



Ministry  
of Justice

**Justice Data Lab re-offending analysis:  
Leeds Drug Intervention Programme/  
Integrated Offender Management programme  
run by Developing Initiatives for Support in the  
Community (DISC Leeds DIP/IOM project)**

## Summary

This analysis assessed the impact on re-offending of participating in the Leeds Drug Intervention Programme and Integrated Offender Management programme (Leeds DIP/IOM project), which is run by the charity Developing Initiatives for Support in the Community (DISC) in conjunction with the West Yorkshire police and probation services. The one-year proven re-offending rate<sup>1</sup> for 252<sup>2</sup> offenders in the treatment group that undertook this project was 63%, compared with 62% for a control group of similar offenders from England and Wales who were matched to the treatment group by controlling for a set of complex characteristics and needs<sup>3</sup> of the offenders. Testing has shown that this difference is not statistically significant<sup>4</sup>, suggesting that at this stage there is insufficient evidence to draw a conclusion about the impact of the Leeds DIP/IOM project on the overall re-offending rate of its participants. However, the results of the analysis do not mean that the project failed to have an effect on re-offending behaviour.

Several additional analyses were performed in order to evaluate the impact of the Leeds DIP/IOM project in more detail:

- 1) A regional analysis compared the treatment group to a control group of similar offenders from the West Yorkshire area, within which Leeds is situated.
- 2) National and regional analyses were conducted that controlled for a set of simpler offender characteristics.
- 3) Both of the above analyses were repeated using a subset of the treatment group, which consisted of 47 individuals who each participated in the Leeds DIP/IOM project for fewer than 12 weeks, as requested by DISC.

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<sup>1</sup> The **one-year proven re-offending rate** is defined as the proportion of offenders in a cohort who commit an offence during a one-year follow-up period, where the offence was proven through receipt of a court conviction, caution, reprimand or warning during the follow-up or during a further six-month waiting period. The one-year follow-up period begins when an offender leaves custody, starts their court sentence or receives their caution.

<sup>2</sup> 252 individuals were matched from a cohort of 340 individuals whose details were sent to the Justice Data Lab, as described on pages 4-5 of this report.

<sup>3</sup> Please see Annex C for a profile of the needs and issues experienced by the treatment group as recorded by the Offender Assessment System.

<sup>4</sup> The p-value for the one-year proven re-offending rate is shown in table 1 on page 8. Statistical significance testing is described on page 16 of this report.

The results of these analyses are consistent with that of the main analysis, as none of them show a statistically significant difference between treatment and control groups in the one-year re-offending rate.

The DISC Leeds DIP/IOM project works with prolific offenders who also have histories of substance misuse. In order to form a control group of similar individuals, information from the Offender Assessment System (OASys) was used to control for substance misuse and related issues among the offenders.

**What you can say:** There is insufficient evidence at this stage to draw a conclusion about the impact of the DISC Leeds DIP/IOM project on the one-year proven re-offending rate of their participants.

**What you cannot say:** This analysis shows that the DISC Leeds DIP/IOM project increased the one-year proven re-offending rate of its participants by 1 percentage point, or by any other amount.

## Introduction

The DISC Leeds DIP/IOM project is a multi-agency, co-ordinated approach that aims to minimise the risk of re-offending within the community by the most criminally active offender cohorts. It supports individuals who have been identified by the West Yorkshire police and probation services as having a high risk of re-offending, and is responsible for the co-ordination of multi-disciplinary support plans covering offender needs such as drug treatment, housing, employment, family relationships and mental health. The project engages its participants through two strategies:

- 1) Group workshops covering the following areas: motivation; pro-social community functioning; access to welfare and benefits; budget management; recovery from drug use; developing employability; victim awareness.
- 2) Engagement with hard-to-reach individuals on an outreach basis by arranging for collection at the prison gate on the day of release and implementing customised, jointly agreed actions plans to target specific areas and undermine the drivers that lead to committing crime.

This analysis relates to offenders who participated in the Leeds DIP/IOM project between 2010 and 2013. The majority were referred by drug intervention programmes in the prisons HMP Leeds, HMP Wealstun, HMP New Hall, HMP Lindholme, HMP Moorlands, HMP Hull and HMP Deerbolt. For those individuals whose treatment by the Leeds DIP/IOM project started in one of these prisons, pre-release preparation work began around three months before release, after which they were case-managed throughout their post-release licence period and for up to six months afterwards.

## Processing the data

**All: 340**  
**<12wks: 64**

DISC sent data to the Justice Data Lab for 340 offenders who participated in the Leeds DIP/IOM project between June 2009 and December 2013, each receiving treatment for up to three years. 64 of them received fewer than 12 weeks' treatment.

**All: 338**  
**<12wks: 63**

338 of the 340 offenders were matched to the Police National Computer, a match rate of 99%. 63 of them received fewer than 12 weeks' treatment.

**All: 254**  
**<12wks: 47**

254 offenders were eligible for analysis and had an identifiable sentence relating to their treatment. Of these individuals, 80% had a prison sentence relating to their treatment and 88% had an OASys assessment<sup>5</sup> associated with their sentence. 47 of them received fewer than 12 weeks' treatment.

Analysis of the 84 matched individuals who could not be incorporated into the analyses revealed the following:

- There are 74 individuals for whom no sentence relating to their treatment could be found on the administrative data sets.
- There is 1 individual who could not be included in the analysis as they had previously committed at least one sexual offence<sup>6</sup>.
- There is 1 individual who could not be included in the analysis as they had previously committed at least one sexual offence.
- There are 9 individuals who re-offended before the treatment began.
- The general characteristics of these individuals are similar to those of the people who were included in the analyses. 85% are male (compared to 85% of those in the analyses), 99% are UK nationals (compared to 96% of those in the analyses) and 96% are ethnically white (compared to 95% of those in the analyses).

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<sup>5</sup> OASys assessments provide information on the risks and needs of each offender, which are used alongside other characteristics to improve the matching between treatment and control groups. Those without OASys assessments remain in the analysis, but are matched without consideration of these factors. For further information on the methodology for incorporating OASys into the JDL process, see [www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/491688/oasys-methodology.pdf](http://www.gov.uk/government/uploads/system/uploads/attachment_data/file/491688/oasys-methodology.pdf)

<sup>6</sup> People who have been convicted of any sexual offences before or on their index date are removed from all analyses by the Justice Data Lab, as the re-offending patterns of these individuals are known to be very different from those of other offenders.

## Creating matched treatment and control groups

All: 252  
<12wks: 47

252 of the 254 eligible individuals for whom re-offending data was available were successfully matched to offenders in England and Wales who had similar characteristics but who did not take part in the Leeds DIP/IOM project, when controlling for a complex set of offender characteristics and needs. All of the 47 eligible individuals who received fewer than 12 weeks' treatment were successfully matched.

In total, the matched control groups in these analyses consisted of 570,254 records for the treatment group of 252 individuals and 163,998 for the treatment group of 47 individuals<sup>7</sup>.

Annex B provides information on the similarity between the treatment and control groups. Further data on the matching process is available upon request.

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<sup>7</sup> The sizes of the matched treatment and control groups differ for each analysis, as shown in Tables 1 and 2.

## Results

Eight analyses were conducted in order to understand the impact of controlling for individual offender risks and needs, for regional variation and for duration of treatment. Two models of risk and need were assessed:

- Basic model – standard characteristics used, with no OASys information included.
- Complex model – characteristics of basic model used, along with OASys information on drug and alcohol use, mental health, attitude towards offending, accommodation status, employment history and employability and relationships with family and partner.

An intermediate model was run, which considered the characteristics of the basic model along with OASys information on drug and alcohol use, mental health and attitude towards offending, but the matching quality and results were found to be very similar to those of the complex model and so have been omitted from this report.

The treatment group was compared to national and regional control groups for each model. These five analyses were then repeated using only those members of the treatment group who had received fewer than 12 weeks' treatment, as requested by DISC in order to assess any difference in impact from a shorter period of treatment.

### **One-year re-offending rate**

When controlling for drug and alcohol use, mental health, attitude towards offending, accommodation status, employment history and employability and relationships with family and partner, the one-year proven re-offending rate for 252 offenders who participated in the DISC Leeds DIP/IOM project was 63%, compared with 62% for a matched control group of 570,254 similar offenders from England and Wales (national complex analysis). The difference between the groups is not statistically significant. Figure 1 illustrates this result and those of the national basic analysis, showing the ranges within which the true re-offending rates are estimated to be. Figure 2 does the same for the regional analyses.

Figure 1: One-year proven re-offending rates for all participants of the DISC Leeds DIP/IOM project, compared with a matched national control group

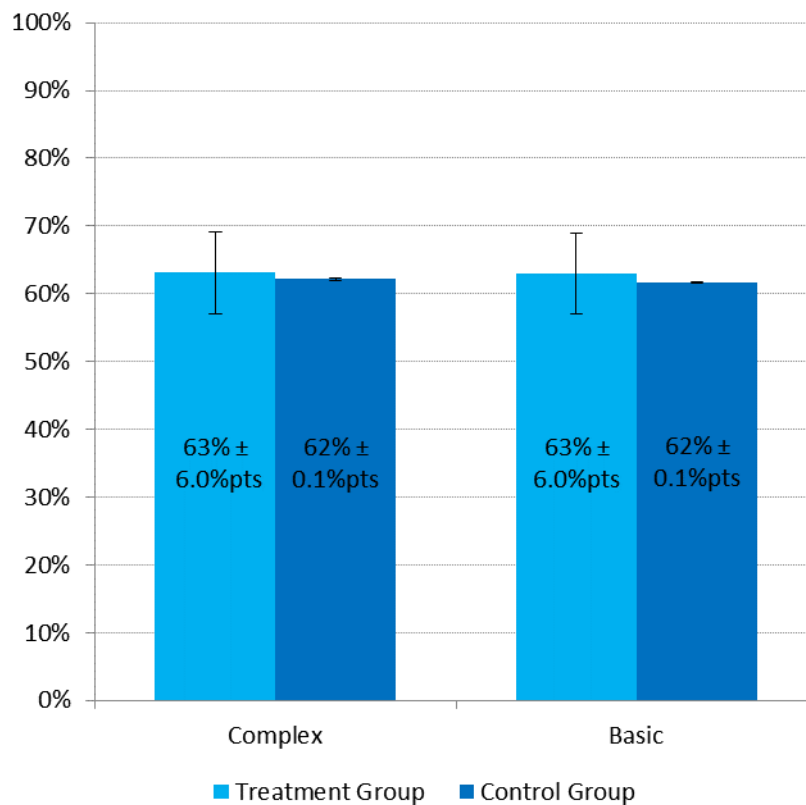
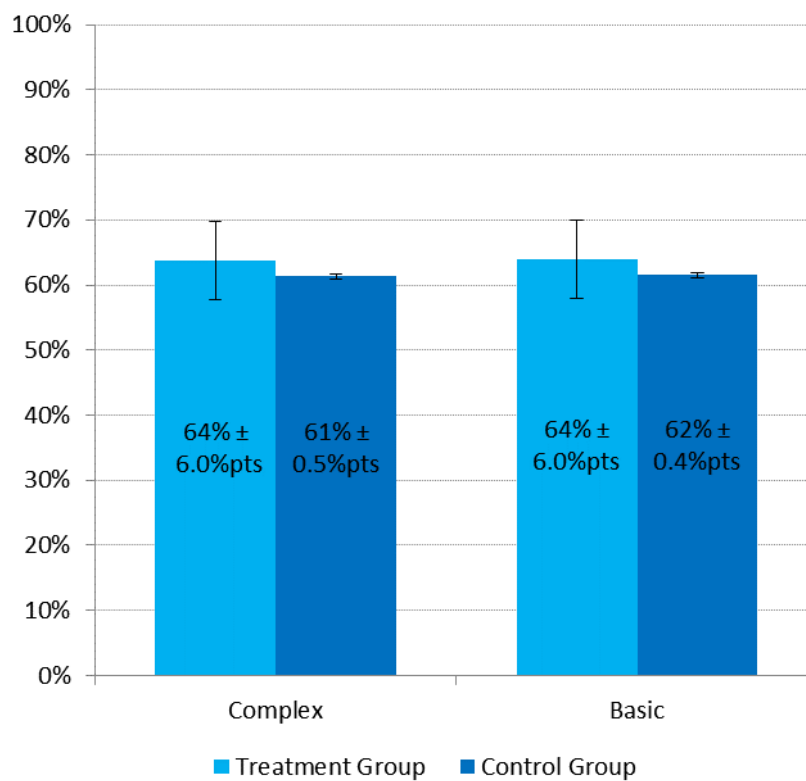


Figure 2: One-year proven re-offending rates for all participants of the DISC Leeds DIP/IOM project, compared with a matched regional control group



All the analyses show consistent results, with no statistically significant differences in the one-year proven re-offending rate. For all participants of the Leeds DIP/IOM project, the differences between treatment and control groups are estimated to be:

- Between a reduction of 5 percentage points and an increase of 7 percentage points in the one-year re-offending rate of the treatment group compared to the national control group, when using the basic or complex models.
- Between a reduction of 4 percentage points and an increase of 8 percentage points in the one-year re-offending rate of the treatment group compared to the regional control group, when using the basic or complex models.

Tables 1 and 2 give the results of these analyses, including the ranges within which the true differences between the groups are estimated to be.

*Table 1: One-year proven re-offending rates and p-values for all participants of the DISC Leeds DIP/IOM project, compared with matched control groups*

Model	Area	Number in treatment group	Number in control group	One-year proven re-offending rate				
				Treatment group (%)	Control group (%)	Estimated difference (% points)	Significant difference?	p-value
Complex	National	252	570,254	63.1	62.2	-5.1 to +6.9	No	0.76
	Regional	251	45,115	63.7	61.3	-3.6 to +8.5	No	0.42
Basic	National	254	598,951	63.0	61.7	-4.7 to +7.3	No	0.67
	Regional	250	55,902	64.0	61.5	-3.5 to +8.5	No	0.42

*Table 2: One-year proven re-offending rates and p-values for participants of the DISC Leeds DIP/IOM project who received fewer than 12 weeks' treatment, compared with matched control groups*

Model	Area	Number in treatment group	Number in control group	One-year proven re-offending rate				
				Treatment group (%)	Control group (%)	Estimated difference (% points)	Significant difference?	p-value
Complex	National	47	163,998	61.7	61.4	-14.2 to +14.7	No	0.97
	Regional	47	18,854	61.7	60.4	-13.2 to +15.7	No	0.86
Basic	National	47	230,591	61.7	61.5	-14.2 to +14.6	No	0.98
	Regional	47	22,925	61.7	60.7	-13.4 to +15.5	No	0.89

The results show that we do not have significant evidence that the Leeds DIP/IOM project led to a reduction or an increase in the rate of re-offending among its participants<sup>8</sup>.

<sup>8</sup> Due to the fact that the re-offending rate is slightly higher in the treatment group than in the control group, it is not possible to estimate the number of treatment members that would be required in order to show a significant decrease in re-offending among the treatment group.



## Additional proven re-offending measures

### Frequency of re-offending

When controlling for drug use and alcohol use, mental health, attitude towards offending, accommodation status, employment history and employability and relationships with family and partner, the one-year proven re-offending frequency for 252 offenders who participated in the DISC Leeds DIP/IOM project was 2.60 offences per person, compared with 2.70 in the matched control group (national complex analysis). The difference between the groups is not statistically significant.

All the analyses show consistent results, with no statistically significant differences in the one-year proven re-offending frequency. Tables 3 and 4 give the results of these analyses.

*Table 3: One-year proven re-offending frequencies and p-values for all participants of the DISC Leeds DIP/IOM project, compared with matched control groups*

Model	Area	Number in treatment group	Number in control group	One-year proven re-offending frequency (offences per person)			
				Treatment group	Control group	Significant difference?	p-value
Complex	National	252	570,254	2.60	2.70	No	0.62
	Regional	251	45,115	2.63	2.66	No	0.85
Basic	National	254	598,951	2.59	2.68	No	0.66
	Regional	250	55,902	2.64	2.70	No	0.77

*Table 4: One-year proven re-offending frequencies and p-values for participants of the DISC Leeds DIP/IOM project who received fewer than 12 weeks' treatment, compared with matched control groups*

Model	Area	Number in treatment group	Number in control group	One-year proven re-offending frequency (offences per person)			
				Treatment group	Control group	Significant difference?	p-value
Complex	National	47	163,998	2.51	2.62	No	0.81
	Regional	47	18,854	2.51	2.64	No	0.78
Basic	National	47	230,591	2.51	2.71	No	0.66
	Regional	47	22,925	2.51	2.66	No	0.73

The results show that we do not have significant evidence that the Leeds DIP/IOM project led to a reduction or an increase in the frequency of re-offending among its participants.

### Time to first re-offence

In the national complex analysis, the average time to first proven re-offence for 159 offenders who participated in the DISC Leeds DIP/IOM project, and who re-offended within a one-year period, was 115 days, compared with 114 days for a matched control group of 277,901 similar offenders who also re-offended within a one-year period. The difference between the groups is not statistically significant.

None of the analyses shows a statistically significant difference in the time to first proven re-offence within a year. Tables 5 and 6 give the results of these analyses.

*Table 5: Average time to first proven re-offence and p-values for all participants of the DISC Leeds DIP/IOM project who re-offended within a one-year period, compared with matched control groups*

Model	Area	Number in treatment group	Number in control group	Average time to first proven re-offence within a one-year period, for re-offenders only (days)			
				Treatment group	Control group	Significant difference?	p-value
Complex	National	159	277,901	115	114	No	0.86
	Regional	160	23,350	115	115	No	0.94
Basic	National	160	295,878	115	116	No	0.89
	Regional	160	28,514	115	116	No	0.84

*Table 6: Average time to first proven re-offence and p-values for participants of the DISC Leeds DIP/IOM project who received fewer than 12 weeks' treatment and who re-offended within a one-year period, compared with matched control groups*

Model	Area	Number in treatment group	Number in control group	Average time to first proven re-offence within a one-year period, for re-offenders only (days)			
				Treatment group	Control group	Significant difference?	p-value
Complex	National	29	84,636	107	120	No	0.48
	Regional	29	8,361	107	120	No	0.48
Basic	National	29	105,156	107	118	No	0.53
	Regional	29	10,377	107	118	No	0.53

The results show that we do not have significant evidence that the Leeds DIP/IOM project led to a reduction or an increase in the time to first re-offence among those of its participants who re-offended within a one-year period.

**Note: The following measures aim to provide greater detail to users on re-offending outcomes. We look for feedback on them to ensure they are as useful as possible. All these measures consider only those who committed a proven re-offence during a one-year follow-up period and for whom re-offence severity data was available (157 in the treatment group and 268,647 in the control group for the national complex model).**

## Measures of severity of re-offending

These measures report on the severity<sup>9</sup> of re-offences that occurred during a one-year follow-up period, with tier 1 representing the most serious offences. They are presented for the treatment group of all participants in the DISC Leeds DIP/IOM project for whom severity data is available. They are not shown for the group who received fewer than 12 weeks' treatment, as severity data was not available for enough people to make reliable estimates.

### One-year proven re-offending rate in each tier of severity

Table 7 shows the one-year proven re-offending rates for individuals who participated in the Leeds DIP/IOM project and who committed their *first* re-offence in tier 2 or 3 during a one-year follow-up period, compared with control groups of similar individuals<sup>10</sup>. Testing has shown that none of these differences is statistically significant.

*Table 7: One-year proven re-offending rates and p-values, by severity tier of first re-offence, for all participants of the DISC Leeds DIP/IOM project who re-offended within a one-year period, compared with matched control groups*

Model	Area	Number in treatment group	Number in control group	One-year proven re-offending rate by severity tier of first re-offence, for re-offenders only				
				Severity tier	Treatment group (%)	Control group (%)	Significant difference?	p-value
Complex	National	157	268,647	2	13.4	14.1	No	0.80
				3	86.6	85.2	No	0.60
	Regional	158	22,564	2	13.3	15.1	No	0.52
				3	86.7	84.1	No	0.34
Basic	National	158	285,745	2	13.3	14.2	No	0.75
				3	86.7	85.1	No	0.55
	Regional	158	27,577	2	13.3	14.3	No	0.72
				3	86.7	85.0	No	0.54

<sup>9</sup> See definition in glossary in Annex D.

<sup>10</sup> Tier 1 excluded from Table 7 as there are too few people in the category to make reliable estimates.

### One-year proven re-offending frequency in each tier of severity

Table 8 shows the one-year frequencies of proven re-offending in tiers 2 and 3 for individuals who participated in the Leeds DIP/IOM project and who re-offended during a one-year follow-up period, compared with control groups of similar individuals<sup>11</sup>. Testing has shown that, in all national analyses, the one-year frequency of proven re-offending in tier 2 is significantly lower in the treatment group, with a reduction of between 0.01 and 0.20 offences per person<sup>12</sup>. Tier 2 covers serious acquisitive offences such as burglary, robbery and theft of and from vehicles.

*Table 8: One-year proven re-offending frequencies and p-values, by severity tier of re-offence, for all participants of the DISC Leeds DIP/IOM project who re-offended within a one-year period, compared with matched control groups*

Model	Area	Number in treatment group	Number in control group	One-year proven re-offending frequency by severity tier, for re-offenders only (offences per person)				
				Severity tier	Treatment group	Control group	Significant difference?	p-value
Complex	National	157	268,647	2	<b>0.29</b>	<b>0.39</b>	Yes	0.03
				3	3.82	3.84	No	0.96
	Regional	158	22,564	2	0.28	0.37	No	0.07
				3	3.82	3.79	No	0.89
Basic	National	158	285,745	2	<b>0.28</b>	<b>0.40</b>	Yes	0.01
				3	3.82	3.83	No	0.97
	Regional	158	27,577	2	0.28	0.36	No	0.13
				3	3.82	3.83	No	0.97

<sup>11</sup> Tier 1 excluded from Table 8 as there are too few people in the category to make reliable estimates.

<sup>12</sup> If the results were replicated with 1,000 similar individuals, this means that there would likely be a reduction of between 10 and 200 offences over a one-year period.

## **Severity of first re-offence within a year relative to index offence**

Table 9 shows the one-year proven re-offending rates for those individuals who participated in the Leeds DIP/IOM project and who committed their first re-offence either in a less severe tier than their index offence or in the same tier during a one-year follow-up period, compared with control groups of similar individuals<sup>13</sup>. Testing has shown that none of these differences is statistically significant.

*Table 9: One-year proven re-offending rates and p-values, by severity tier of first re-offence relative to index offence, for all participants of the DISC Leeds DIP/IOM project who re-offended within a one-year period, compared with matched control groups*

Model	Area	Number in treatment group	Number in control group	One-year proven re-offending rate by severity tier of first re-offence relative to index offence, for re-offenders only				
				Relative severity	Treatment group (%)	Control group (%)	Significant difference?	p-value
Complex	National	157	268,647	Less	22.9	24.6	No	0.63
				Same	72.6	69.5	No	0.38
	Regional	158	22,564	Less	22.8	23.8	No	0.77
				Same	72.8	70.2	No	0.47
Basic	National	158	285,745	Less	22.8	25.4	No	0.43
				Same	72.8	68.5	No	0.23
	Regional	158	27,577	Less	22.8	24.9	No	0.53
				Same	72.8	69.1	No	0.30

## **Measures of re-offending resulting in custody**

These measures refer to re-offences that occurred during a one-year follow-up period and resulted in the individual receiving a custodial sentence. They do not specify the lengths of sentences given, or detail any reasoning behind the custodial sentences. They are presented for the treatment group of all participants in the DISC Leeds DIP/IOM project for whom custodial sentencing data is available. They are not shown for the group who received fewer than 12 weeks' treatment, as custodial sentencing data was not available for enough people to make reliable estimates.

<sup>13</sup> First re-offences in a more severe tier than the index offence excluded from Table 9 as there are too few people in the category to make reliable estimates.

### One-year rate of custodial sentencing for first re-offence

Table 10 shows the one-year rates of custodial sentencing for *first* proven re-offence for individuals who participated in the Leeds DIP/IOM project and who re-offended during a one-year follow-up period, compared with control groups of similar individuals. Testing has shown that none of these differences is statistically significant.

*Table 10: One-year rates of custodial sentencing for first proven re-offence, and p-values, for all participants of the DISC Leeds DIP/IOM project who re-offended within a one-year period, compared with matched control groups*

Model	Area	Number in treatment group	Number in control group	One-year rate of custodial sentencing for first proven re-offence, for re-offenders only			
				Treatment group (%)	Control group (%)	Significant difference?	p-value
Complex	National	157	268,647	43.9	48.5	No	0.25
	Regional	158	22,564	43.7	51.0	No	0.07
Basic	National	158	285,745	43.7	48.1	No	0.26
	Regional	158	27,577	43.7	49.8	No	0.12

### One-year frequency of custodial sentencing

Table 11 shows the one-year frequencies of custodial sentencing<sup>14</sup> for individuals who participated in the Leeds DIP/IOM project and who re-offended during a one-year follow-up period, compared with control groups of similar individuals. Testing has shown that none of these differences is statistically significant.

*Table 11: One-year frequencies of custodial sentencing, and p-values, for all participants of the DISC Leeds DIP/IOM project who re-offended within a one-year period, compared with matched control groups*

Model	Area	Number in treatment group	Number in control group	One-year rate of custodial sentencing for first proven re-offence, for re-offenders only			
				Treatment group	Control group	Significant difference?	p-value
Complex	National	157	268,647	2.14	2.22	No	0.71
	Regional	158	22,564	2.13	2.32	No	0.33
Basic	National	158	285,745	2.13	2.21	No	0.67
	Regional	158	27,577	2.13	2.32	No	0.33

<sup>14</sup> Please note that the length of a custodial sentence given to an offender can have an impact on their frequency of one-year custodial sentencing.

## Annex A

### Caveats and limitations

The statistical matching used in this analysis is based on data collected for administrative purposes, and it has only been possible to control for a limited amount of information about the offenders within the treatment and control groups. While these include details of each offender's risks, needs and previous criminal history, alongside more basic offender characteristics such as age, gender and ethnicity, it is possible that other important contextual information that may help to explain the results has not been accounted for.

Many organisations that work with offenders will target specific issues experienced by individuals, such as housing problems or substance misuse. However, the processes used to select those individuals could lead to selection bias, which can impact on the results. Individuals may, for example, self-select into a service because they are highly motivated to address one or more of their needs. This would result in a positive selection bias, meaning that these people would generally be expected to have a better re-offending outcome than a randomly selected sample. Alternatively, some organisations might specifically target those who are known to have more complex needs and whose attitudes to addressing their needs are more challenging. This would result in a negative selection bias, meaning that these individuals would generally be expected to have a poorer re-offending outcome than a randomly selected sample, because they are not motivated to address their needs. The inclusion of OASys data for approximately 90% of the individuals in the treatment groups for this analysis may address some of this potential bias, as it indicates the motivation of an individual to tackle their offending behaviour and their drug or alcohol misuse. However, some factors which could lead to selection bias in either direction are not fully represented in our underlying data and cannot be reflected in our modelling. This means that all results should be interpreted with care, as selection bias cannot be entirely accounted for in analyses.

These analyses excluded around 25% of the offenders whose details were originally shared with the Ministry of Justice, as explained in the 'Processing the Data' section. In many analyses, the creation of a matched control group will mean that some individuals, who will usually have particular characteristics – for example a particular ethnicity, or have committed a certain type of offence, will need to be removed to ensure that the modelling will work. Steps will always be taken at this stage to preserve as many individuals as possible, but due to the intricacies of statistical modelling some attrition at this stage will often result. As such, the final groups may not be representative of all people who participated in the DISC Leeds DIP/IOM project.

The re-offending rates included in this analysis **should not** be compared with the national average, nor with any other reports or publications which include re-offending rates – including those assessing the impact of other interventions. The re-offending rates included in this report are specific to the characteristics of those

people who participated in the DISC Leeds DIP/IOM project and who could be matched to a control group, and these characteristics include histories of prolific offending and drug or alcohol misuse. Any other comparison would not be comparing like for like.

For a full description of the methodology, including the matching process, see [www.justice.gov.uk/downloads/justice-data-lab/justice-data-lab-methodology.pdf](http://www.justice.gov.uk/downloads/justice-data-lab/justice-data-lab-methodology.pdf)

## **Assessing statistical significance**

This analysis uses statistical testing to assess whether a measured difference in re-offending behaviour can reasonably be attributed to chance, or whether the intervention is likely to have led to a real change in behaviour. The outcome of each statistical test is a 'p-value', which is between 0 and 1, indicating the level of confidence that a real difference in re-offending between the two groups has been observed. The smaller the p-value, the less likely it is that chance is the explanation for the measured difference.

If the p-value is less than, or equal to, 0.05, the result is regarded as 'significant' because chance appears to be an unlikely explanation. The measured difference is then attributable either to the treatment intervention or to some other difference between the treatment and control groups (see 'caveats and limitations' above). The confidence intervals in the figures are helpful in judging whether something is significant at the 0.05 level. If the confidence intervals for the two groups do not overlap, it indicates that there is significant evidence of a real difference between their re-offending rates.



## **Annex B – Quality of matching summary**

The quality of matching between the treatment and control groups is assessed using the standardised differences for all variables that are included in the matching process (see Tables A.1-A.8 in the Excel annex accompanying this report). Table A.1 (national complex model for all those who received treatment) shows that the two groups are well matched on all variables found to have associations with receiving treatment and/or re-offending, when controlling for a complex set of offender risks and needs. These standardised differences are between -5% and 5% and are highlighted in green.

For the other analyses, most variables are well matched. Those highlighted in amber are reasonably matched and have standardised differences between -6% and -10% or between 6% and 10%. These are still indicative of a control group with similar characteristics to the treatment group.

## **Annex C – Profile of the treatment group**

Figures B.1-B.3 (in the Excel annex accompanying this report) give a profile of the 224 individuals in the treatment group who have an OASys assessment, showing the needs and issues relevant to this group.

Chart B.1 shows that 49% of treatment group members with an OASys assessment had significant current drug problems at the time of their index offence, while 20% had significant current alcohol problems. This is consistent with the fact that the DISC Leeds DIP/IOM project focuses on people with substance misuse needs. Other needs were also prevalent, with 34% having been involved in domestic violence (either as a perpetrator or a victim), 32% having significant problems with work skills, 30% having no fixed abode, 21% having significant psychological problems and 19% having significant problems with close family relationships. This demonstrates that the Leeds DIP/IOM project provides treatment to people with a broad range of needs.

Figure B.2 shows other needs that are combined with significant drug and/or alcohol problems. It indicates that 23% of the treatment group with an OASys assessment combined substance misuse with significant problems with work skills, 21% combined substance misuse with having been a perpetrator or victim of domestic violence, 21% combined substance misuse with having no fixed abode, 13% combined substance misused with significant problems with close family relationships and 11% combined substance misuse with having significant psychological problems. This indicates that many individuals in the treatment group have additional needs combined with current substance misuse issues.

Figure B.3 compares current and past misuse of drugs and alcohol. 98% of treatment group members with an OASys assessment have had drug problems at some time, while 28% have had alcohol problems at some time. In both cases, around half of these people also had current problems at the time of their index offence. This indicates that a substantial proportion of the treatment group do not have current drug and/or alcohol issues, but all have had these problems at some time.

## **Annex D**

### **Glossary of terms**

#### **95% confidence intervals**

If the measured value for a re-offending measure were equal to the true mean, 95% of repeat analyses would give a value that is within the measured 95% confidence intervals.

#### **Copas rate**

The Copas rate controls for the rate at which an offender has built up convictions throughout their criminal career. The higher the rate, the more convictions an offender has in a given amount of time.

#### **Custodial sentence**

A sentence that requires an individual to serve time in custody as a result of a conviction for one or more offences.

#### **Follow-up period**

This refers to the time period for which re-offending is measured from the index date.

#### **Frequency of one-year proven re-offending**

The number of re-offences committed in a one-year follow-up period which were proven through receipt of a court conviction, caution, reprimand or warning during the follow-up or in a further six month waiting period. The one-year follow-up period begins when an offender leaves custody, starts their court sentence, or from receipt of their caution.

#### **Index date**

The date from which proven re-offences are measured. This is defined as the date of prison discharge for custodial sentences, the date of court conviction for non-custodial sentences, the date of receipt for a caution, reprimand or final warning or the date of a positive drug test.

#### **Index offence**

The offence of which an individual has been convicted, which leads to a sentence and an index date.

#### **Matched control group**

The matched control group contains all individuals who have available re-offence records, who are eligible for analysis, who did not receive the treatment intervention and who could be matched to at least one member of the matched treatment group.

**Matched treatment group**

The matched treatment group contains all individuals who have available re-offence records, who are eligible for analysis, who received the treatment intervention and who could be matched to at least one member of the matched control group.

**One-year proven re-offending rate**

The proportion of offenders in a cohort who commit an offence in a one-year follow-up period, where the offence was proven through receipt of a court conviction, caution, reprimand or warning during the one-year follow-up or in a further six month waiting period.

**p-value**

A value, between 0 and 1, that indicates the likelihood that a real difference in re-offending between the treatment and control groups has been observed. A p-value that is less than, or equal to, 0.05 is a significant piece of evidence in support of the idea that the treatment intervention is effective in changing re-offending behaviour – provided the two groups are well matched. Statistical significance testing is described on page 16 of this report.

**Re-offence**

An offence committed following conviction of the index offence which was proven through receipt of a court conviction, caution, reprimand or warning. The first re-offence refers to the first offence committed after conviction for the index offence.

**Severity**

The Ministry of Justice and the Home Office have developed a severity classification system to identify three tiers of offences, with tier 1 offences being the most serious and tier 3 offences being the least serious. Annex A of the 'Measurements and definitions' document, which accompanies proven re-offending quarterly statistics, gives the latest classification for tier 1 and tier 2 offences – please see the following link:

[www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/368435/proven-reoffending-definitions-measurement-oct13.pdf](http://www.gov.uk/government/uploads/system/uploads/attachment_data/file/368435/proven-reoffending-definitions-measurement-oct13.pdf)

**Standardised difference**

The standardised differences shown in Annex B measure the differences between the treatment and control groups in terms of the variation within each group. Each standardised difference represents the quality of the matching between the two groups for a single variable, with a smaller difference representing a better match.

**Time to re-offending**

Time to re-offending is defined as the average number of days between the index date and the date of the first re-offence within a one-year follow-up period. This measure is only calculated for individuals who re-offended during the one-year follow-up period.

**Treatment intervention**

The programme whose impact on re-offending is being analysed.

**True mean**

The true mean for a re-offending measure is the mean value that would be obtained from many repeat analyses. It is the 'real value' of the re-offending measure for large populations of people with the characteristics of the matched treatment and control groups. The measured value for a re-offending measure is the best available estimate of the true mean.

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