost data for the DRC programs and criminal justice system.

4.2.1 Personal Characteristics

Table 1 presents descriptive statistics for the full range of demographic variables available for analysis. All individual level data for all study groups came from computerized DRC MIS and DOC MIS records. Neither MIS provided extensive information on personal characteristics. Two problematic characteristics of the DRC MIS are noteworthy. The DRC MIS combines assaults and public order offenses (such as disorderly conduct) into one category. It was not always possible to identify the offense from another source, so it was necessary to use the DRC's categorization. Doing so severely limited the analysis of the effect of offense type on recidivism. In addition, because the MIS contained no information on program participation, the analysis could not address the potential effects of program performance, amount and types of services received, the existence of program rule violations, or whether a client was in the standard program or the abbreviated version with fewer contact hours.

Although Table 1 shows adequate original sample sizes, sample attrition occurred due to missing records or missing data in various files. This sample attrition also made it inappropriate to pursue more sophisticated modeling of rearrest (e.g., event history analysis). After sample attrition, the demographic characteristics of the cases available for analysis did not differ significantly from the original sample characteristics presented in Table 1.

— Insert Table 1 about here —

4.2.2 Prior Criminal History and Recidivism Measures

Data on prior record and recidivism came from the state criminal history information system and the motor vehicles division (which maintains data on driving while intoxicated).

The outcome analyses examined the likelihood of at least one arrest in the 12-month follow-up period, defined above. Arrest was the outcome measure of choice for two reasons. First, arrest is arguably the best available indicator of actual criminal activity. In addition, court disposition information was missing for a substantial percentage of arrests.

4.2.3 Cost Measures

To examine whether savings offset DRC costs elsewhere in the criminal justice system, criminal justice system costs of DRC clients were compared to those of the comparison groups of probationers. Specifically, the analysis considered non-capital direct expenditures only, e.g., no construction or intergovernmental transfer costs. All cost estimates used local expenditures as reported by the agencies for which estimates were derived, and adjusted state and/or national estimates only when necessary. Section 7 presents detailed cost calculations.

The analysis used a net benefit(loss) model to examine whether these recidivism costs for the DRC client group were sufficiently lower than those for the comparison group to offset the DRC costs. The net benefit of providing DRC programming is the difference between the comparison group member cost and the DRC client costs. Because the primary interest is the difference in costs between groups, the formulas exclude costs that are identical (constant) for both groups. For example, because no data suggest that the arrest, disposition, incarceration, and/or probation costs for the offense for which the individual was under supervision during the study period differ between the two groups on average, the formulas excluded these costs.

Separate cost estimates were calculated for each study group in both DRC locations: all DRC clients, DRC Clients who completed the program, DRC Clients who failed to complete the program, the Full Comparison group, and the High Risk/High Need Comparison group.

Before the beginning of the follow-up period, the only difference between the cost of a DRC client and a comparison group client was the cost of the DRC, and perhaps the cost of other programming received by the comparison group members (which some DRC clients may also have received). The possibility of estimating this latter cost was investigated, but the MIS did not contain sufficient information to determine who in the sample received programming. The total cost of probation supervision includes this cost, however.

The first step in analyzing recidivism costs for each group listed above was to calculate the recidivism rate (RR) by dividing the number rearrested by the total sample size. The recidivism rate is, in effect, the probability that any one individual will be rearrested during the follow-up period.

The additional cost incurred by rearrested individuals is the recidivism cost (RC), which includes: costs of criminal investigation, arrest, and booking (AC); judicial process, prosecution and legal services, and public defense (DC); additional costs incurred if the rearrest leads to incarceration (IC); and a weighting factor that reflects the mean number of arrests during the follow-up period (AW). Incarceration cost (IC) is adjusted by the conviction rate (CR) and the timing of the first arrest during the follow-up period (AT). The timing of rearrest (AT) is measured as the number of weeks after the beginning of the 12-month follow-up period to the first arrest. It is expressed in this equation in terms of the proportion of the follow-up period that the person is estimated to have spent incarcerated, based on when the recidivism arrest occurred. No available data suggest that actual recidivism costs differ whether the rearrested client is from

the treated group or from the comparison group. Therefore, the calculations assume that the *per capita* recidivism cost structure is the same for both groups. RC is calculated as:

$$RC = ((AC+DC)AW) + (CR(IC(1-(AT/52.14))))$$

Multiplying the DRC client group (RR_t) or comparison group (RR_c) rearrest rate times the recidivism cost (RC) yields the expected cost to the system of a person from either group.

Adding the treatment cost for the DRC clients (TC) gives the cost equations for the two groups:

$$\text{DRC Client Cost} = RR_t(RC_t + TC)$$

$$\text{Comparison Group Member Cost} = RR_c RC_c$$

The net benefit or loss to the criminal justice system of providing services to offenders is the difference between the comparison group cost and DRC client cost:

$$\text{Net Benefit (Loss)} = (RR_c RC_c) - ((RR_t RC_t) + TC)$$

If the result is positive, this indicates that the comparison group costs to the criminal justice system are higher than DRC client costs, yielding a net benefit of DRC participation. If the result is negative, this indicates that DRC participation produces a net economic loss to the criminal justice system.

4.3 Methodological Limitations

Several aspects of the research setting limited the methodological choices. A prospective study, preferably using experimental design would have been the approach of choice, but the size of the programs and duration of the project did not allow for its use, nor did the DOC and program director did not approve of an experimental design in this situation. This approach would have required about five years to complete, given the flow of clients through the program. The funding level also dictated that the study use computerized record-based data, rather than interviews or record extraction of DRC or DOC files.

Such limitations are common in exploratory studies. Presumably, future studies will use more rigorous methodologies that can yield greater confidence in the findings.

5. Rearrest of Day Reporting Center Clients

The first part of the outcome analysis examined the rearrest of DRC clients only, without making comparisons to the rearrest of probationers. In the rural program, 61.3% of the clients completed the program, as did 41.1% in the urban DRC. In comparison, Parent, et al. (1995) reported a national DRC average of 50% completion.

Overall, a smaller proportion of clients who completed the program were rearrested compared to those who failed to complete. In the rural program, 16.7% of the completers were rearrested compared to 28.3% of noncompleters. This difference was not statistically significant. In the urban program, 18.9% of the completers were rearrested compared to 37.7% of noncompleters; this difference was significant ($p = .06$). The mean number of weeks that elapsed between discharge and the first arrest, for those rearrested within twelve months, was between 14 and 17 weeks regardless of completion status or program location. Difference of means tests between groups were not significant.

A more detailed examination of the relationship between program completion and rearrest looked at both programs together. Logistic regression analysis modeled the log-likelihood of rearrest for all DRC clients in each program using completion status along with all variables from Table 1. Exploratory models were estimated in a stepwise manner due to the small sample sizes. Again, because of the exploratory nature of the study, parameters entered the models if the Chi-square was significant at at least the .10 level, rather than the standard and more stringent .05 criterion. Log-transformations of income and age (natural log) did not improve their distributions, so the models used untransformed measures. Even though the sample sizes were larger than those described in the analysis of outcomes for program

completers, they were still small, and results should be viewed as suggestive. The small sample sizes also precluded consideration of additional variables that examined interaction effects. Multicollinearity testing examined the tolerances for each parameter. Using the guidelines in Allison (1999), a tolerance of .40 or less indicated multicollinearity. The statistic for age at DRC program admission (.36) and age at first arrest (.36) indicated that only one should be included in the modeling process, as did the statistic for income at admission (.35) and income at discharge (.32). Since there were fewer missing observations for age and income at admission, these were the variables of choice.

Table 2 presents the final reduced models of rearrest. The global chi-square and the Hosmer and Lemeshow statistic both indicate that the model performs better than chance, although neither are particularly robust measures. The maximum rescaled R^2 statistic of .31 indicates that the specific set of independent variables have some ability to predict the dependent variable; a value of 0 indicates a prediction no better than chance, and a value of 1 indicates perfect prediction. It does not have the same properties as the R^2 statistic in linear regression (Allison 1999). Although this model performs better than chance, the parameters do not constitute strong predictors of rearrest.

— Insert Table 2 about here —

Five variables predicted rearrest in the 12-months after leaving the DRC program. Completion of the DRC program was associated with a lower chance of rearrest, as was a current conviction for a property offense (compared to offenses in the “other” category). Current offense had the largest standardized parameter estimate, indicating that a change in its value (from 0 to 1, or vice versa) produced the largest change in the dependent variable. The higher a

person's income and age at admission to the DRC, the less likely he is to be rearrested, as well.

Finally, each previous arrest incrementally contributed to a higher chance of rearrest.

Examination of the standardized parameter estimates indicates that this model supports dominant findings in the literature that extent of prior record is a strong predictor of future criminality and that younger offenders tend to have higher recidivism. Given the R^2 analog of .31, it is clear that the independent variables did not predict the value of the dependent variable well, most likely because other important factors were not available for analysis. It does, however, indicate that DTC completion independently affected recidivism, net of the effect of the other factors considered.

6. Rearrest of DRC Clients Compared to Probationers

The second part of the study separately compared DRC clients overall and DRC completers to the two subgroups of probationers -- the Full Comparison Group (all DRC-eligible probationers) and the High Risk/High Need Comparison Group (see Table 3). The only relationship that yielded a significant difference in the likelihood of rearrest was the comparison between DRC completers and the High Risk/High Need Comparison Group in the rural program.

— Insert Table 3 about here —

In the urban program, no significant differences in recidivism existed between any DRC clients group and any comparison group. This preliminary analysis suggests that the group referred to the DRC in the urban area may have been much more prone to recidivism than those in the rural are and that DRC completion may have helped reduce recidivism, but the rearrest rate was still high compared to that of other high risk/high need probationers and indeed to DRC-eligible probationers overall.

Table 4 shows the offense category for the first recidivism arrest. In the rural program, the most common recidivism arrest among DRC clients was for probation violations, while for both comparison groups it was DWI. This relationship suggests that DRC clients were rearrested for less serious criminal activity than comparison group members. It is difficult to compare recidivism offenses to current offenses, due to the problem of how the DRC MIS coded offense (as discussed in Section 4). Given that probation violations were the predominant recidivism offense, though, it seems plausible that DRC clients' rearrest offense was likely to be less serious

than the offense for which they were on probation when admitted to the DRC program. It is also notable that DRC clients had a much smaller proportion of DWI arrests than either comparison group, although DRC completers had a larger proportion of DWI arrests than noncompleters.

In the urban program, DRC completers were most often rearrested for Public Order offenses, while noncompleters were rearrested for Person offenses. This finding may indicate that even when DRC completers commit new offenses, they tend to be less serious than the offense for which they were on probation when admitted to the DRC. DWI was the most common rearrest offense for the Full Comparison Group. For the High Risk/High Need Comparison Group, DWI and Public Order offenses were the most common. On the other hand, DRC completers had no DWI recidivism arrests.

All percentages in Table 4 require cautious interpretation, because the small sample sizes for each subgroup mean that these percentages frequently represent only one or two cases.

— Insert Table 4 about here —

Logistic regression analysis modeled rearrest for DRC completers and the High Risk/High Need Comparison Group. Because of the small sample size, models combined both programs and included the program identifier as an independent variable. Comparison between these two study groups was the only one appropriate to use for further analysis because it had the only significant difference in rearrest by study group, whether programs were examined separately or together.

The range of variables available for this analysis was more limited than for the analysis of DRC clients, because most of the variables were not available for the comparison group. The variables included in this modeling process were age, number of prior arrests, program

(rural/urban), and current offense (coded identically to the DRC client analysis). Again, regression diagnostics indicated multicollinearity between age at DRC/probation admission and age at first arrest; age at DRC/probation admission only was entered into the models.

Table 5 shows the model that compares DRC completers and the High Risk/Need Comparison Group. These two groups reflect the DRC target population. Not surprisingly, it indicates that as age increased, the likelihood of rearrest decreased, while having more prior arrests increased the likelihood. Those convicted of property offenses had a lower likelihood of rearrest compared to “other” offenses. The factor indicating whether the person was a DRC client or a member of the comparison group was not significant, nor were the other available factors (i.e., race and whether the person was in the rural or urban program). These results imply that rearrest was related to the commonly found personal characteristics of age, offense, and prior record, rather than factors important to DRC program participation. In other words, while bivariate associations indicate that DRC completers had significantly lower recidivism than those in the High Risk/High Need Comparison Group, the differences do not appear to be due their DRC participation.

It is crucial to stress that the model is very weak (R^2 analog = .1856), and that inclusion of other important factors unavailable in this analysis may negate the importance of the current ones identified. In addition, the sample sizes were minimally adequate for the analysis undertaken, so again, interpretations are impressionistic and suggestive only.

— Insert Table 5 about here —

7. Costs and Benefits of Day Reporting Centers

The third part of the study examined the criminal justice system costs and savings associated with the two DRCs and comparison groups. As described in Section 4, the total net benefit/cost estimate includes the costs to the criminal justice system of recidivism for all study participants, as well as the cost of treatment for the DRC clients. The following section describes estimates derived from formulas presented in Section 4. Table 6 presents the individual estimates by study group.

— Insert Table 6 about here —

Recidivism Cost

Recidivism cost has five elements: arrest cost, disposition cost, arrest weight, conviction rate, and incarceration cost. While measurement of criminal justice system costs may seem straightforward, it is frequently difficult to obtain precise estimates of many types of expenditures.

7.1.1 Arrest Cost

The arrest cost (AC) is expressed as:

$$\frac{\text{total law enforcement costs for all agencies in the counties in the study}}{\text{number of arrests for non-traffic offenses}}$$

These costs were obtained from expenditure data submitted to the Bureau of the Census and arrest data submitted to the FBI Uniform Crime Report.

For this study, DWI is defined as a non-traffic offense. The accuracy of this estimate is affected by the fact that agencies included DWI offenses in their determination of traffic law

enforcement expenditures. It was, for example, not appropriate to simply delete the costs of the patrol divisions (which typically include primary traffic law enforcement officers) and consider only the investigative divisions, because patrol officers are involved in criminal law enforcement as well. Therefore, the numerator includes the costs of traffic law enforcement, but the denominator excludes all traffic offenses except DWI. Estimated cost of an arrest in the rural county was \$984, and in the urban county it was \$575.

7.1.2 Disposition Costs

The cost associated with the disposition of court cases (DC) is calculated:

$$\frac{\text{total criminal court expenditures}}{\text{total criminal cases filed}}$$

For this estimate, arrest is a proxy for the number of criminal cases filed. This probably overestimates the measure to some degree, but preliminary examination indicates that most arrests lead to court case filing. Cost figures came from data submitted to the Bureau of the Census. Local (county) cost figures attributable to criminal and DWI cases had to be adjusted using statewide court case filing data, because the two types of cases were not separated in local statistics. Statewide, 11% of cases were either criminal or DWI, according to data submitted to the National Center for State Courts. The cost of a court disposition in the rural county, therefore, was estimated at \$90, and in the urban county was \$74.

7.1.3 Arrest Weight

This figure (AW) is the mean number of non-traffic arrests for each study group during the 12-month follow-up period.

7.1.4 Incarceration Cost

The cost of incarceration (IC) is:

$$(\text{annual state prison incarceration costs}) \times (\text{mean number of weeks convicted recidivists were incarcerated during the 12-month follow-up period})$$

Annual state prison incarceration costs supplied by the state Department of Correction were \$20,217, exclusive of capital outlays. The mean number of weeks incarcerated was adjusted by the average time to rearrest for each study group. Estimates assumed that rearrest of a probationer would be likely to lead to almost immediate incarceration, either awaiting trial or serving a sentence, and that the incarceration continued for the rest of the follow-up period.

Again, this estimate suffered from missing foundational data. About 33% of the arrests that had data indicating a conviction had no data about the sentence received. These may have mostly been county jail sentences, but it was not possible to determine whether this was the case.

This examination excluded county jail costs for three reasons. First, the population base was so small that any estimates derived would have been extremely unstable. Second, reliable data on pretrial detention and jail sentences were not available given the resources of the jail information systems and the project funds. Finally, estimates assumed that all of the individuals in the study who were reincarcerated were sent to state prison because most of them were currently on probation for felonies and were not typically first offenders. Using state prison incarceration costs may have slightly overestimated the cost of pretrial detention. Since pretrial detention data were not available, this was the best estimate possible.

7.1.5 Conviction Rate

This figure (CR) represents the proportion of recidivism arrests that resulted in conviction, based on examination of state criminal history data for individuals in the study. It is probably the least robust of all, due to missing data and the small sample size. Dispositions were missing for approximately 27% of recidivism arrests. For some study groups, the conviction rate was based on less than 10 individuals. This occurred because the estimate required both that the individual have a recidivism arrest and that the arrest have a disposition entered. See Table 6 for individual estimates.

7.2 Treatment Costs

The per capita cost of providing DRC programming (TC) was based on annual total program costs (from DRC budgets), annual number of clients served, and average length of stay:

$$\frac{\text{total annual budget}}{\text{total annual budget}} \times \frac{\text{total budget} / \# \text{ clients served annually}}{\text{mean weeks in program for all clients}} \times \text{mean weeks in program for study group}$$

The cost of all DOC-funded treatment is included in the DOC's statewide per capita supervision costs. Recall that supervision costs are not included in the cost estimates because they are constant across all study groups. Treatment costs are distributed across all probationers, regardless of which ones actually receive the services. It is, therefore, debatable whether treatment costs should be assessed DRC clients as though they were not accounted for elsewhere. Including them produces a more conservative estimate of the costs/benefits of DRC completion.

7.3 Benefit/Cost Estimates

Benefit/cost estimates for the comparison between DRC Completers and the High Risk/High Need Comparison Group showed important differences. Like the recidivism analysis, the benefit/cost examination focused on this comparison, because these groups represent the DRC target population. Figure 1 presents the net benefit(cost) calculations for the rural program. It shows that the recidivism cost during the 12-month follow-up period for a high risk/high need probationer was \$3820. For an average DRC program completion, the 12-month recidivism cost was \$1927. This difference yields a one-year net benefit to the system of \$1893 for every DRC completion. The annual per capita recidivism cost for DRC noncompleters was \$2478 and for the Full Comparison Group it was \$2815.

— Insert Figure 1 about here —

These calculations reveal that DRC clients generally have lower costs to the system than probationers. Even DRC clients who do not complete the program yielded a net benefit. Cost components presented in Table 6 show that these cost differences were largely explained by the much higher conviction rate for both comparison groups when compared to DRC clients. Given the small sample sizes and level of missing data on convictions, these figures may, therefore, be an artifact of the data. The conviction rate may be related to the nature of the recidivism offense. To illustrate, Table 4 shows that DRC clients were primarily rearrested for probation violations, in proportions much larger than either comparison group. Other analysis (not shown) revealed that arrests for probation violations led to conviction less often than for other offenses.

Figure 2 shows the net benefit/cost calculations for the urban program. Here, the recidivism cost of DRC completers was higher than that of high risk/high need probationers (\$3378 and \$3019, respectively). This difference yields a net loss of \$359 to the criminal justice system for DRC participation. The recidivism cost for DRC noncompleters was \$4353 and for the Full Comparison Group, it was \$2430.

— Insert Figure 2 about here —

These observations may, in part, reflect the relatively difficult population served by the urban DRC. This population was likely to have been drawn from high risk/high need probationers who violated probation or otherwise caused trouble early in their supervision period, and thus were sent to the DRC as an alternative to revocation. Probation officers

interviewed indicated that absent the DRC as a programming option, almost all of these individuals would have been revoked and their incarceration sentence most likely imposed. Even a conservative estimate of 50% recidivism without DRC participation, shows that this group's per capita recidivism cost to the system would have been \$6013 (using estimation components from the High Risk/High Need Comparison Group). This figure is almost twice the cost for the average High Risk/High Need Comparison Group member. Seen in this light, the DRC is very likely actually to have saved the criminal justice system money, although the amount cannot be directly estimated with available data.

8. Discussion

The results of this exploratory study suggest that DRCs may provide a viable correctional treatment option for moderately high-risk offenders supervised in the community. Modeling of recidivism for DRC clients indicates that program completion was significantly associated with lower chances of rearrest.

Probation officers in the rural county tended to systematically refer the highest risk probationers to the DRC. Logically, these probationers should be most at risk for rearrest. One year after completing the program, these individuals were rearrested significantly less frequently than high risk/high need probationers who were eligible for the DRC but not referred. This outcome may suggest both a successful referral strategy as well as a successful treatment program experience for this category of offender. In terms of annual economic impact, the average DRC program completer appears to save the criminal justice system approximately \$1893 during the 12-month follow-up period.

In the urban county, probation officers primarily referred their most troublesome supervisees (who also tended to be of highest risk and need) to the DRC. For those who completed the DRC program, the rearrest rate was lower, but not significantly lower, than other high risk/high need probationers who did not receive such programming. Because many probation officers referred offenders to the DRC as a formal or informal alternative to revocation, it is likely that their recidivism rate would be near 100%, absent DRC intervention. These recidivism results and the related lower-than-average completion rate also suggest that the type and/or intensity of the DRC intervention was not sufficient to reduce the recidivism of the most troublesome probationers to a level significantly lower than high risk/high need

probationers in general. Perhaps because of this characteristic of the DRC clients, the average program completer costs the system of approximately \$359. Without access to the DRC, however, the recidivism rate among this group would undoubtedly have been much higher than the observed 19% and costs to the system much greater.

The programs studied here are of a single model and focus on serving a specific population. Accordingly, conclusions cannot be drawn about how this type of DRC program might affect the recidivism of other types of offenders. These programs, for example, contained few women and minorities. Treatment programs have recognized the importance of culturally appropriate content. It is unknown how this DRC model would fare if the demographic make-up of the clientele were different.

In addition, because experimental design was not possible, the study cannot conclude that program participation, or the lack thereof, was the primary factor influencing recidivism. A larger sample size would have permitted a closer examination of the influence of referral practices, supervision level, effects of various components of the risk and need scores on recidivism.

Because many questions remain unanswered and many important issues have not been addressed, the results of this study lead to several recommendations for future research.

- ◆ A careful study of program process at the client level is essential. Researchers need to ascertain what aspects of DRC programming enhance completion and influence outcomes.
- ◆ Experimental design is crucial to isolate the effect of DRC participation.
- ◆ Examination of an array of outcomes can provide an understanding of the relationship between important life activities and recidivism (e.g., how relapse to substance abuse, employment failure, and/or family situation relate to recidivism).

- ◆ A more comprehensive benefit-cost study of DRCs is required to evaluate their utility as a community-based correctional and treatment alternative. Such a study should include the examination of lost productivity and more detailed information on local system costs.

Table 1. Characteristics of Day Reporting Center Clients and Comparison Groups

Individual Characteristics	Rural Program			Urban Program		
	DRC (n=137)	Full Comp. Group (n=175)	High Risk / Need Comp. Group (n=74)	DRC (n=94)	Full Comp. Group (n=137)	High Risk / Need Comp. Group (n=61)
CRIMINAL HISTORY						
Age at first arrest (in years)						
	<i>median</i>	20	22	20	20	23
	<i>mean</i>	23	25	23	22	26
Number of arrests before admission						
	<i>Median</i>	3	2	2	3	2
	<i>Mean</i>	4	3	4	4	5
DEMOGRAPHIC VARIABLES						
Median age at admission (years)		28	29	28	25	30
Percentage high school graduates		55.6%	59.1%	53.2%	47.4%	60.3%
Percentage white		95.1%	94.8%	93.2%	93.0%	90.6%
Percentage male		97.9%	100.0%	100.0%	82.0%	81.9%
Percentage married		20.4%	23.4%	18.4%	9.0%	25.0%
Current offense						
	<i>Person/Public Order</i>	40.1%	64.2%	59.4%	37.0%	59.4%
	<i>Property</i>	35.9	12.1	13.5	48.0	11.6
	<i>Drug/Alcohol (non-DWI)</i>	19.0	11.0	9.5	12.0	14.5
	<i>Driving while Intox. (DWI)</i>	2.8	0.0	0.0	2.0	0.0
	<i>Other</i>	2.1	12.7	17.6	1.0	14.5
Monthly income at DRC admission						
	<i>Median</i>	\$633	NA	NA	\$ 25	NA
	<i>Mean</i>	635			354	
Monthly income at DRC discharge						
	<i>Median</i>	\$800	NA	NA	\$506	NA
	<i>Mean</i>	684			449	

NA = Not Available

Table 2. Logistic Regression Analysis of Rearrest of DRC Clients, Results of Stepwise Model Selection

	Parameter Estimate	Standard Error	Odds Ratio	Standardized Parameter Estimate
DRC completion ^a	-0.8688**	.3607	0.419	-0.2395
Number of prior arrests	0.1420**	.0442	1.153	0.3563
Age at DRC admission	-0.0624**	.0298	0.940	-0.2552
Offense category ^b				
Person/public order offense	-0.3298	.4654	0.719	-0.0694
Alcohol/drug offense	-0.3928	.4791	0.675	-0.0810
Property offense	-2.3610**	.5348	0.094	-0.6136
Monthly income at DRC admission	-0.0007*	.0004	0.999	-0.2068
Likelihood Ratio Chi-Square		53.0372 (p < .0001)		
Maximum rescaled R ²		.3096		
Hosmer-Lemeshow Goodness of Fit		.93		

N = 227

* p < .05

** p < .10

^a 1=completed, 0 = did not complete

^b "Other" is the reference category.

Table 3. Recidivism of DRC Clients and Comparison Groups ^a

Study Group	Rural Program		Urban Program	
	Percentage Rearrested	Number Rearrested	Percentage Rearrested	Number Rearrested
DRC CLIENTS				
All Clients ^b	21.2%	29	30.0%	27
Program Completers	16.7	14	18.9	7
COMPARISON GROUPS				
Full Comparison Group	24.6	42	20.3	28
High Risk/High Need Comparison Group	31.5	23	25.0	15

^a The only statistically significant difference in rearrest between all client/probationer comparisons was between DRC completers and the High Risk/High Need Comparison Group in the rural program. This difference was significant at the $p < .05$ level.

^b The numbers in these cells represent the observations for which DRC completion status was known. Including the observations for which completion status was missing, 31 (21.8%) of rural clients were rearrested as were 29 (29%) of urban clients.

Table 4. First Recidivism Offense of DRC Clients and Comparison Groups

Offense	Rural Program				Urban Program			
	DRC Clients		Comparison Groups		DRC Clients		Comparison Groups	
	Com- pleters (n=14)	Noncom- pleters (n=15)	Full (n=19)	High Risk/High Need (n=23)	Com- pleters (n=7)	Noncom- pleters (n=20)	Full (n=13)	High Risk/High Need (n=15)
Person	7.1	20.0	5.3	17.4	28.6	30.0	15.4	6.7
Property	0.0	6.7	15.8	4.4	0.0	25.0	7.7	13.3
Alcohol/Drug	14.3	6.7	0.0	8.7	0.0	15.0	7.7	13.3
DWI	14.3	6.7	42.1	39.1	0.0	10.0	38.5	26.7
Probation Violation	57.1	46.7	31.6	17.4	0.0	0.0	7.7	0.0
Public Order	7.1	13.3	5.3	8.7	71.4	20.0	23.1	26.7
Other	0.0	0.0	0.0	4.4	0.0	0.0	0.0	13.3

Table 5. Logistic Regression Analysis of Rearrest of DRC Completers and High Risk/Need Comparison Group, Reduced Model

	Parameter Estimate	Standard Error	Odds Ratio	Standardized Parameter Estimate
Offense category				
Person/public order offense	-0.6169	.4627	0.540	-0.1312
Property offense	-2.1511*	.6441	0.116	-0.5018
Alcohol/drug offense	0.3936	.3690	1.482	0.0907
Number of prior arrests	0.0918*	.0323	1.096	0.2539
Age at DRC/probation admission	-0.0420*	.0208	0.959	-0.2056
Likelihood Ratio Chi-Square		33.2848 (p < .0001)		
Maximum rescaled R ²		.1856		
Hosmer-Lemeshow Goodness of Fit		.78		

* p < .10 (no variables were significant at this level)

** p < .05

Table 6. Cost Components by Study Group

	Rural					Urban				
	DRC			Comparison Groups		DRC			Comparison Groups	
	Total	Completers	Noncompleters	Full	High Risk/ Need	Total	Completers	Noncompleters	Full	High Risk/ Need
Recidivism Rate (RR)	.21	.17	.28	.25	.32	.30	.19	.38	.20	.25
Conviction Rate (CR)	.21	.20	.17	.63	.64	.65	.80	.61	.88	.88
Mean weeks to rearrest (AT)	15.1	15.9	13.8	14.4	14.0	14.6	17.1	14.0	19.2	19.6
Mean arrests/year (AW)	2.6	1.6	3.3	1.9	2.3	1.7	1.3	1.3	1.4	1.5
Mean weeks in DRC	14.7	16.8	11.3	n/a	n/a	13.8	18.1	9.5	n/a	n/a
Treatment Cost (TC) \$	1012	1156	778	n/a	n/a	879	1152	605	n/a	n/a
Arrest Cost (AC) \$	954					575				
Disposition Cost (DC) \$	44					33				
Incarceration Cost (IC) \$	20,217					20,217				

n/a not applicable

Figure 1. Benefit/Cost Calculations, Rural County

Recidivism Cost: High Risk/High Need Comparison Group

$$\begin{aligned} RC_c &= [(AC + DC)AW] + [CR(IC(1-(AT/52.14)))] \\ &= [(984+90)2.3] + [.64(20,217(1-(14.0/52.14)))] \\ &= 11,819 \end{aligned}$$

$$\begin{aligned} \text{Total Cost} &= RR_c RC_c \\ &= .32(11,819) \\ &= 3782 \end{aligned}$$

Recidivism Cost: DRC Completers

$$\begin{aligned} RC_t &= [(AC + DC)AW] + [CR(IC(1-(AT/52.14)))] \\ &= [(984+90)1.6] + [.20(20,217((1-15.9/52.14)))] \\ &= 4452 \end{aligned}$$

$$\begin{aligned} TC &= ((\text{total budget}/\# \text{ clients served annually})/\text{mean weeks in program for all clients}) \\ &\quad * \text{mean weeks in program for study group} \\ &= ((114900/105)/15.9)*16.8 \\ &= 1156 \end{aligned}$$

$$\begin{aligned} \text{Total Cost} &= RR_t (RC_t + TC) \\ &= .17(4452) + 1156 \\ &= 1913 \end{aligned}$$

Net Benefit(Cost)

$$\begin{aligned} &(RR_c RC_c) - [(RR_t RC_t) + TC] \\ &= 3783 - 1913 \\ &= \$ 1893 \end{aligned}$$

Figure 2. Benefit/Cost Calculations, Urban County

Recidivism Cost: High Risk/High Need Comparison Group

$$\begin{aligned}RC_c &= [(AC + DC)AW] + [CR(IC(1-(AT/52.14)))] \\ &= [(575+74)1.5] + [.88(20,217(1-(19.6/52.14)))] \\ &= 11,997\end{aligned}$$

$$\begin{aligned}\text{Total Cost} &= RR_c RC_c \\ &= .25(11,997) \\ &= 2999\end{aligned}$$

Recidivism Cost: DRC Completers

$$\begin{aligned}RC_t &= [(AC + DC)AW] + [CR(IC(1-(AT/52.14)))] \\ &= [(575+74)1.3] + [.80(20,217(1-(17.1/52.14)))] \\ &= 11,645\end{aligned}$$

$$\begin{aligned}TC &= ((\text{total budget}/\# \text{ clients served annually})/\text{mean weeks in program for all clients}) \\ &\quad * \text{mean weeks in program for study group} \\ &= ((92,250/90)/16.1)*18.1 \\ &= 1152\end{aligned}$$

$$\begin{aligned}\text{Total Cost} &= RR(RC) + TC \\ &= .19(11,645) + 1152 \\ &= 3365\end{aligned}$$

Net Benefit(Cost)

$$\begin{aligned}& (RR_c RC_c) - [(RR_t RC_t) + TC] \\ &= 2999 - 3365 \\ &= - \$ 359\end{aligned}$$

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