

The Costs of NSW Drug Court

Final Report

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About CHERE

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1 Executive Summary

In 2001, the Bureau of Crime Statistics and Research (BOCSAR) and the Centre for Health Economics Research and Evaluation (CHERE) undertook an analysis of the cost-effectiveness of the NSW Drug Court. In the intervening years, a number of changes have been made to the system, and the role the Drug Court undertakes has changed as the population it serves has changed. The aim of this report is to estimate the cost of these changes to the NSW Drug Court.

The questions we will address in this report are the following: 1) Are the changes in NSW Drug Court Program likely to increase or decrease total costs? 2) Can we infer conclusions regarding cost-effectiveness from these changes? And 3) Is Drug Court still likely to be cost-effective relative to conventional sanctions in terms of reducing future offending?

Using individual level data we adopted a micro-costing approach to estimating the resource use and costs of 287 individuals who began the Drug Court program between January 1st 2005 and December 31st 2006. The starting point of the analysis was the Drug Court ballot and the endpoint was either graduation (in the successful group) or end of final sentence in the non-completers.

The Cost of NSW Drug Court

- o The total cost of the program is estimated to be \$32.752 million over two years (2008 \$Aus) (or \$16.376 million per annum). This gives a mean cost of \$114,119 per participant. Comparison with the original 2002 report is not possible due to this report considering a broader range of costs, longer follow-up period and difficulty in obtaining corresponding data sources to those used previously. The largest drivers of the cost of Drug Court are the cost of final imprisonment following participation in the Drug Court program (51%) and the cost of staffing and running the court (19%).

Table 1: Summary of NSW Drug Court Costs (2 years, 2005-2006)

Summary of Costs	Total	Per Participant	
		Mean	Median
Drug Court Cost*	\$6.314 Million	\$22,000	\$21,844
Detox	\$1.452 Million	\$5,059	\$4,326
Urine Drug tests	\$730,987	\$2,547	\$2,431
Sanction (New DC)	\$3.773 Million	\$13,146	\$11,846
Final sentence**	\$16.986 Million	\$59,184	\$31,931
Res Rehab	\$1.178 Million	\$4,105	\$4,046
Non-Res Rehab	\$1.944 Million	\$6,774	\$6,676
Mental health	\$374,316	\$1,304	\$1,285
TOTAL	\$32,752,303	\$114,119	\$84,385

* Drug Court costs include the costs of pre-program assessment, report backs, sentencing, graduation and termination

** Including probation and parole costs

NSW Drug Court versus Incarceration

- o The estimated cost of the Drug Court participants if they did not participate in Drug Court, i.e. conventional incarceration, would be \$36.268 million over two years (or \$18.134 million per annum). This gives a net saving of the Drug Court program of \$3.516 million over two years (or \$1.758 million per annum)
- o Since Drug Court participants have demonstrated better effectiveness, in terms of time to first offence (Weatherburn, et al., 2008), and the total cost of Drug Court relative to conventional sanctions is negative, we can say from a cost-effectiveness perspective the Drug Court program dominates usual incarceration. In other words it is cheaper and produces better outcomes than the alternative. This conclusion means that NSW Drug Court is likely to be a cost-effective approach

New NSW Drug Court versus Old NSW Drug Court

The cost implications of some of the new Drug Court policy changes were examined. The following conclusions were reached:

- o Using the ballot as a screening tool was estimated to be moderately cost saving
- o Preferential selection of ATSI and females was associated with no significant differences in resource use. Therefore targeting the program towards females and/or people with ATSI status has little implication for the overall cost or cost-effectiveness of the program.
- o The increased use of urinalysis has increased the cost of the Drug Court program. However, the benefit to participants in terms of increased vigilance could not be determined with the data available.
- o The largest cost saving of new Drug Court was associated with the sanction accrual policy. Based on sanctions avoided, we estimated that the cost saving over two years was \$700,000 (or \$2465 per participant). By including flag fall costs, associated with the first day of incarceration, the cost saving could be as large as \$1,500,000.

Conclusion

The Drug Court program appears to be a cost-effective use of resources. It leads to significant reduction of and delay in recidivism, and saves considerable resource use as a result of reduced incarceration. In addition, there are likely to be significant health gains for the participants which are of considerable value above and beyond the reduction in re-offence rates. Given the uncertainty in the underlying data, the analysis presented here cannot identify unequivocally whether the net cost of the Drug Court program relative to conventional sanctions is positive or negative. However, given the good evidence of improved outcomes, the Drug Court Program is likely to be cost-effective.

2 Introduction

In 2001, the Bureau of Crime Statistics and Research (BOCSAR) and the Centre for Health Economics Research and Evaluation (CHERE) undertook an analysis of the cost-effectiveness of the NSW Drug Court (Lind, et al., 2002). The report estimated that the total cost of the Drug Court for 309 participants was \$13.496 million, equalling \$42,307 per participant. Due to high rates of drop-out from the NSW Drug Court, 65% of this budget or \$8.805 million was spent on individuals who were subsequently removed from the Program. Importantly, the report noted that the cost per day of placement on the Drug Court Program was lower than that of conventional sanctions (\$143.87 and \$151.72, respectively). In the intervening seven years, a number of changes have been made to the system, and the role the Drug Court undertakes has changed as the population it serves has changed. The consequences of these changes means that it is now appropriate to reconsider the costs of Drug Court, both in its entirety, and as a result of the changes made to the system.

The questions we will address in this report are the following:

- Are the changes in NSW Drug Court Program, that have occurred between the previous and the present assessment, likely to increase or decrease total costs? Can we infer conclusions regarding cost-effectiveness from these changes?
- Is Drug Court still likely to be cost-effective relative to conventional sanctions in terms of reducing future offending?

The report is structured as follows. Firstly, we outline the data used, identifying sources of information and strengths and weaknesses of each. Following this, we present information on the total cost of the NSW Drug Court program. Then, we consider a number of policy changes that have occurred in the period between 2001 and 2008. The likely impact of each change on the cost-effectiveness of the overall program will be identified. Finally, we identify some future issues relating to the cost-effectiveness of the Drug Court Program (for example, the cost-effectiveness of changing the scale or scope of the program, or likely changes in the future costs of the program).

For the evaluation of the costs of the NSW Drug Court relative to those presented previously, there are three matters that may substantially affect the cost-effectiveness of the program relative to the findings identified in the previous report. These are:

- ***That unit costs of inputs related to the running of Drug Court are likely to have changed over time.*** It is expected that unit costs will increase over time due to general inflation. Since a significant part of the analysis is likely to be in terms of cost-offsets (for example reduced incarceration), any inflation will apply to both the costs and the cost savings of the program. However, if components of Drug Court have become

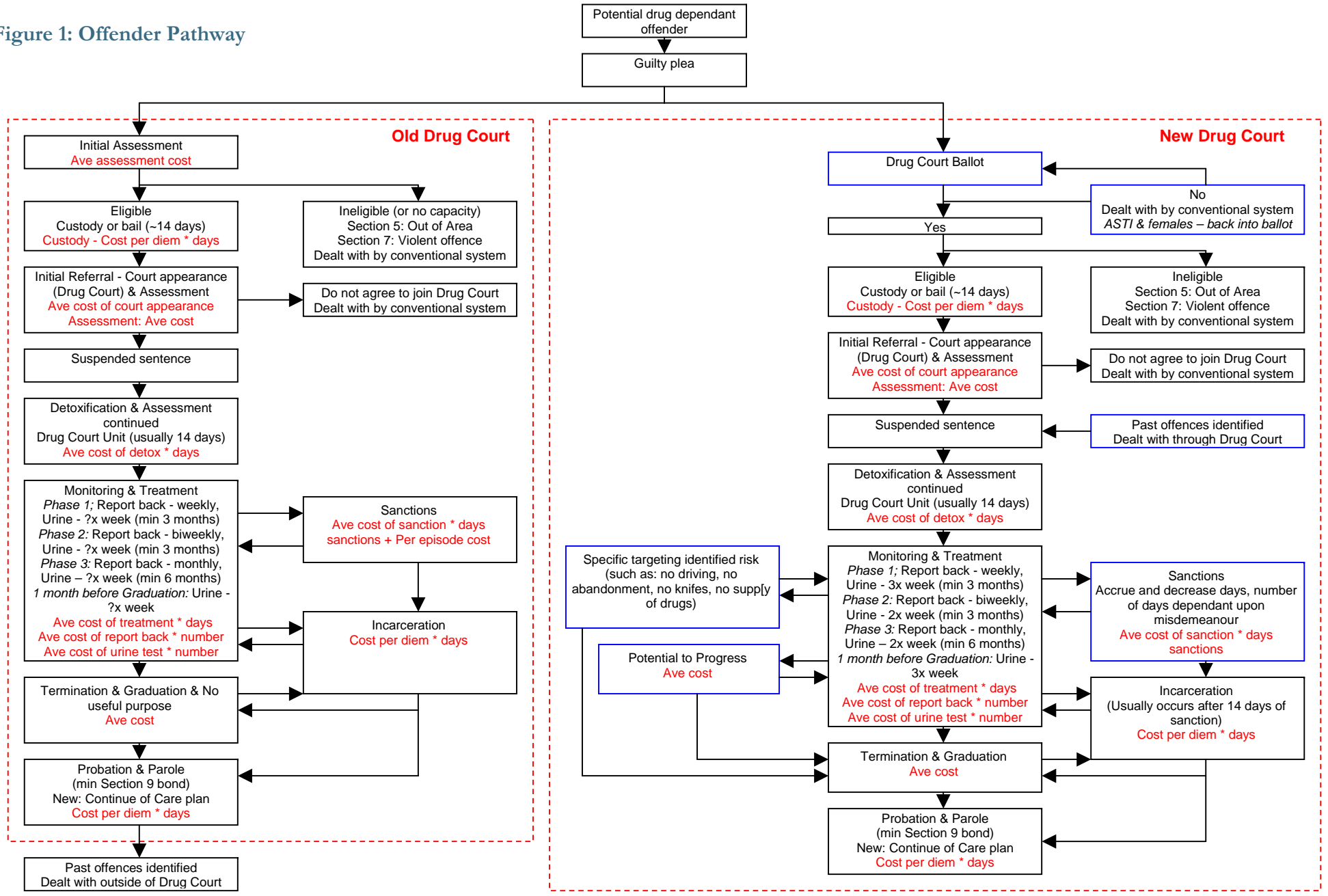
substantially more expensive, it may have a significant impact on the cost-effectiveness conclusions that can be made.

- ***That the characteristics of the individuals entering Drug Court are likely to have changed over time.*** If different types of individuals are entering Drug Court, this could potentially have a substantial impact on total costs. For example, if the prevalence of a cohort of individuals which is more likely to remain in the program for a significant period of time, but have relatively poor outcomes (high chance of a repeat offence), the cost-effectiveness of the program would appear to have declined. If this is the case, this would suggest a need for targeting the intervention towards those with either relatively lower costs or relatively better outcomes (or both).
- ***That the structure of Drug Court has been amended.*** This structural change has taken a number of forms. Firstly, as noted in the previous report, *“To avoid the administrative cost and inconvenience associated with this arrangement the Drug Court began allowing participants to accumulate days of imprisonment until they reached approximately seven days, when the sanction would be served. The court also allowed sanction days to be deducted from the offender’s ‘sanction balance’ as a reward. Consequently, participants could accumulate sanction days of seven or more (in some cases up to 12 days of sanctions were accumulated) but then be rewarded by losing these sanction days.”* (Lind, et al., 2002) p.28. Current practice actually allows up to 14 days to be accrued before being served. Secondly, to reduce the cost of assessment of potential Drug Court participants, the ballot to determine who enters the program occurs prior to assessment (thus leading to fewer individuals being assessed). Thirdly, evidence from within the Drug Court program suggests that the rate of urinalysis has increased significantly (Taplin, 2002).

The NSW Drug Court offender pathway is presented in Figure 1. This figure illustrates the differences between the old Drug Court Program (2000-2005) and the new Drug Court Program (2006-2008). With the data available we are able to disentangle some of the consequences of these policy changes.



Figure 1: Offender Pathway



Differences between 'Old' and 'New' Drug Court

- *Drug Court ballot:* This acts as a primary screening tool. The main impact of the ballot is to reduce the number of individuals moving through to the assessment stage.
- *Preferential recruitment of ATSI & females:* This intervention is designed to specifically bias the selection of ATSI and Female offenders to the Drug Court Program. This may result in an increased proportion of ATSI and females offenders and therefore may affect the associated costs.
- *Specific targeting of identified risk:* The Court imposes specific conditions on participation in the program such as no driving, no abandonment, no knives and no supply of drugs. If an individual breaks this agreement they are terminated from Drug Court. This potentially saves on the cost of an extra hearing.
- *Increased number of urine tests:* This could have two cost implications, firstly there is the direct additional cost of extra testing, and secondly there is the indirect cost associated with the increased chance of failing a urine test (i.e. sanctioning).
- *Sanction accrual:* Previously each indiscretion (e.g. positive urine test, missing a urine test) led to a sanction; now the offender is able to accrue sanctions up to 14 days before serving any sanctions. This is likely to result in a reduced number of sanctions served. It also acts as a mechanism rewarding good behaviour, therefore may have long-term benefits on the rates of graduation and recidivism.
- *Potential to progress:* The previous legal test as to whether there was a 'useful purpose' in allowing a participant to continue on the program was replaced by a new and more stringent test. The new test is whether the court is satisfied that the participant has "potential to progress". If the participant cannot satisfy the court that he or she meets that test, then the participant's program is terminated. A hearing as to "potential to progress" is listed several weeks ahead, and the court offers additional support and encouragement to the participant during that crucial period.
- *Past offences identified and dealt with through Drug Court:* The Court has noted significant improvements and increases in the use of DNA technology by NSW Police, where many unresolved offences (such as burglaries) are now able to be linked by DNA evidence to offenders. Where these offenders are current participants of the Drug Court program, and the new offences are eligible offences, the Drug Court Act allows the Court to incorporate these new offences into the initial suspended sentence. Greater use of DNA technology has resulted in an increased workload in the Drug Court and higher numbers of suspended sentences for Drug Court participants. As these DNA-related offences would otherwise have been dealt with across various Local and District Courts, the power of the Drug Court to deal

with the total accumulated offences of participants (rather than just the referred offences) creates a benefit for the Court system as a whole.

The likely cost implications of each of the differences between 'old' and 'new' Drug Court are summarised in Table 2.



Table 2: Differences between ‘Old’ and ‘New’ Drug Court and their Likely Cost Implications

Changes to Drug Court	Description	Likely Impact	Predicted Cost Implication
Drug Court ballot	Primary screening tool.	The main impact of the ballot is to reduce the number of individuals moving through to the assessment stage.	Small
ATSI & females go back into ballot	Improve the number of ATSI and Female offenders within the Drug Court Program.	May increase proportion of ATSI and females offenders and therefore may affect the associated costs.	Small
Specific targeting of identified risk	Specific conditions on participation in the program such as no driving, no abandonment, no knives and no supply of drugs. If an individual breaks this agreement they are terminated from Drug Court.	This potentially saves on the cost of an extra hearing.	Small
Number of urine tests	Increased number of urine tests	1) the direct additional cost of extra testing, 2) indirect cost associated with the increased chance of failing a urine test (i.e. sanctioning).	Medium
Sanction accrual	The offender is able to accrue sanctions up to 14 days before serving any sanctions.	1) Reduced number of sanctions served, 2) reward good behaviour, therefore may have long-term benefits on the rates of graduation and recidivism.	Large
Potential to progress	A negotiating agreement, giving individuals extra time and deadline to progress.	1) Fewer individuals are removed from the Drug Court program, and 2) more graduate.	Small
Past offences identified and dealt with through Drug Court	This change to Drug Court does not reflect a specific change to the Drug Court Act, rather reflects improvements in DNA technology. Any past offences that are identified through DNA testing are dealt with within the structure of Drug Court, rather of waiting for the individual to be released, (and incurring extra court time).	The likely outcome of this change in policy is that fewer individuals will present in court for past offences, and more individuals will leave Drug Court with an increased suspended sentence.	Difficult to measure or attribute to the Drug Court Program

3 Methods

3.1 Costs

Individual-level data were collected on 295 individuals, consisting of all Drug Court participants entering the Drug Court program between January 1st 2005 and December 31st 2006. This range was selected as it was considered to be an adequately long period of time to account for the expected high level of variability in experience of individuals within the program, while not using data of an age which is likely to be unrepresentative of current Drug Court practice. Data were collected on all resources used up until August 2008. We excluded all participants who were still on the program as their resource use data were incomplete (n=7). In addition, we also excluded participants who died during the program as the cost data is incomplete and there is no final sentence (n=1). This gave a final sample of 287 individuals.

For each individual, the following data were collected:

- The date of remand into a detoxification unit and the date they left the unit
- The time each participant spent in each phase of the Drug Court program
- The number of urinalyses undertaken over their participation in the program
- The number of report backs over their participation in the program
- The number of days in residential rehabilitation
- The initial suspended sentence received
- The final sentence received
- The date of final sentencing
- The date of program termination
- The number of sanction days accrued and served
- The number of instances of sanction accrual or serving

In addition to these data, we collected the following information:

- The unit cost of urinalysis
- The per diem cost of detoxification
- The per diem cost of residential rehabilitation when on program
- The cost of non-residential rehabilitation health care costs when on program
- The costs accrued by Justice Health
- The costs of mental health services
- The costs of Corrective Services

From the original report, we identified the length of time (in minutes) each contact took (Lind, et al., 2002). Therefore, report backs were estimated to last 3 minutes, pre-program appearances (including assessment) lasted 10 minutes, and sentencing / termination / graduation lasted 25 minutes.

We then assigned proportions of costs to court activities, client related non-court costs and administrative / overhead costs. Using individual level data, we identified

the total number of each contact in the 2-year cohort and estimated the total number of minutes each activity (pre-program appearance, report back, sentencing / termination / graduation) took. We then replicated the approach taken in the original report and estimated the cost per appearance stratified by court activities, client related non-court activities and administrative / overhead costs.

The original report used the following formula to estimate the cost of Drug Court:

$$\begin{aligned}
 \text{Average cost per person} = & \\
 & (\text{average assessment costs}) \\
 & + (\text{average cost per day in detoxification} * \text{days in detoxification}) \\
 & + (\text{average cost of sentencing}) \\
 & + (\text{average costs per report back} * \text{number of report backs}) \\
 & + (\text{urine cost} * \text{number of urines}) \\
 & + (\text{probation and parole costs} * \text{number of days available}) \\
 & + (\text{cost of sanction} * \text{days in sanction}) \\
 & + (\text{average treatment costs} * \text{days avail for treatment}) \\
 & + (\text{average court cost for termination/graduation per diem}) \\
 & + (\text{incarceration costs} * \text{days incarcerated}) \\
 \text{Average cost per day} = & \text{Cost per person} / \text{total days for that person}
 \end{aligned}$$

To allow comparability, we have followed this approach as closely as was possible given the availability of data. In each cost area, the method used will be outlined in the appropriate section. At this point, it is important to note that we have extended the cost calculations of incarceration costs. As we have complete data for our sample, we have estimated the total cost savings associated with reduced incarceration following participation in the Drug Court program. While this reduces the comparability of the findings with those in the previous report, it is a valuable addition which strengthens the conclusions we reach, and is notable in that it plays a large role in determining the total cost implication of the program.

The report uses two major analysis designs. The first section of the analysis contrasts the existing Drug Court with conventional sanctions (i.e. incarceration). The reason for doing so is to identify the net cost of the program minus any cost savings that result from the program. This result will be largely comparable with the result from the existing report, albeit with certain caveats which will be highlighted. The second part of the analysis compares the current Drug Court program with the one evaluated in 2002. The program was still developing at that stage, and a number of new policies and initiatives have been introduced with the aim of making the system more effective, and reducing any unnecessary expenditure. We will deal with each policy change in turn, discussing whether it is possible to identify the positive and negative consequences of the change in cost or outcomes (i.e. does the change reduce costs or not?), and if it is possible to quantify the size of the effect. As both are contingent on the costs of the current NSW Drug Court program, we firstly outline the major cost areas and present the total costs associated with running the program.

4 Drug Court Sample Population

The following sections are divided into three major components. Firstly, we outline the characteristics of the sample, and provide a breakdown of the total cost of the program. These two pieces of information combine to produce our baseline result concerned with the total cost of the NSW Drug Court program. Secondly, we contrast Drug Court with conventional sanctions (as in the original report). As we do not have a formal control group, we create a quasi-control, identifying what would have happened to our sample if they had not entered Drug Court but had instead entered prison. Finally, we compare Drug Court as it is currently, with the Drug Court structure outlined in the previous report (Lind, 2002). As will become obvious, a direct comparison between the costs presented previously and those presented here is not possible. We have had to make a number of structural changes which render any direct comparison open to significant uncertainty. However, we identify the likely cost implication of a range of policy changes. The purpose of this section is to investigate whether it is likely that the costs of Drug Court have increased or decreased over time, assuming that the cost base has remained constant.

The sample characteristics are shown in Table 3. Two-hundred and eighty-seven participants were included in the final analysis.

Table 3: Sample Characteristics

	Mean	(SD)	Median	(IQR)
Age (years)	29.51	6.729	29	(25-34)
Male	79% male	-	-	-
ATSI	14%	-	-	-
Initial sentence* (months)	14.04	6.127	12	(8.5-16)
Final sentence*	4.27	7.205	1	(0-6)

* Note that the data available in the Drug Court database mean these raw figures are not comparable. The initial and final sentences are normalised when considering the reduced cost of imprisonment as a result of the program.

All were registered in the Drug Court database in 2005 or 2006. The mean time in detoxification prior to entry was 22.22 days (IQR: 14-27), and the average participant remained in the program for 370.37 days (IQR: 191-513.5). Where possible, we have adopted micro-costing of the Drug Court program. Therefore, we have identified the mean number of units utilised (e.g. urinalysis) and multiplied it by a unit cost. The areas which have been micro-costed in this way are shown in Table 7. The unit costs were identified in different ways, as explained in the next section.

5 Calculation of Micro-costed Court Costs

Court costs consisted of urinalysis, pre-program assessment, report backs during participation, and the costs of graduation or termination. The cost of analysing a single urine sample for drugs was identified through correspondence with the NSW Drug Court. The cost as of 1st January 2005 was \$26.40 (including 10% GST), rising to \$27.50 on 1st January 2006, and then to \$28.60 on 1st January 2007. A unit cost over the period of \$28.60 was assumed for the analysis as this provides the best estimates of the current costs of urinalysis. It will over-estimate the total cost of urinalysis over the period, albeit slightly. However this method ensures that all costs are in 2008 dollars.

The Drug Court budget was \$2.739 million per annum in 2005 and 2006. Once the cost of urinalysis was subtracted from this total, the remaining budget for the two years summed to \$4.747 million.

The number of each type of contact, and the generation of the number of minutes devoted by Drug Court over the two-year period to each contact, are given below in Table 4.

Table 4: Appearances at Drug Court (cohort of individuals registered in 2005 and 2006)

Type of Appearance	Frequency	Average Minutes per Appearance	Total Time (Minutes)
Pre-program	287	10	2,870
Report backs	9,260	3	27,780
Sentencing / termination / graduation	287	25	7,175

We used the assumption in the original report regarding the distribution of time by activity type. This information (Table 4 in the original report) is given in Table 5.

Table 5: Distribution of Time by Activity Type

Type of Activity	Cost Activities	Client Related Non-Court Activities	Administrative / Overhead
Drug Court team	45%	30%	25%
Court reporter / attendant / security	100%	0%	0%
Registry / overhead	7%	27%	66%

The cost of the court reporter / attendant /security (\$81,000 per annum) was provided by Drug Court, and the registry / overhead costs were \$630,668 to give a total per annum cost of \$711,668.

The unit cost for each contact was thereby estimated as shown in Table 6.

Table 6: Estimated Cost per Appearance (including all overheads)

	Cost Activities	Client Related Non-Court Activities	Administrative / Overhead	Average Cost per Appearance
Pre-program	\$627	\$184	\$217	\$1,028
Report backs	\$188	\$184	\$217	\$589
Sentencing / termination / graduation	\$1,568	\$184	\$217	\$1,968

Staffing for the detoxification unit was identified, and summed. Using information provided by New South Wales Health (NSW Health) and Justice Health, we assumed a detoxification unit required staffing of 2.8 FTE Registered Nurses (yr8), 0.6 FTE Psychiatrist and three other FTEs covering administration and management of the unit. Salary costs of each FTE are based on the average salary of an individual at that level¹. On-costs were added (25%²), and multiplied over the 2 years of data. The total number of days in detoxification was estimated for each member of our sample and then summed (6,376 days). The total cost was divided by the total number of days to give a cost per day of \$227.70.

Table 7: Sample Resource Use

Resource Item	Sample Mean	Median	Inter-quartile Range	Unit Cost	Mean Total Cost
Court Costs					
- Pre-Program	1	1	1-1	\$1,028.00	\$1,028
- Reports Back	32.26	32	16-46	\$589.00	\$19,001
- Termination / Graduation	1	1	1	\$1,968.00	\$1,968
Urinalysis	89.06	85	30-135.5	\$28.60	\$2,547
Detox days (prior to entry into DC)	22.22	19	14-27	\$227.70	\$5,058

From Table 7 we can state that the average Drug Court participant would require one pre-program assessment, 32 report backs and one graduation or termination

¹ Details of salaries were provided by NSW Health

² As advised by NSW Health

appearance. The average number of urinalysis is 89 and average number of days spent in detoxification is 22 days. The associated costs are presented in Table 7.

5.1.1 Incarceration Costs

In the original report, a single per diem unit cost for incarceration of women (\$223.03) and one for men (\$170.82) was identified. We felt this could be improved by additionally considering the flag-fall cost of entry to prison. This is particularly important when we estimate the effect of changing sanction policy (which reduced the number of instances of imprisonment by grouping sanction days together).

The current per diem cost for incarceration for both genders combined was identified from the New South Wales Department of Corrective Services website at \$201.70. In the original report, these costs were divided between males and females. No comparable disaggregation for males and females was identified for current incarceration costs. In the original report, the per diem cost of detention for males was estimated to be \$170.82 at the Metropolitan Remand and Reception Centre (MRRC), and the per diem cost of detention for females was estimated to be \$223.03. As 7.4% of current full-time inmates in New South Wales are female, we can estimate a weighted cost per inmate for the original data of $(\$170.82 \times 0.926) + (\$223.03 \times 0.074) = \$174.68$. Using this weighted average and our current aggregate per diem cost of imprisonment of \$201.70, we can assume an increase in per diem incarceration costs of 15.47%. This would equate to a male per diem cost of \$197.25, and a female per diem cost of \$257.53.

For each individual in our sample, we identified their suspended sentence at the commencement of Drug Court. However, this is unlikely to represent the time that would have been served, so we assumed a 25% reduction in time served from the suspended sentence because of good behaviour³. We then searched each record to identify the final sentence. Individuals who graduated, or who had been in the Drug Court program for an extended period were unlikely to receive a final prison sentence. Individuals who failed to graduate or left the program early were likely to still require some form of incarceration. In this group we calculated the time spent in prison between program termination and final sentencing and added this time to the final sentence. As the final sentence provides an early release date, we assumed participants were released at this point. This will slightly underestimate the cost of incarceration, since not all individuals will be released on the first release date.

At a later point in the report, we estimate a quasi-control in which we compare Drug Court with conventional sanctions. In the quasi-control, incarceration costs constitute the significant majority of total costs. However, using this approach, we do not include Justice Health costs so, when reporting the cost in the quasi-control, we follow the approach used in the original report, and assume Justice Health costs amount to 8% of total imprisonment costs.

³ The 25% reduction in sentence served was provided by Drug Court

5.1.2 Mental Health Care Costs

The mental health components of the Drug Court Program predominantly consist of psychiatrist salaries. Information from the Drug Court suggested that the program used 0.6 FTE which, after inclusion of on-costs, totalled \$187,108 per annum. This was divided by the total number of days spent by participants on the Drug Court program to give an average cost per participant day of mental health Services of \$3.52.

5.1.3 Residential Rehabilitation

The costs of residential rehabilitation were obtained from invoice data provided by NSW Health. The per diem costs of placing an individual in residential rehabilitation ranges from between \$50 and \$65, depending upon the health centre used. For a sub-sample of 50 participants in the Drug Court program, for which we had complete data, we measured the number of days spent in each centre and multiplied this by the cost of staying in each residential rehabilitation centre. This provided an accurate total cost for these 50 individuals. This was then divided by the total number of days these individuals spent in the Drug Court program, which gives a mean cost of residential rehabilitation per day per Drug Court participant.

The sample of 50 individuals spent a total of 11,322 days in the Drug Court program, of which they spent 1,902 days in residential rehabilitation. It should be noted that not all members of the sub-sample used residential rehabilitation. Indeed, only 15 of the 50 used it during their time in the program. The total cost in the sample of 50 was \$125,490. This averaged out to be \$11.08 per day per person in the program. This value is then used for all Drug Court participants⁴.

5.1.4 Non-Residential Rehabilitation

The cost of non-residential rehabilitation was identified through financial data supplied by Sydney South-West Area Health Service (SSWAHS) and Sydney West Area Health Service (SWAHS). The total expenditure (actual or predicted) between financial year 2005/6 and 2007/8 was provided. The results of assigning this information to a per day cost of a participant in the Drug Court Program between 2005 and 2007 is shown in Table 8.

⁴ This value was compared with actual expenditure data. The two values are comparable.

Table 8: The Costs of Non-Residential Rehabilitation

		2005/6	2006/7	2007/8
SSWAHS	Funding total	469,156	480,083	479,616
SWAHS	Funding total	494,095	494,910	494,944
Total cost of non-residential rehab (01/2006-01/2007)				1.944 million
Total number of Drug Court participant days (01/2006-01/2007)				106,295
Cost per participant day				\$18.29

5.1.5 Probation and Parole Costs

Probation and Parole costs were provided by Drug Court, which estimated the cost per year to be \$1.5 million. As the data collection process was focused on time in the Drug Court program, this cost could not be assigned accurately to individuals. Therefore, it was divided equally between participants. While this is unrealistic at the individual level (in that some participants use none or very little of the service while some use considerably more), the effect on total or mean costs is accurate.

5.1.6 Other Incarceration Costs

There may be some unattributed custodial costs associated with persons who enter the program following a S.7A(2) argument and are required to spend some weeks in the main MRRC prison while psychiatric testing is undertaken, and who then go on to successfully complete the program. This was estimated to amount to total no more than \$50,000 per annum for the participants in a year. This figure was therefore added to the total cost of the program.

6 Results

Table 9 summarises the total cost of the program, in addition to a number of summary statistics such as mean, median, and the 1st and 3rd quartile. For the purposes of this analysis, the key figures are the total cost and the mean cost per participant (the latter being the former divided by the number of participants). The median and quartile figures are presented for completeness. The total cost of the program is estimated to be \$32.752 million over two years (or \$16.376 million per annum). The largest drivers of this total cost are the cost of final imprisonment following participation in the Drug Court program (51%) and the cost of staffing and running the court (19%). However, it is important to note that the estimated cost of the Drug Court participants if they did not participate in Drug Court would be \$36.268 million over two years (or \$18.134 million per annum). Thus, as we will go on to discuss in Section 6.1, the cost of Drug Court is likely to be approximately the same as if the participants were subject to conventional sanctions (i.e. imprisonment).

Table 9: Summary of Costs (over two years)

Summary of Costs	Total	Mean	Median	1st Quartile	3rd Quartile
Drug Court Cost	\$6.314 Million	\$22,000	\$21,844	\$9,424	\$30,090
Detox	\$1.452 Million	\$5,059	\$4,326	\$3,188	\$6,148
Urine Drug tests	\$730,987	\$2,547	\$2,431	\$858	\$3,875
Sanction (New DC)	\$3.773 Million	\$13,146	\$11,846	\$5,279	\$19,046
Final sentence	\$16.986 Million	\$59,184	\$31,931	\$5,272	\$74,805
Res Rehab	\$1.178 Million	\$4,105	\$4,046	\$2,117	\$5,691
Non-Res Rehab	\$1.944 Million	\$6,773	\$6,675	\$3,493	\$9,391
mental health	\$374,316	\$1,304	\$1,285	\$673	\$1,808
TOTAL	\$32,752,303	\$114,119	\$84,385	\$68,076	\$128,422
Initial Sentence*	\$36,268,262	\$126,370	\$112,505	\$74,956	\$150,052
Sanction (old DC)*	\$4,548,780	\$15,849	\$14,597	\$6,438	\$22,663

* Including probation and parole

* These rows are included for completeness. The methodology behind costing the initial sentence and the original policy to sanction accrual is explained fully in section 6.1 and 6.2.4 respectively.

6.1 NSW Drug Court versus Incarceration

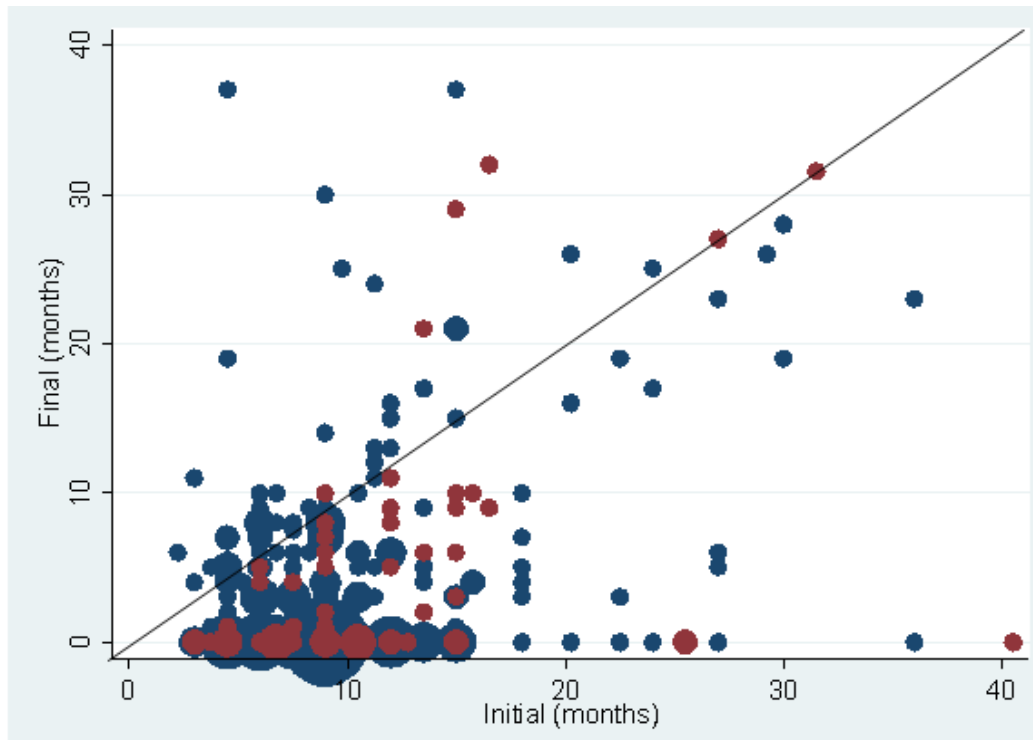
6.1.1 Cost Savings Associated with Reduced Prison use

A substantial component of the aggregate cost of Drug Court relative to conventional sanctions is the cost saving associated with reduced sentences following termination of Drug Court (relative to the sentences participants would have received at initial sentencing). The method used in the original report to account for this could not be replicated as it imposed an arbitrary cut-off point for the calculation of subsequent imprisonment. We therefore imposed no cut-off and made a series of assumptions listed below to allow comparability between the initial and final sentences.

For this sample, we identified the suspended sentence at the commencement of Drug Court. However, this is unlikely to represent the time that would have been served, so we assumed a 25% reduction in time served from the suspended sentence because of good behaviour. We then searched each record looking for the final sentence. For those who achieved limited or no success in the program, it is likely they spent time in prison between program termination and final sentencing. Therefore, for these non-completers, we identified the average time between termination and final sentencing and added this time to the final sentence. As the final sentence provides an early release date, we assumed participants were released at this point.

The estimated mean time to be served using initial sentencing data (thus representing a quasi-control for Drug Court) was 10.53 months. The estimated mean time to be served using final sentencing (adjusted for time served between termination and final sentencing if appropriate) was 4.86 months. Thus, the reduction in sentence per program participant was 5.67 months. It is interesting to note that of the sample of 287, 44.25% were not incarcerated following exit from the Drug Court Program. The scatter plot of initial sentence versus final sentence is given in Figure 2, in which the red dots indicate females, the blue indicate males, and the size of the dot represents the frequency.

Figure 2: Adjusted Final and Initial Sentences (by gender)



To estimate the cost implications of this reduced imprisonment, these figures need to be divided between males and females as it is likely that the per diem cost of imprisonment differs between the two.

The current per diem cost for prison for both genders combined was identified from the New South Wales Department of Corrective Services website at \$201.70. In the original report, these costs were divided between males and females. The per diem cost of detention for males was estimated to be \$170.82 at MRRC, and the per diem cost of detention for females was estimated to be \$223.03. As 7.4% of current full-time inmates in New South Wales are female, we can estimate a weighted cost per inmate for the original data of $(\$170.82 \times 0.926) + (\$223.03 \times 0.074) = \$174.68$. Using this weighted average and our current aggregate per diem cost of imprisonment of \$201.70, we can assume an increase in per diem incarceration costs of 15.47%. This would equate to a male per diem cost of \$197.25, and a female per diem cost of \$257.53.

In our sample, we have reported that 21% are female. We therefore considered the initial sentence, final sentence and reduction in sentence brought about by Drug Court divided by gender as shown in Table 10.

Table 10: Imprisonment Cost Savings (by gender)

Gender	Comparable Initial Sentence	Comparable Final Sentence	Sentence Reduction (days)	Per Diem Cost	Cost Saving*
Both (n=287)	10.53 months	4.86 months	172.68	Various	\$10,522,476
Males (n=228)	10.28 months	4.82 months	166.13	\$197.25	\$7,471,364
Females (n=60)	11.49 months	5.00 months	197.46	\$257.53	\$3,051,112

* Note that these figures do not sum as the proportion of females in the sample (21%) exceeded the proportion of females in the total NSW prison population (7.4%)

The cost saving associated with reduced incarceration is estimated to be \$10.522 million over two years. It should be noted, however, that this cost saving is based on an average cost of incarceration, rather than a marginal one. The distinction can be illustrated by asking whether a small reduction in the prison population leads to a proportional reduction in costs. The likelihood is that it will not as many costs associated with maintaining a prison are fixed (or semi-fixed) costs irrespective of the prison population.⁵

This cost saving can be contrasted with the cost of running the Drug Court program to compare the relative cost of Drug Court and conventional incarceration. The cost of Drug Court has been estimated to be \$32.752 million (\$16.376 million per annum). The cost of conventional sanctions is \$36.268 million (\$18.134 per annum). Therefore, the net saving of the program is \$1.758 million per annum. Since the effectiveness report (Weatherburn, et al., 2008) identified a better outcome in Drug Court than under conventional sanctions, and the total cost of Drug Court relative to conventional sanctions is negative, Drug Court dominates the alternative. While Section 6.2 identifies changing cost-effectiveness over time of the program (and therefore that new ways of improving the effectiveness or reducing the cost are of significant value to the community), this conclusion means that NSW Drug Court is likely to be a cost-effective approach.

6.2 New NSW Drug Court versus Old NSW Drug Court

We now investigate the cost implications of four changes to the NSW Drug Court, for which we are able to model the effect and which should provide an indication of the cost of the program. The findings of this section are summarised in Table 11.

⁵ One caveat to this is that there is a significant capital cost of building or expanding a prison if the population exceeds capacity. Washington State has considered this issue when discussing the cost-effectiveness of crime related interventions (<http://www.wsipp.wa.gov/rptfiles/06-10-1201.pdf>)

Table 11: Summary of Cost-effectiveness Implication of Policy Changes

Policy change	Cost Implication	Effectiveness Implication	Cost-effectiveness Implication
Ballot as screening tool	Negative	No effect	Improvement
ATSI and females re-enter ballot	No effect	No effect	No effect
Increased urinalysis	Positive	Positive?	Uncertain
Sanction accrual policy	Negative	Uncertain	Probable improvement

6.2.1 The Use of the Ballot as a Screening Tool Prior to Assessment

In the original sample, all potential participants were assessed for suitability. Since the number of individuals assessed was greater than the number of Drug Court places available (150), this meant there was a cost associated with the additional assessments. This system was amended between the collection of the original cohort of Drug Court participants and this current one. Now, all potential participants are balloted prior to assessment. The purpose of this is to reduce the number of initial assessments required. The impact of this change of policy (when considered in isolation) is clear. All participants have been screened as appropriate so there is no reason for asserting a difference in the effect of Drug Court caused by the change of policy regarding the ballot. However, since the marginal cost of additional people in the ballot is zero, and total number considered in the initial assessment reduces as a result of the policy, the cost implication is favourable. Therefore, the new policy weakly dominates the old in that it is as least as good in all dimensions, and better in at least one (namely the cost of assessment).

6.2.2 ATSI and Females who Fail the Ballot are Re-entered

It has become conventional for certain groups (ATSI and / or female) to re-enter the ballot if they are rejected in one round. This change may have cost implications. The re-entry means a disproportionate number of females and people with ATSI status enter the program. The question is two-fold: do we expect additional costs in these groups, and do we expect different effects? The cost side is relatively easy to answer, in that we have all individual level data referring to a number of cost areas. In particular, we have data on:

- Report backs
- Urinalysis
- Days in detox, prior to entry into program
- Days in program
- Sanctions served
- Occasions on which sanctions are served
- Reduction in incarceration as a result of Drug Court

Twenty nine percent (n=83) of the sample were either female or had ATSI status (or both). We can isolate this group and compare the various costs of each participant with the whole sample mean.

Table 12: Resource use by Gender

Cost Item	Mean (Female) (n=60)	Mean (Male) (n=227)	Difference	Chi- ²
Report backs	31.88	32.37	-0.49	0.430
Urinalysis	85.83	89.91	-4.08	0.789
Days in detox (pre-program)	20.97	22.55	-1.58	0.892
Days in program	354.17	374.65	-20.48	0.598
Sanctions served	38.05	36.48	1.57	0.201
Sanctions served (occasions)	3.03	2.85	0.18	0.265
Reduction in sentence	6.49 months	5.46 months	1.03 months	

Table 13: Resource use by ATSI Status

Cost Item	Mean (ATSI) (n=40)	Mean (non- ATSI) (n=247)	Difference	Chi- ²
Report backs	29.28	32.75	-3.47	0.719
Urinalysis	79.55	90.60	-11.05	0.406
Days in detox (pre-program)	21.20	22.38	-1.18	0.658
Days in program	350.75	373.54	-22.79	0.744
Sanctions served	33.03	37.42	-4.39	0.997
Sanctions served (occasions)	2.50	2.96	-0.46	0.860
Reduction in sentence	4.33 months	5.89 months	-1.56	0.708

The on-program resource use is not significantly different for either the ATSI group relative to the non-ATSI group, or the females relative to males. That is, there is no statistically significant difference in resource use in terms of report backs, urinalysis, days in detox pre-program, days in program, sanctions served or the number of occasions on which sanctions are served. Despite the lack of statistically significant evidence, the data suggest that the saving in incarceration is lower in both the female and the ATSI status group. As the cost saving of incarceration is a significant component of the analysis, this is potentially suggestive that the policy to over-represent females and / or ATSI status people might lead to an increase in net cost of the program, particularly as per diem costs of female incarceration are higher.

However, this phenomenon may be a result of a difference in initial sentences. If females and / or ATSI status individuals are receiving relatively shorter sentences, and shorter sentences mean the average reduction in sentence is necessarily shorter, than the reduced cost savings for females and ATSI status individuals may reflect shorter sentencing rather than the individuals' status as female or ATSI.

If we use Ordinary Least Squares, regressing reduction in sentence on initial sentence, we get the following results:

Table 14: The Association between Initial Sentence and Reduced Sentence

Reduced Sentence	Co-efficient	Standard Error	t-value	P> t	95% CI	
Initial sentence	0.564	0.065	8.72	0.000	0.437	0.691
Constant	-0.266	0.788	-0.34	0.736	-1.817	1.285
R-square	0.2106	Adjusted R-square	0.2078			

The initial sentence for the female / ATSI group was 8.837 months (compared with 11.217 in the others). Therefore we would expect a difference in final sentencing of $(11.217 - 8.837) * 0.564 = 1.342$ months. In Table 12, we identified an extra 1.64 months of sentence reduction in the non-female or ATSI group, leaving a difference of 0.298 months (or 9.07 days). However, this difference is not statistically significant. Therefore, we can conclude that the impact of focusing on females and ATSI status individuals in the ballot has no impact on program cost (at least in the dimensions considered here).

The second question is whether the effect of Drug Court is comparable between a group consisting of females and / or ATSI status individuals and the rest. The evidence presented so far suggests comparable effectiveness (as reduction in sentence, days in program, number of urinalysis and reports backs are either consequences or indications of successful progress). In addition, we can run a chi² test comparing graduation rates of female and/or ATSI individuals and the rest.

Table 15: Comparing Graduation Rates for Females and/or ATSI Status with other Drug Court Participants

	Female and/or ATSI	Others	Total
Graduated	10	33	43
Not graduated	171	73	244
Total	181	106	287

The Pearson Chi² statistic is 0.7894, and the p-value is 0.374, suggesting no association between graduation rate and status. Therefore, it seems likely that neither cost nor effectiveness differ between the two groups. Therefore, the decision to target the program towards females and/or people with ATSI status has little implication for the overall cost-effectiveness of the program other than that these two groups of participants are likely to have relatively shorter sentences so the cost saving of reduced incarceration as a result of successful progress is more limited.

6.2.3 Increasing Usage of Urinalysis

Advice from within the program suggested that urinalysis was now used with greater frequency than in previous years. The impact of this on cost-effectiveness is not *a priori* clear. The costs of urinalysis are likely to be greater in our current cohort than in the previous one as unit costs have increased (as will be outlined) and the scale of urinalysis in the Drug Court program has increased. However, the cost-effectiveness implications are uncertain as the effect of increased urinalysis on program progress is uncertain. It is plausible that increased vigilance has led participants to conform to a greater extent. This effect in isolation cannot be drawn out of the data as all respondents in the current sample are subject to all of the changes in policy.

In the original sample (Old Drug Court), the total cost of urinalysis was \$193,905 (in 2002 dollars) in all Drug Court participants (n=309). This equates to \$627.52 per participant. The urinalysis costs per person are higher in the graduated group (n=23, \$1,037) than in either the continuing group (n=91, \$1,003) or the terminated group (n=195, \$404). The urinalysis unit cost was identified as being \$18.36, which suggests that each participant received approximately 34 tests. It is highly likely that these data contain significant differences between individuals, and also that the data are skewed. However, reporting a mean is the most appropriate method for assessing the impact of the change in policy (and changing unit costs) on total costs.

The current sample (n=287) were tested on average approximately 89 times, representing a large increase compared to the original sample (2002 report). The individual-level data identifies skewness in the data. The median number of tests was 85 (Inter-quartile range: 30-135.5). The average unit cost was identified as being \$27.50 over the period (although the trend in unit cost was upwards, increasing from \$26.40 in 2005 to \$28.60 in 2007). The total cost of urinalysis over the period was therefore calculated by multiplying the sample size by the number of tests by the maximum cost of the test (\$28.60), and was estimated to be \$730,987. Even allowing for a differing cost base, this is clearly a substantial increase in costs in this area. However, it should be considered in the context of the overall cost of the Drug Court program.

6.2.4 Sanction Accrual Policy

In the NSW Drug Court described by the original BOCSAR and CHERE report and the current Drug Court, individuals are allowed to accrue days of sanctions (i.e.

days in prison) for actions contrary to the rules of Drug Court, and to not be automatically terminated from the program. However, since the data for the original report were collected, a potentially significant change has occurred regarding how individuals accrue and serve sanctions. Rather than accrue and immediately serve sanctions, Drug Court allows individuals to accrue (and work off) sanctions. Generally, when a participant accrues 14 days, he or she have to serve this time and return to the Drug Court program subsequently. This policy change is likely to have an impact on both the costs and effectiveness of the program. The impact on effectiveness is beyond the scope of this report, and is likely to be uncertain. It is arguable that the incentive of allowing days to be worked off through good behaviour will promote progress towards graduation. Equally, it could be argued that the relative infrequency of an immediate sanction reduces the incentive to avoid rule breaking.

The impact on the cost side is more easily ascertained. The cost savings of this policy are two-fold. Firstly, fewer total sanction days are served as program participants can have days waived for good behaviour. Secondly, there is a significant ‘flag-fall’ cost associated with incarceration. Since days are served in blocks of 14 (of which only the first incurs this one-off cost of incarceration), the cost per day (and hence the total cost of sanctions) will fall.

For the analysis of the sanction accumulation policy, we can construct a pseudo-control group in which all accrued days are immediately served. This assumes there is no causality between the sanction accrual policy and behaviour but, as we have identified that this is difficult to identify, this assumption is necessary. As we know the number of sanctions accrued and served for all individuals, and the number of occasions sanctions were accrued or served, we can estimate the total prison cost of the sanctions scheme.

For this, we assume that the cost of a day in prison is \$197.25 for males and \$257.53 for females (For details on how these figures were calculated, see Section 6.1.1), and the first day of any prison term incurs 50% additional costs. As we are uncertain of this figure, we will identify the effect of assuming a range of additional costs for day one, from 0 to a 100% increase.

Table 16: Cost Savings of Sanctions Policy

	New DC Approach	Old DC Approach	Old - New	Unit Cost	Saving of Current Approach
Sanctions accrued per person*	48.48	48.48	0	0	0
Accrual occasions per person	15.99	15.99	0	0	0
Sanctions served per person	36.81	48.48	11.67		\$700,036
Male (n=227)	36.48	48.37	11.89	\$197.25	\$532,384
Female (n=60)	38.05	48.90	10.85	\$257.53	\$167,652
Served occasions per person	2.89	15.99	13.10		\$395,190
Male (n=227)	2.85	15.86	13.01	\$98.63 ¹	\$291,281
Female (n=60)	3.03	16.48	13.45	\$128.76	\$103,909
			Total saving		\$1,095,226

* All per person figures are means. While medians are often used with skewed data, the mean is the best predictor of expected resource use.

¹ This unit cost refers to the additional cost of incarceration because the day of incarceration is the first day of that block.

As we have assumed that the policy of sanction accrual has no impact on the number of sanctions accrued, the total number of sanctions in the quasi-control group and the sample group is equal (48.48 over the duration of the program accrued over 15.99 occasions, resulting in a mean of 3.03 days per occasion). However, in the sample, the total number of days served is 36.81, which are served on an average of 2.89 occasions. The cost savings of the new policy are therefore estimated in Table 16. This consists of a saving of \$700,306 (\$2465 per participant) as a result of fewer days served, and a saving of \$395,190 (\$1391 per participant) as a result of fewer 'first-days' served. If the assumption about the relative cost of the first day of incarceration relative to subsequent days varies within a range of 0-100%, the total saving ranges from \$700,306 to \$1,490,416.

7 Conclusion

The Cost of NSW Drug Court

- o The total cost of the program is estimated to be \$32.752 million over two years (or \$16.376 million per annum). This gives a mean cost of \$114,119 per participant. The largest drivers of this total cost are the cost of final imprisonment following participation in the Drug Court program (51%) and the cost of staffing and running the court (19%).

NSW Drug Court versus Incarceration

- o The estimated cost of the Drug Court participants if they did not participate in Drug Court, i.e. conventional incarceration, would be \$36,268 million over two years (or \$18.134 million per annum). This gives a net saving of the Drug Court program of \$3,516 million (\$1.758 million per annum).
- o Since Drug Court participants have demonstrated better effectiveness, in terms of time to first offence (Weatherburn, et al., 2008), and the total cost of Drug Court relative to conventional sanctions is negative, we can say from a cost-effectiveness perspective the Drug Court program dominates usual incarceration. In other words it is cheaper and produces better outcomes than the alternative. This conclusion means that NSW Drug Court is likely to be a cost-effective approach

New NSW Drug Court versus Old NSW Drug Court

The cost implications of some of the new Drug Court policy changes were examined.

- o Using the ballot as a screening tool was estimated to be moderately cost saving
- o Preferential selection of ATSI and females were associated with no significant differences in resource use. Therefore targeting the program towards females and/or people with ATSI status has little implication for the overall cost or cost-effectiveness of the program.
- o The increased use of urinalysis has increased the cost of the Drug Court program. However, the benefit to participants in terms of increased vigilance could not be determined with the data available.
- o The largest cost saving of new Drug Court was associated with the sanction accrual policy. We estimated that based on sanctions avoided the cost saving over two years was \$700,000 (or \$2465 per participant). By including flag fall costs, associated with the first day of incarceration, the cost saving could be as large as \$1,500,000.

Summary

The Drug Court program appears to be a cost-effective use of resources. It leads to significant reduction and delay in recidivism, and saves considerable resource use as a result of reduced incarceration. In addition, there are likely to be significant health gains for the participants which are of considerable value above and beyond the reduction in re-offence rates. Given the uncertainty in the underlying data, the analysis presented here cannot identify unequivocally whether the net cost of the Drug Court program relative to conventional sanctions is positive or negative. However, given the good evidence of improved outcomes, the Drug Court Program is likely to be cost-effective.

7.1 Future Cost-effectiveness

In principle, this result is of interest, both within the existing geographical domain (by extending the scope of the program) and elsewhere (through replicating the NSW Drug Court program structure). Whether the cost-effectiveness result remains true if the program is extended in either way depends on a number of factors, which need to be considered.

- If the existing program is extended to encompass all eligible people, it is likely that the result will remain. Indeed, since some of the costs contained within the program are largely fixed, the cost per person may decline. However, as some of the costs (such as office space) can be defined as step-costs (i.e. fixed until a threshold is reached), this general principle may not apply over all increases in participant numbers.
- If the existing program is expanded to cover other potential participants (such as those deemed ineligible at initial assessment), there is greater uncertainty regarding the implication for cost-effectiveness. The effectiveness results may be different in a different group, and any expansion in this direction should be subject to ongoing evaluation.
- With regard to expansion of the program to other areas, there are a number of issues that should be considered. Firstly, as noted in the original report (Lind, et al., 2002), there are substantial start-up costs. Therefore, there may be a number of years over which any new Drug Court program would be more expensive than the existing NSW Drug Court. However, progress towards the level of cost-effectiveness displayed by the existing NSW Drug Court should be relatively faster as it would be expected that the experience of the existing program would feed in to the development of the new program. The second issue in replicating the approach in a different area is that there may be good reasons for asserting that a new population will respond differently to the response we have observed in the cohort investigated here. Possible differences in population that may cause differing responses might include age, gender or ATSI status differences, or differing patterns of drug use and criminal behaviour.

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