



Estimates of the Prevalence of Opiate Use and/or Crack Cocaine Use, 2008/09: Sweep 5 report

Project team:

Gordon Hay¹
Maria Gannon¹
Jane Casey¹
Tim Millar²

Produced by

1- The Centre for Drug Misuse Research, University of Glasgow

In collaboration with

2- The National Drug Evidence Centre, University of Manchester

Centre for Drug Misuse Research, University of Glasgow
89 Dumbarton Road
GLASGOW
G11 6PW

National Drug Evidence Centre, University of Manchester
Rutherford House
Manchester Science Park
MANCHESTER, M15 6GG

Correspondence should be addressed to Dr Gordon Hay at the Centre for Drug Misuse Research

Telephone: 0141 330 5413
Fax: 0141 330 2820
E-mail: prevalence@gla.ac.uk

Funding for this research was provided by the National Treatment Agency for Substance Use (NTA), Home Office Crime and Drugs Analysis and Research and the Department of Health. The views expressed in this report are those of the authors, not necessarily those of the NTA (nor do they reflect Government policy).

Abstract

This report provides estimates of the prevalence of opiate and/or crack cocaine use at the Government Office Region and national level in England for 2008/09. It is a follow up to the three reports that provided prevalence estimates for 2004/05 (Hay *et al.* 2006), 2005/06 (Hay *et al.* 2007a) and 2006/07 (Hay *et al.* 2008). Estimates of the prevalence of opiate use and crack cocaine use (by users of opiates and/or crack cocaine) are also presented. Two prevalence estimation methods have been used; the capture-recapture method and the multiple indicator method. The capture-recapture method examines the overlap between different sources of data on individual drug users that are available at the local level to estimate the size of the hidden drug using population at the DAT area level. The multiple indicator method models the relationship between the capture-recapture estimates and readily available drug indicator data, such as numbers of drug offences in an area. It then applies that relationship to the areas where capture-recapture estimates are not available and provides estimates of drug use for those areas. The DAT area estimates are then summed to provide regional and national estimates.

In total there were an estimated 321,229 opiate and/or crack cocaine users aged 15 to 64 in England in 2008/09 (95% confidence interval (CI) 316,684 – 329,025). This converts to 9.41 per thousand population aged 15 to 64 (95% CI 9.27 – 9.64). The estimated prevalence of opiate use was 7.69 per thousand population aged 15 to 64 (95% CI 7.58 – 7.90) and the estimated prevalence of crack cocaine use was 5.53 per thousand (95% CI 5.36 – 5.75). Nationally, there was a decrease in prevalence of opiate and/or crack cocaine use between 2006/07 and 2008/09 however this was not statistically significant. There was also a decrease in the prevalence of opiate use from 273,123 in 2006/07 (95% confidence interval (CI) 268,530 – 283,560) to 262,428 in 2008/09 (95% confidence interval (CI) 258,782 – 268,517). This decrease was statistically significant. The estimates for the period 2008/09 also show an increase in the levels of crack cocaine use, but this was not statistically significant.

Keywords

Opiate use; crack cocaine use; drug injecting; prevalence estimation; capture-recapture methods; multiple indicator methods

Acknowledgements

We would like to thank the following for their support and assistance in making the study possible:

Colin Carroll and Anne Marie Ure, Centre for Drug Misuse Research, University of Glasgow

Home Office and Ministry of Justice staff who facilitated the provision of data from central sources and provided useful comment on reports and plans throughout the study.

Craig Wright at the National Treatment Agency and May El Komy from the Home Office Crime and Drugs Analysis and Research Programme, for their assistance and advice.

Members of the Steering Group including Helen Clarke from the Department of Health and Anna Richardson, for their support for the project.

Contents

	Page
Executive Summary	i
1 Introduction	1
2 Methods	2
3 Data and Analysis	4
4 Results	9
5 Discussion and Conclusion	18
References	19

Tables

	Page
1 National prevalence estimates and rates per 1,000 population aged 15 to 64 with 95% confidence intervals.	ii
2 Estimated number of problem drug (opiate and/or crack cocaine) users by Government Region.	ii
3 Estimated number of opiate users by Government Region.	ii
4 Estimated number of crack cocaine users by Government Region.	iii
5 Estimated prevalence (rate per 1,000 population aged 15 to 64) of problem drug (opiate and/or crack cocaine) use by Government Region.	iii
6 Estimated prevalence (rate per 1,000 population aged 15 to 64) of opiate use by Government Region.	iv
7 Estimated prevalence (rate per 1,000 population aged 15 to 64) of crack cocaine use by Government Region.	iv
3.1 Summary of the number of DAT areas used as multiple indicator anchor points by Government Office Region.	6
4.1 National prevalence estimates and rates per thousand aged 15 to 64 with 95% confidence intervals	10
4.2 Estimated number of problem drug (opiate and/or crack cocaine) users, opiate users, crack cocaine users by Government Office Region.	10
4.3 Estimated prevalence of problem drug (opiate and/or crack cocaine) use, opiate use and crack cocaine use by Government Office Region (per thousand population aged 15 to 64).	10
4.4 Estimated number of problem drug (opiate and/or crack cocaine) users by age group and Government Office Region with 95% confidence intervals.	11
4.5 Estimated age group breakdown for problem drug (opiate and/or crack cocaine) use by Government Office Region with 95% confidence intervals. (Row percentages).	12
4.6 Problem drug (opiate and/or crack cocaine) use prevalence rates per thousand population by age group and Government Office Region with 95% confidence intervals.	12
4.7 Estimated number of problem drug (opiate and/or crack cocaine) users by Government Region in 2006/07 (sweep 3) and 2008/09 (sweep 5).	13
4.8 Estimated number of opiate users by Government Region in 2006/07 (sweep 3) and 2008/09 (sweep 5).	14
4.9 Estimated number of crack cocaine users by Government Region in 2006/07 (sweep 3) and 2008/09 (sweep 5).	14

4.10	Estimated number of problem drug (opiate and/or crack cocaine) users aged 15 to 24 by Government Region in 2006/07 (sweep 3) and 2008/09 (sweep 5).	15
4.11	Estimated number of problem drug (opiate and/or crack cocaine) users aged 25 to 34 by Government Region in 2006/07 (sweep 3) and 2008/09 (sweep 5).	16
4.12	Estimated number of problem drug (opiate and/or crack cocaine) users aged 35 to 64 by Government Region in 2006/07 (sweep 3) and 2008/09 (sweep 5).	16

List of Figures

3.1	Map showing the problem drug use anchor point areas (darker shaded areas).	Page 7
-----	--	-----------

Executive Summary

Overview

Information about the prevalence of problem drug misuse is an essential part of the evidence base used to formulate policy, inform service provision, and assess the wider population impact of interventions. Although direct enumeration is not possible, indirect techniques can provide estimates of drug misuse prevalence. This research uses data sources that are available at the local and national level to estimate the prevalence of problem drug misuse, defined as opiate and/or crack cocaine use.

Estimates are provided for the 149 Drug Action Team (DAT) areas and nine Government Office Regions in England. Two established prevalence estimation methods are used; the capture-recapture method and the multiple indicator method.

The capture-recapture method has been used to estimate the prevalence of problem drug use in the majority of DAT areas in England. The multiple indicator method provided local estimates in the remaining DAT areas. The national estimate for problem drug use was derived as the sum of the 149 DAT area estimates.

Data sources

Four sources of data were available within which individual problem drug users (defined as those who use opiates and/or crack cocaine), opiate users and crack cocaine users could be identified. These sources of data are drug treatment, probation, police and prison data. There were four sources of data from which drug injectors could be identified (drug treatment, probation, prison and community Drug Intervention Programme data).

Persons resident in each DAT area, in contact with these sources during 2008/09, known to be using heroin, methadone, other opiate drugs, or crack cocaine were included in the analysis. Only those aged 15 to 64 were included. The overlap between data sources was determined via comparison of initials, date of birth and gender within each DAT area. Established statistical modelling techniques were used to examine this overlap and to produce prevalence estimates stratified by age group, gender, and DAT area of residence.

Methods

Two methods have been used to estimate the local and national prevalence; the capture-recapture method, which was used in 77 out of the 149 DAT areas (52%) to obtain problem drug use prevalence estimates and the multiple indicator method, which was used in the remaining 72 DAT areas. The capture-recapture method uses information on the overlap between data sources that are available at the local level (i.e. information on the number of individuals appearing in more than one data source) to provide estimates of the size of the hidden population (i.e. problem drug users not identified from any data source). The multiple indicator method models the relationship between the prevalence of problem drug use and readily available indicators such as aggregate numbers of drug users in treatment or committing drug-related crimes in those areas where these prevalence estimates are available. It can therefore provide prevalence estimates for areas where capture-recapture estimates are not available.

Results

Table 1 presents the national estimates and their associated 95% confidence intervals. Total estimates for problem drug use (opiate and/or crack cocaine use), opiate use and crack use for each Government Region are shown in Tables 2¹ to 4.

Table 1: National prevalence estimates and rates per 1,000 population aged 15 to 64 with 95% confidence intervals.

Drug	Estimate	95% Confidence Interval	Rate	95% Confidence Interval
Problem	321,229	316,684 – 329,025	9.41	9.27 – 9.64
Opiate	262,428	258,782 – 268,517	7.69	7.58 – 7.90
Crack	188,697	182,894 – 196,506	5.53	5.36 – 5.75

Table 2: Estimated number of problem drug (opiate and/or crack cocaine) users by Government Region.

Government Office Region	Problem		
	Estimate	95% CI	
East of England	22,871	20,725	25,243
East Midlands	26,034	23,904	28,059
London	62,769	61,065	65,168
North East	18,480	17,912	19,392
North West	52,055	50,263	54,344
South East	35,092	31,895	38,777
South West	27,549	26,231	29,178
West Midlands	37,125	35,053	39,579
Yorkshire and the Humber	39,254	37,634	42,154
ENGLAND	321,229	316,684	329,025

Table 3: Estimated number of opiate users by Government Region.

Government Office Region	Opiate		
	Estimate	95% CI	
East of England	18,828	17,246	20,834
East Midlands	21,787	20,341	23,366
London	44,117	42,953	45,769
North East	15,664	15,291	16,362
North West	44,717	43,383	46,437
South East	28,736	26,566	31,359
South West	23,859	22,960	25,030
West Midlands	30,658	28,932	32,266
Yorkshire and the Humber	34,062	32,934	35,815
ENGLAND	262,428	258,782	268,517

1 In the body of the report, data within tables are provided at the Government Office Region level. Full tables at the DAT area level are provided in accompanying reports.

Table 4: Estimated number of crack cocaine users by Government Region.

Government Office Region	Crack		
	Estimate	95% CI	
East of England	14,758	12,058	17,203
East Midlands	13,921	12,050	15,922
London	42,726	40,950	44,863
North East	8,133	7,319	9,354
North West	29,041	27,055	31,435
South East	22,073	18,907	25,463
South West	15,559	14,099	17,439
West Midlands	22,354	20,221	24,749
Yorkshire and the Humber	20,132	18,289	22,161
ENGLAND	188,697	182,894	196,506

Thus in total there are an estimated 321,229 problem drug users (opiate and/or crack cocaine users) in England (95% CI 316,684 to 329,025), this corresponds to 9.41 per thousand of the population aged 15 to 64 (95% CI 9.27 to 9.64). In terms of opiate users, there are an estimated 262,428 people (95% CI 258,782 to 268,517) in England who use those drugs (7.69 per thousand population aged 15 to 64, 95% CI 7.58 to 7.90) whereas it is estimated that 188,697 people (95% CI 182,894 to 196,506) use crack cocaine (5.53 per thousand population aged 15 to 64, 95% CI 5.36 to 5.75). It should be noted that the majority of people using crack cocaine are also using opiates and that crack cocaine may neither be their main drug of use or indeed the drug that is causing them the most problems.

Tables 5 to 7 present the prevalence rates per thousand of the population aged 15 to 64, again by Government Region for problem drug use, opiate use and crack cocaine use.

Table 5: Estimated prevalence (rate per 1,000 population aged 15 to 64) of problem drug (opiate and/or crack cocaine) use by Government Region.

Government Office Region	Problem		
	Estimate	95% CI	
East of England	6.13	5.56	6.77
East Midlands	8.86	8.14	9.55
London	11.64	11.32	12.08
North East	10.84	10.51	11.37
North West	11.48	11.08	11.98
South East	6.40	5.82	7.07
South West	8.20	7.81	8.68
West Midlands	10.53	9.94	11.22
Yorkshire and the Humber	11.30	10.84	12.14
ENGLAND	9.41	9.27	9.64

Table 6: Estimated prevalence (rate per 1,000 population aged 15 to 64) of opiate use by Government Region.

Government Office Region	Opiate		
	Estimate	95% CI	
East of England	5.05	4.62	5.58
East Midlands	7.42	6.93	7.95
London	8.18	8.10	8.63
North East	9.19	8.97	9.60
North West	9.86	9.56	10.24
South East	5.24	4.84	5.72
South West	7.10	6.83	7.45
West Midlands	8.69	8.28	9.26
Yorkshire and the Humber	9.81	9.48	10.31
ENGLAND	7.69	7.58	7.90

Table 7: Estimated prevalence (rate per 1,000 population aged 15 to 64) of crack cocaine use by Government Region.

Government Office Region	Crack		
	Estimate	95% CI	
East of England	3.96	3.23	4.61
East Midlands	4.74	4.10	5.42
London	7.92	7.59	8.32
North East	4.77	4.29	5.49
North West	6.40	5.96	6.93
South East	4.03	3.45	4.64
South West	4.63	4.20	5.19
West Midlands	6.34	5.73	7.02
Yorkshire and the Humber	5.80	5.27	6.38
ENGLAND	5.53	5.36	5.75

In terms of regional differences, London is the Government Office Region with the largest prevalence of problem drug use at 12 per thousand population aged 15 to 64 compared with the North West and the West Midlands at around 11 per thousand, with the lowest prevalence at around 6 per thousand in the East of England Government Office Region. When comparing opiate use prevalence, the highest prevalence rates are in the North West and the West Midlands at around 10 per thousand. London has a far higher estimated prevalence of crack cocaine use at just under 8 per thousand population, in comparison to prevalence of 6 per thousand in the North West and the West Midlands and between around 3 and 5 per thousand in all other Government Office Regions.

Discussion and Conclusion

These estimates are the results of a follow-up to a three-year project. The follow-up was carried out two years after the final sweep of the original project, so could therefore be considered as 'sweep 5'. As far as possible, the results of this 5th sweep can be compared with the results of the previous sweeps. This study has demonstrated that it is possible to provide estimates of the prevalence of problem drug use (defined as the use of opiates and/or the use of crack cocaine) as well as the prevalence of opiate use and crack cocaine use at the local, Government Office Region and national level and across successive years. Nationally, there was a decrease in the prevalence of opiate and/or crack cocaine use between 2006/07 and 2008/09; however this decrease was not statistically significant. The prevalence rate for opiate use also decreased; this decrease was statistically significant. There was an increase in the levels of crack cocaine use; however that increase was not statistically significant.

1. Introduction

Information about the number of people who use illicit drugs such as heroin, other opiates or cocaine is a key element of the evidence base used to formulate policy and inform service provision and provides a context in which to understand the population impact of interventions to reduce drug related harm. To direct resources effectively, it is desirable to know about the prevalence of drug use at the local level. To determine the extent to which treatment may reduce harm to communities, it is necessary to know what proportion of the number of drug users in any given area is engaging with treatment. Direct enumeration of those engaged in a largely covert activity such as the use of heroin is not possible and large, household surveys such as the British Crime Survey tend to underestimate numbers of those individuals whose drug use is the most problematic and whose lives are often the most chaotic. However, indirect techniques can be applied to provide estimates of drug use prevalence.

This report describes the results of the fifth sweep of a three year research project to use data sources that are available at the local and national level to provide estimates of the prevalence of problem drug use in all Drug Action Team areas (DATs) in England and thus provide regional and national prevalence estimates. The same methodological approach was used in this sweep as in the third one which was published by the Home Office - <http://rds.homeoffice.gov.uk/rds/pdfs08/horr09.pdf>

Prevalence estimates are presented at the Government Office Region and national level. Changes in the prevalence between sweep 3 (2006/07) and sweep 5 (2008/09) of problem drug use (defined as opiate and / or crack cocaine use), opiate use and crack cocaine use are also presented at the Government Office Region and national level, along with information on changes in the prevalence of problem drug use by age group (15 to 24, 25 to 34 and 35 to 64 years of age). The approach taken to examine changes in the prevalence of opiate and / or crack cocaine use by age group can also be used to explore changes over time by gender (or indeed age-group or gender specific changes over time for opiate use); however such information is not presented in this report. Estimates at the DAT area level are also available.

2. Methods

This research applies two methods, the capture-recapture method and the multiple indicator method (also called the multivariate indicator method or MIM), to estimate the prevalence of problem drug use in England in 2008/09. These two methods appear to offer the most cost-effective and straightforward approach to establishing valid local and national prevalence estimates. The benefits of these methods are that: they do not rely exclusively on drug users self reported use of substances; it is possible to provide estimates of prevalence stratified by key characteristics such as age and gender; they use a standard set of procedures that are tried and tested and allow for replication; they build upon existing routinely collected data. More details of these methods and the implications for their use can be found in the report of the first two sweeps of this project (Hay *et al*, 2006; Hay *et al*, 2007a) and in a technical report (Hay *et al*, 2007b). This chapter provides a brief overview of the methods and a description of the changes from the first three years of the project.

As in with the first three sweeps of the project, the first stage of the estimation process was to attempt to obtain capture-recapture (CRC) estimates for all DAT areas. These CRC estimates were then used as anchor points for a multiple indicator method (MIM) model which was used to provide estimates for those areas for which it had not proved possible to obtain a CRC estimate.

The capture-recapture analysis procedure

In simple terms, the capture-recapture analysis involves testing a series of statistical formulae, or 'models', to find one that best matches, or 'fits' the pattern of overlap between data sources. A value, known as the Akaike Information Criterion (AIC) (Hook and Regal, 1997), can be useful in gauging goodness of fit. This model is then used to calculate the number of problem drug users who do not appear in any source. This estimate is then added to the total number of known problem drug users, to provide an overall estimate of prevalence.

The first stage of analysis involved testing how well a simple model, that assumed all samples were independent of each other, matched the observed overlap in the contingency table. Increasingly complex models, representing dependencies between single pairs of data samples ('one-way') and then two pairs of samples ('two-way') were then tested. The model that best matched the overlap was chosen using objective statistical criteria; more complex models were only chosen if they provided a better match (on comparing AIC values) than lower-level models. All capture-recapture analyses were carried out using the GLIM4 statistical package.

In most DAT areas, all four sources of data were available to estimate the prevalence of problem drug use and opiate use. Attempts were made to produce capture-recapture estimates in all 149 DAT areas but in the two smallest DAT areas there were too few data to carry out this analysis (City of London and Rutland).

In the first stage of the analysis, the 22 simplest models were applied to the overlap data from each of the remaining 147 DAT areas in England. This was initially carried out on unstratified data, i.e. not splitting by gender or age group. This process was then repeated for the data stratified by age group (three strata) and by gender (two strata) giving five stratified estimates. At this stage the data were not stratified by both the age group and gender (e.g. young males, females aged 35 to 64). Such an approach to stratification would have given another six stratified estimates.

Various methods were used to explore whether the model fitted to the unstratified data was a good fit (in particular if the AIC value was less than zero) and whether the resultant estimate was valid. This included checking whether the lowest deviance value indicated a good fit (a lower deviance value signifies a better fit of the model to the observed data), checking whether the estimate derived from applying the best model was similar to a weighted estimate (calculated as a weighted mean of the available 22 estimates) and whether the unstratified estimate was similar to the sum of the stratified estimate for both the age-stratified and

gender-stratified model / estimates. In addition, it was considered whether each estimate was credible (i.e. not unfeasibly low or high in comparison with the known drug using population or underlying general population).

Thus to summarise, if the model fitted to the unstratified data did not offer a valid estimate, then either the summed gender-specific or age group-specific estimates were considered (with gender-specific estimates preferred if there was no discernable difference between the two approaches; again to ensure that the national confidence interval was not excessively wide). Under those circumstances, the best approach was often to stratify the males into three age groups but keep the female data unstratified. This was particularly important as, across the country, there were few data on female problem drug users over the age of 34. If that approach did not work, then the analyses were run on the six age and gender strata and those estimates were considered. If none of those unstratified estimates were deemed to be appropriate then any stratified analysis where the AIC value for one stratum was less than five was considered. If none of those approaches provided a valid estimate then a multiple indicator estimate was used instead.

As with the first three sweeps, estimates stratified by age group, were obtained by first estimating the estimated proportion of drug users falling in each stratum in each DAT area then applying these estimated proportions to the total prevalence estimates for that area, whether it was obtained using capture-recapture method or the multiple indicator method.

Once the problem drug use and opiate use capture-recapture estimates for each case definition were obtained, they were compared against each other at the DAT area level. The first comparison was between the opiate use estimate and the problem drug use estimate. While on one level it might be argued that the opiate use estimate should always be less than the problem drug use estimates, instances where the opiate use estimate was up to 10% greater than the problem drug use estimate were still felt to be credible, particularly when considered in conjunction with their associated confidence intervals. Where the opiate capture-recapture estimate was more than 10% greater than the problem drug use estimate, both analyses were re-examined and one or more of the estimates was substituted with a multiple indicator method estimate.

To a certain extent the approach described above was carried out to estimate the prevalence of crack cocaine use at the DAT area level. In contrast with the previous sweeps, estimates of crack cocaine use stratified by age group or gender were used to derive DAT area level estimates. This was due to the increase in the known crack using populations, particularly in the NDTMS (due to improved recording of secondary drug use) and in some of the Police data. The crack cocaine estimates were also compared to the problem drug use estimates to ensure consistency and where it was not possible to obtain a valid or feasible crack cocaine estimate using the capture-recapture method then a multiple indicator estimate was used instead. As in the first and second sweeps of the study, if it was not possible to obtain a problem drug use prevalence estimate using the capture-recapture method for any given DAT area then the multiple indicator method was used to estimate the prevalence of crack cocaine use.

3. Data and Analysis

Case definitions

Any study that aims to estimate the prevalence of problem drug use needs to provide a description of the case definition employed for identifying problem drug use in the contributing data sources and thus the case definition of the resultant estimates. Clearly a pattern of drug use that constitutes a problem for one individual may not constitute a problem for another although opiates and crack cocaine are commonly considered to be the drugs that cause most harm to an individual and communities.

The case definition of the prevalence estimates depends heavily on the case definitions used by the contributing sources. Moreover, the case definitions of the resultant prevalence estimates need to reflect case definitions that are common across all data sources. The study therefore employed the following as the case definition for problem drug use:

- Use of opiates and/or the use of crack cocaine.

It should be noted that the case definition focuses on the 'use' of opiates and/or crack cocaine rather than the 'misuse' of these drugs or addiction to either drug. The case definition does not include the use of cocaine in a powder form, the use of amphetamine, ecstasy or cannabis, or the injecting of drugs by people who do not use opiates or cocaine.

The study also provides separate estimates of the prevalence of opiate use, and of the prevalence of crack cocaine use.

All data refer to the financial year from 1st April 2008 to 31st March 2009. The age range employed within the study is from 15 to 64 and where the estimates have been stratified by age group, these are 15 to 24, 25 to 34 and 35 to 64 years of age. To derive age from date of birth, the individual's age on the 1st of October 2008 (the mid-point in the financial year 2006/07) was calculated and those who were under the age of 15 or over the age of 64 were excluded. Individuals with missing data fields, such as gender, forename initial or surname initial were also excluded, as were individuals where it was not possible to assign DAT area of residence (or those that were resident outside England).

Due to the case definitions outlined above and the confidence intervals associated with each estimate the figures must be used with care. More information on the how the estimates can be used and the limitations associated with them can be found in Man (2007).

Data

Data used in the capture-recapture analysis

Four main sources of data on problem drug use, which were suitable for use in the capture-recapture analyses, were available at the national level:

- The National Drug Treatment Monitoring System (NDTMS)
- The National Probation Service Offender Assessment System (OASys)
- Drug users convicted under the Misuse of Drugs Act (1971) for offences involving possession (or possession with intent to supply) heroin, methadone and/or crack cocaine from the Police National Computer (PNC)
- Drug Interventions Programme assessments completed in prisons (DIP-Prison).

In addition, Drug Interventions Programme assessments completed in the community (DIP-community) were employed within the drug injecting analyses as Police data did not include information on an individual's injecting status.

Data sources used in the Multiple Indicator Method analysis

There is a wide range of indicator data that may be correlated with drug use prevalence at the DAT area level that could be useful within a multiple indicator analysis. Three main types of indicator data were available to be used within this second sweep of the study; data that are currently in the public domain (e.g. published data on crime or income support claimants), data that are not currently in the public domain but have been provided to the study team (e.g. drug-related hospital admissions) and data that have been collected for use within the capture-recapture analyses (such as the NDTMS data). The data sources that were available for inclusion within the multiple indicator analyses (although not necessarily remaining in the best models) are listed below.

- Crime data
 - Violence against the person offences
 - Robbery offences
 - Burglary (burglary in a dwelling)
- Socioeconomic data
 - Number of incapacity benefit claimants
 - Number of unemployed persons
 - Deprivation score
- Standardised Mortality Ratio
- Population density
- Data sources used in the CRC analysis (aggregated).
 - NDTMS
 - DIP
 - OASys
 - PNC data

In a contrast to the first three sweeps of the study, a decision was made not to use the crime data as these data referred to the place where the crime was committed, not the place where the person responsible for the crime lived. Therefore such indicator data could artificially inflate the estimates for some places where crimes are committed by people who do not live there (e.g. Westminster). Although the exclusion of this data from the analysis can improve the precision of estimates at local level its effect on the national estimates is negligible.

Population density was used as an indicator in previous years but it was not used this year. When looking at the estimates produced in previous years, and the emerging estimates for sweep 5, it was found that although levels of problem drug use do appear to be correlated with population density (areas with high population density tend to have relatively high levels of problem drug use), there are some areas where the relationship between drug use and population density may be more complex. This is particularly the case for London DATs. Although there are some non-London DAT areas with relatively high population density, the average population density for London DAT areas was 4,691 persons aged 15 to 64 per km², compared to 963 persons aged 15 to 64 per km². One London DAT area has a population density of over 10,000 persons aged 15 to 64 per km² and since that DAT area did not have a capture-recapture estimate the multiple indicator estimate may not have been credible if population density was included as an indicator.

The effect of removing population density is that some of the London DAT estimates are smaller than would have been expected if that indicator had been included. This issue only affects the London DAT areas that received a multiple indicator method estimate rather than a capture-recapture one. It is thought that these new estimates, without population density, are more realistic. The other 106 non-London DAT areas would, in general, increase but that increase is much smaller as it is spread across a larger number of areas and, outside of London the population densities of DAT areas do not differ as markedly as in London. This issue does mean that it is difficult to make direct comparisons between the Sweep 3 and Sweep 5 prevalence estimates for London DAT areas and the London Government Office Region. National comparisons and comparisons for non-London DAT areas / Government Office Regions are more valid, as the difference between the national estimate derived using population density as an indicator and the estimate provided within this report is less than half of one percent of the total estimate.

Multiple Indicator Method analyses

In this chapter the specific application of the multiple indicator method within this sweep of the study is considered. All of the indicator data (apart from the Standardised Mortality Ratio) and the anchor point data were converted to rates per 1,000 population aged 15 to 64 prior to inclusion in the analyses.

The capture-recapture analyses derived estimates of the prevalence of different types of problem drug use (opiate and/or crack cocaine use; opiate use; crack use; injecting drug use). From these estimates a set of anchor point DAT areas were constructed for use within the multiple indicator analyses. In total there were 77 DAT areas that were used as anchor points in the final multiple indicator analysis, although other provisional multiple indicator analyses were carried out to examine the credibility of the capture-recapture estimates and their use in a multiple indicator model.

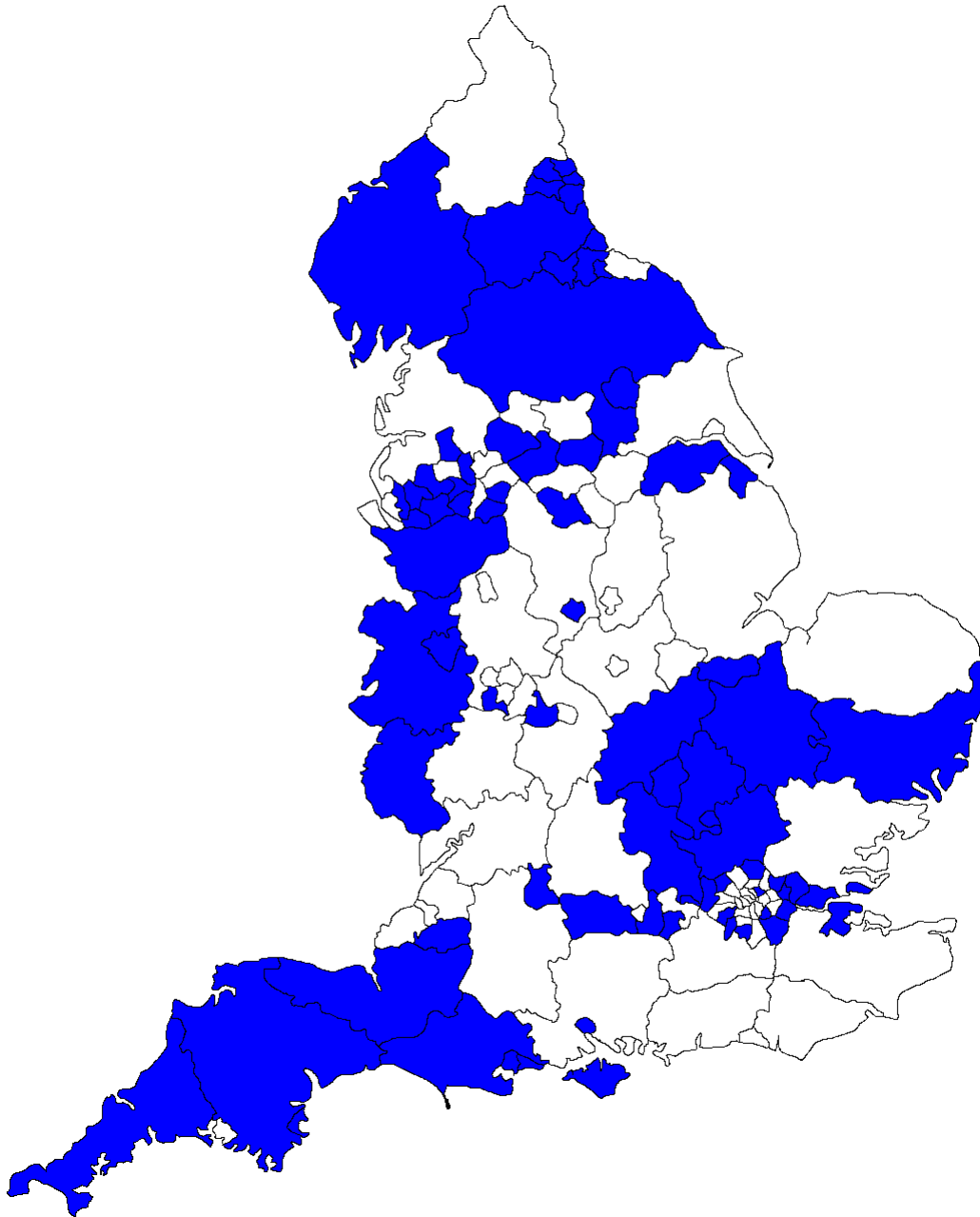
The number of DAT areas that were used as multiple indicator anchor points is summarised by Government Office Region in Table 2.1.

Table 3.1: Summary of the number of DAT areas used as multiple indicator anchor points by Government Office Region.

Government Office Region	Number of DAT Areas	Problem	Opiate	Crack
East of England	10	8	8	5
East Midlands	9	2	2	2
London	33	13	13	9
North East	12	10	10	8
North West	22	13	13	10
South East	19	9	9	7
South West	15	9	9	8
West Midlands	14	5	4	5
Yorkshire and the Humber	15	8	8	5
ENGLAND	149	77	76	59

The DAT areas that were used as anchor points in the problem drug use multiple indicator analyses are shown as the darker shaded areas in Figure 3.1 (map).

Fig 3.1: Map showing the problem drug use anchor point areas (darker shaded areas).



With approximately 77 anchor points available there was no need to use a technique known as principal component analyses that multiple indicator studies often use to ensure that the number of indicators is effectively less than the number of available anchor points (a prerequisite of the regression analysis), instead, the stepwise regression method (simple linear multiple regression with Normal errors) in Minitab release 13.30 was used. For each different drug definition only one multiple indicator model was constructed for the whole of England and we did not include Government Office Region as a categorical indicator.

The stepwise regression approach considers all available indicators and only includes a particular indicator in the final regression model if it is significantly related to the available prevalence estimates. The stepwise regression approach alternates at each step between

adding significant or deleting non-significant indicators² and can result in models that offer a good fit to the available data with a minimal number of indicators. This is in contrast to the forward selection approach which starts with no indicators in the model and keeps including indicators until there are no more significant indicators, and the backward elimination approach which starts with all indicators in the model and removes non-significant ones until all remaining ones are significantly related to the available prevalence estimates. The stepwise regression approach resulted in the following indicators remaining in the best regression model (in order of significance starting with the most significant indicator):

- NDTMS
- DIP-Prison
- PNC-Police

This model explained 92% of the variance (i.e. provided a good fit to the available data) with the first indicator (NDTMS) explaining 88% of the variance.

Analysis: prevalence of opiate use and crack cocaine use

The general approach outlined above for problem drug use was also taken to estimating the prevalence of opiate use or crack cocaine use and the prevalence of drug injecting. The stepwise regression approach resulted in the following indicators remaining in the best regression models (in descending order of significance) for each definition;

Opiate use:

- NDTMS
- DIP-Prison
- PNC-Police

Crack cocaine use:

- NDTMS
- DIP-Prison
- Incapacity Benefit

For the opiate use analyses, the indicators explained 95% of the variance and the crack cocaine and explained 77%.

As described in the Sweep 2 Technical Report (Hay *et al.* 2007b), comparisons between the opiate use and crack cocaine use and the opiate and/or crack cocaine use estimates were made to gauge the validity of the different estimates. Capture-recapture estimates for each definition were compared with multiple indicator estimates. The impact of including capture-recapture estimates that unduly influenced the multiple indicator model was also considered. This 'consistency checking' will always have some element of subjectivity in it due to the issue of having to have consistency of estimates derived from two different methods across three case definitions.

2 In these analyses α to enter and α to remove were both set to 0.15

4. Results

In this section we first provide a summary of the overall results relating to the prevalence estimates at the national and regional level for 2008/09. We then present a series of tables describing the age group estimates for 2008/09 and then compare the estimates of the prevalence of problem drug use (defined as opiate and / or crack cocaine use) for sweep 5 (2008/09) against those derived for sweep 3 (2006/07). These comparisons across time are made for the estimated number of problem drug users. The changes in absolute numbers do not take into account any difference in the underlying population size in the 15 to 64 age group. A negative difference shows that there appears to have been a decrease in prevalence whereas a positive difference suggests an increase. A 95% confidence interval is given for each estimate. Similar tables are provided to consider changes over time for opiate use and crack cocaine use.

Prevalence estimates

In total there were 77 areas where the capture-recapture analyses offered valid estimates of the prevalence of problem drug use. In those areas the prevalence of problem drug use was provided by the capture-recapture estimate whereas in the remaining 72 areas the multiple indicator estimates were used. There were 76 areas that had capture-recapture estimates for the opiate use estimate and in terms of crack cocaine use, 59 areas had capture-recapture estimates. The decision to use a capture-recapture estimate instead of a multiple indicator method estimate was always taken on the basis of the validity of the capture-recapture estimate, both in terms of how well the capture-recapture model fitted the available data and how feasible the estimate was compared to the known population and the estimates for other drugs.

There were an estimated 321,229 problem drug users in 2008/09 (defined as opiate and/or crack cocaine users), in England, (95% CI 316,684 to 329,025). This corresponds to 9.41 per thousand population aged 15 to 64 (95% CI 9.27-9.64). In terms of opiate users, there were an estimated 262,428 people in England who use those drugs (7.69 per thousand population aged 15 to 64) whereas it is estimated that 188,697 people use crack cocaine (5.53 per thousand population aged 15 to 64). It should be noted that the majority of people using crack cocaine are also using opiates and that crack cocaine may neither be their main drug of use or indeed the drug that is causing them the most problems.

Table 4.1 summarises the national prevalence estimates along with their associated confidence intervals.

Table 4.1: National prevalence estimates and rates per thousand aged 15 to 64 with 95% confidence intervals

Drug	Estimate	95% Confidence Interval	Rate	95% Confidence Interval
Problem	321,229	316,684 – 329,025	9.41	9.27 – 9.64
Opiate	262,428	258,782 – 268,517	7.69	7.58 – 7.90
Crack	188,697	182,894 – 196,506	5.53	5.36 – 5.75

Table 4.2 presents the prevalence estimates by Government Office Region for problem drug use, opiate use, crack cocaine use and drug injecting. Table 4.3 presents the prevalence estimates per thousand of the population aged 15 to 64. Confidence intervals for these estimates are shown in the later tables which consider the difference between the two sweeps.

Table 4.2: Estimated number of problem drug (opiate and/or crack cocaine) users, opiate users and crack cocaine users by Government Office Region.

Government Office Region	Problem	Opiate	Crack
East of England	22,871	18,828	14,758
East Midlands	26,034	21,787	13,921
London	62,769	44,117	42,726
North East	18,480	15,664	8,133
North West	52,055	44,717	29,041
South East	35,092	28,736	22,073
South West	27,549	23,859	15,559
West Midlands	37,125	30,658	22,354
Yorkshire and the Humber	39,254	34,062	20,132
ENGLAND	321,229	262,428	188,697

Table 4.3: Estimated prevalence of problem drug (opiate and/or crack cocaine) use, opiate use and crack cocaine use by Government Office Region (per thousand population aged 15 to 64).

Government Office Region	Problem	Opiate	Crack
East of England	6.13	5.05	3.96
East Midlands	8.86	7.42	4.74
London	11.64	8.18	7.92
North East	10.84	9.19	4.77
North West	11.48	9.86	6.40
South East	6.40	5.24	4.03
South West	8.20	7.10	4.63
West Midlands	10.53	8.69	6.34
Yorkshire and the Humber	11.30	9.81	5.80
ENGLAND	9.41	7.69	5.53

In terms of regional differences, London is the Government Office Region with the highest prevalence of problem drug use at 11.64 per thousand population aged 15 to 64 compared with the North West at 11.48 and the West Midlands at 11.30. The East of England and the South East have the lowest prevalence of problem drug use at 6.13 and 6.40 per thousand, respectively. When considering opiate use prevalence, the highest prevalence rates are in the North West at 9.86 per thousand and the West Midlands at 9.81. The lowest prevalence rates of opiate use are in the East of England and the South East at 5.05 and 5.24 per thousand. London has the highest estimated prevalence of crack cocaine use at 7.92 per thousand population compared to a prevalence of 6.40 in the North West.

Stratified Prevalence Estimates: Age group

Information on the differing prevalence of problem drug use in three different age groups is presented in Tables 4.4 to 4.6. The prevalence estimates (and 95% confidence intervals) are presented first, then the estimates as percentages of the total number of problem drug users within the age groups 15 to 24, 25 to 34 and 35 to 64, followed by the corresponding prevalence rates.

Table 4.4: Estimated number of problem drug (opiate and/or crack cocaine) users by age group and Government Office Region with 95% confidence intervals.

Government Office Region	15 to 24 years			25 to 34 years			35 to 64 years		
	Estimate	95% CI		Estimate	95% CI		Estimate	95% CI	
East of England	3,863	3,514	4,400	8,785	7,883	9,699	10,223	9,237	11,234
East Midlands	5,023	4,595	5,504	12,097	10,995	13,086	8,915	8,163	9,690
London	10,315	10,104	11,304	20,733	19,888	21,548	31,720	30,443	32,874
North East	3,710	3,558	4,056	9,122	8,726	9,537	5,649	5,428	6,000
North West	6,997	6,916	7,812	17,855	17,013	18,705	27,202	26,003	28,231
South East	7,043	6,426	8,428	13,262	11,825	14,439	14,787	13,158	16,461
South West	4,215	4,046	4,816	11,588	10,847	12,261	11,746	11,055	12,441
West Midlands	6,865	6,360	7,614	17,449	16,283	18,605	12,812	11,986	13,839
Yorkshire and the Humber	7,114	6,619	8,196	18,250	17,212	19,561	13,890	13,221	15,002
ENGLAND	55,145	55,104	58,618	129,141	126,101	131,926	136,943	134,091	140,083

Table 4.5 Estimated age group breakdown for problem drug (opiate and/or crack cocaine) use by Government Office Region with 95% confidence intervals. (Row percentages)

Government Office Region	15 to 24 years			25 to 34 years			35 to 64 years		
	%	95% CI		%	95% CI		%	95% CI	
East of England	16.89	16.42	18.03	38.41	37.32	39.07	44.70	43.54	45.72
East Midlands	19.29	18.56	20.36	46.46	45.10	47.66	34.24	33.10	35.46
London	16.43	16.19	17.84	33.03	32.07	33.66	50.54	49.19	51.08
North East	20.07	19.30	21.57	49.36	47.95	50.01	30.57	29.75	31.50
North West	13.44	13.41	14.85	34.30	33.40	34.83	52.26	51.10	52.63
South East	20.07	19.23	23.45	37.79	35.82	38.36	42.14	40.12	43.45
South West	15.30	14.88	17.04	42.06	40.52	42.83	42.64	41.28	43.53
West Midlands	18.49	17.43	20.13	47.00	45.50	47.88	34.51	33.48	35.78
Yorkshire and the Humber	18.12	16.98	20.11	46.49	44.92	47.44	35.38	34.16	36.56
ENGLAND	17.17	17.17	18.04	40.20	39.58	40.33	42.63	42.02	42.86

Table 4.6: Problem drug (opiate and/or crack cocaine) use prevalence rates per thousand population, by age group and Government Office Region with 95% confidence intervals.

Government Office Region	15 to 24 years			25 to 34 years			35 to 64 years		
	Estimate	95% CI		Estimate	95% CI		Estimate	95% CI	
East of England	5.49	5.00	6.26	12.60	11.31	13.91	4.39	3.96	4.82
East Midlands	8.29	7.59	9.09	23.19	21.08	25.09	4.93	4.51	5.35
London	10.24	10.03	11.22	13.89	13.32	14.43	10.96	10.52	11.36
North East	10.22	9.81	11.18	30.52	29.19	31.91	5.41	5.20	5.75
North West	7.27	7.19	8.12	21.82	20.79	22.86	9.87	9.44	10.24
South East	6.65	6.07	7.96	13.19	11.76	14.36	4.33	3.85	4.81
South West	6.28	6.03	7.17	20.17	18.88	21.35	5.55	5.23	5.88
West Midlands	9.37	8.68	10.39	26.93	25.13	28.71	5.97	5.59	6.45
Yorkshire and the Humber	9.30	8.65	10.72	28.05	26.45	30.06	6.75	6.43	7.29
ENGLAND	8.03	8.02	8.53	19.25	18.80	19.67	6.66	6.52	6.81

Table 4.6 shows that there is regional variation in the age distribution of problem drug use. London has the highest prevalence rate in the 35 to 64 age rate which, at just fewer than 11 per thousand, is much greater than the other Government Office Regions. London also has the highest prevalence rate in the 15 to 24 age range, but at just over 10 per thousand population the prevalence rate is not much higher than that found in the North East.

Comparing estimates from different sweeps

Table 4.7 presents information on the change between sweep 3 and sweep 5 in the problem drug use (opiate and / or crack cocaine) estimates at the Government Office Region and national level. A negative difference, for example between sweep 3 and sweep 5, demonstrates that the prevalence has decreased. Where there has been a statistically significant difference, this has been noted by *↓ (for a decrease) or *↑ (for an increase). This was the case for all Government Office Regions with the exception of London. Due to the removal of population density from the MIM analysis for 2008/09 it was not possible to indicate significant differences for the London Government Office Region, therefore none of the London differences are marked.

Table 4.7: Estimated number of problem drug (opiate and/or crack cocaine) users by Government Region in 2006/07 (sweep 3) and 2008/09 (sweep 5).

Government Office Region	Sweep 3			Sweep 5			Difference		
	Estimate	95% CI		Estimate	95% CI		Estimate	95% CI	
East of England	19,726	16,349	23,635	22,871	20,725	25,243	3,145	-1,177	7,616
East Midlands	24,456	21,709	27,387	26,034	23,904	28,059	1,578	-2,181	5,273
London	74,822	72,742	77,873	62,769	61,065	65,168	-12,053	-15,411	-9,029
North East	15,823	15,421	16,832	18,480	17,912	19,392	2,657	1,467	3,579
North West	55,495	52,729	59,430	52,055	50,263	54,344	-3,440	-7,782	358
South East	30,309	26,669	34,607	35,092	31,895	38,777	4,783	-625	9,891
South West	29,831	27,793	32,387	27,549	26,231	29,178	-2,282	-5,284	175
West Midlands	38,235	34,922	41,854	37,125	35,053	39,579	-1,110	-5,358	3,449
Yorkshire and the Humber	40,070	37,866	42,811	39,254	37,634	42,154	-816	-3,980	2,869
ENGLAND	328,767	322,128	340,196	321,229	316,684	329,025	-7,538	-20,150	2,463

*↑

Table 4.8: Estimated number of opiate users by Government Region in 2006/07 (sweep 3) and 2008/09 (sweep 5).

Government Office Region	Sweep 3			Sweep 5			Difference		
	Estimate	95% CI		Estimate	95% CI		Estimate	95% CI	
East of England	15,993	12,934	19,484	18,828	17,246	20,834	2,835	-1,149	6,450
East Midlands	21,235	18,976	23,675	21,787	20,341	23,366	552	-2,334	3,415
London	53,085	51,665	56,039	44,117	42,953	45,769	-8,968	-12,123	-6,846
North East	13,520	13,210	14,388	15,664	15,291	16,362	2,144	1,239	2,860
North West	49,330	47,056	52,538	44,717	43,383	46,437	-4,613	-8,057	-1,699
South East	25,018	22,556	28,040	28,736	26,566	31,359	3,718	93	7,331
South West	26,428	25,087	28,491	23,859	22,960	25,030	-2,569	-4,681	-685
West Midlands	32,597	30,056	35,691	30,658	28,932	32,266	-1,939	-5,469	1,008
Yorkshire and the Humber	35,917	34,062	38,705	34,062	32,934	35,815	-1,855	-4,702	696
ENGLAND	273,123	268,530	283,560	262,428	258,782	268,517	-10,695	-20,841	-3,203

*↑
*↓
*↑
*↓
*↓

Table 4.9: Estimated number of crack cocaine users by Government Region in 2006/07 (sweep 3) and 2008/09 (sweep 5).

Government Office Region	Sweep 3			Sweep 5			Difference		
	Estimate	95% CI		Estimate	95% CI		Estimate	95% CI	
East of England	12,549	11,062	14,178	14,758	12,058	17,203	2,209	-1,151	5,089
East Midlands	10,638	8,475	12,783	13,921	12,050	15,922	3,283	379	6,227
London	46,929	44,710	49,775	42,726	40,950	44,863	-4,203	-7,833	-1,064
North East	7,265	6,383	8,669	8,133	7,319	9,354	868	-700	2,314
North West	31,943	28,825	35,967	29,041	27,055	31,435	-2,902	-7,264	1,125
South East	16,585	15,590	18,041	22,073	18,907	25,463	5,488	1,669	8,918
South West	16,971	14,756	19,569	15,559	14,099	17,439	-1,412	-4,295	1,374
West Midlands	18,830	16,582	21,288	22,354	20,221	24,749	3,524	100	6,866
Yorkshire and the Humber	18,908	16,980	21,472	20,132	18,289	22,161	1,224	-2,029	4,096
ENGLAND	180,618	175,823	189,442	188,697	182,894	196,506	8,079	-2,597	17,418

*↑
*↑
*↑

Thus comparing the estimated numbers between sweep 3 and sweep 5, there has been a small decrease in the number of opiate and/or crack cocaine users. This decrease is not statistically significant. The estimated number of opiate users has significantly decreased and the number of crack cocaine users has increased but not significantly.

Table 4.10: Estimated number of problem drug (opiate and/or crack cocaine) users aged 15 to 24 by Government Region in 2006/07 (sweep 3) and 2008/09 (sweep 5).

Government Office Region	Sweep 3			Sweep 5			Difference		
	Estimate	95% CI		Estimate	95% CI		Estimate	95% CI	
East of England	3,629	2,846	4,522	3,863	3,514	4,400	234	-605	1,243
East Midlands	5,609	4,980	6,439	5,023	4,595	5,504	-586	-1,496	280
London	11,834	11,255	12,787	10,315	10,104	11,304	-1,519	-2,309	-370
North East	3,987	3,820	4,330	3,710	3,558	4,056	-277	-607	92
North West	7,889	7,291	8,893	6,997	6,916	7,812	-892	-1,664	213
South East	5,696	4,983	6,524	7,043	6,426	8,428	1,347	449	2,873
South West	5,758	5,138	6,681	4,215	4,046	4,816	-1,543	-2,390	-706
West Midlands	8,345	7,548	9,295	6,865	6,360	7,614	-1,480	-2,514	-360
Yorkshire and the Humber	7,927	7,360	8,692	7,114	6,619	8,196	-813	-1,704	408
ENGLAND	60,672	59,245	63,598	55,145	55,104	58,618	-5,527	-7,516	-1,599

*↑
*↓
*↓
*↓

Table 4.11: Estimated number of problem drug (opiate and/or crack cocaine) users aged 25 to 34 by Government Region in 2006/07 (sweep 3) and 2008/09 (sweep 5).

Government Office Region	Sweep 3			Sweep 5			Difference		
	Estimate	95% CI		Estimate	95% CI		Estimate	95% CI	
East of England	7,610	6,260	9,158	8,785	7,883	9,699	1,175	-581	2,967
East Midlands	11,717	10,288	13,368	12,097	10,995	13,086	380	-1,646	2,199
London	26,892	25,855	28,179	20,733	19,888	21,548	-6,159	-7,700	-4,888
North East	7,749	7,503	8,261	9,122	8,726	9,537	1,373	688	1,811
North West	22,440	21,032	24,307	17,855	17,013	18,705	-4,585	-6,623	-2,906
South East	12,781	11,341	14,538	13,262	11,825	14,439	481	-1,789	2,257
South West	12,993	11,955	14,218	11,588	10,847	12,261	-1,405	-2,868	-232
West Midlands	17,787	16,057	19,573	17,449	16,283	18,605	-338	-2,534	1,744
Yorkshire and the Humber	19,314	18,072	20,762	18,250	17,212	19,561	-1,064	-2,837	781
ENGLAND	139,284	136,139	144,344	129,141	126,101	131,926	-10,143	-16,344	-6,269

*↑

*↓

*↓

Table 4.12: Estimated number of problem drug (opiate and/or crack cocaine) users aged 35 to 64 by Government Region in 2006/07 (sweep 3) and 2008/09 (sweep 5).

Government Office Region	Sweep 3			Sweep 5			Difference		
	Estimate	95% CI		Estimate	95% CI		Estimate	95% CI	
East of England	8,487	7,116	10,181	10,223	9,237	11,234	1,736	-195	3,589
East Midlands	7,130	6,283	8,018	8,915	8,163	9,690	1,785	589	3,028
London	36,096	34,773	37,836	31,720	30,443	32,874	-4,376	-6,677	-2,768
North East	4,087	3,924	4,405	5,649	5,428	6,000	1,562	1,176	1,926
North West	25,167	23,740	27,034	27,202	26,003	28,231	2,035	-235	3,617
South East	11,831	10,262	13,631	14,787	13,158	16,461	2,956	500	5,121
South West	11,080	10,251	12,128	11,746	11,055	12,441	666	-607	1,743
West Midlands	12,103	10,893	13,453	12,812	11,986	13,839	709	-914	2,376
Yorkshire and the Humber	12,829	12,031	13,890	13,890	13,221	15,002	1,061	-102	2,402
ENGLAND	128,810	125,982	133,641	136,943	134,091	140,083	8,133	2,307	11,990

*↑

*↑

*↑

*↑

Tables 4.10 to 4.12 compare the age-specific opiate and/or crack cocaine estimates between sweep 3 and sweep 5. There were decreases in the 15 to 24 age group and the 25 to 34 age group estimates, both were statistically significant. There was, however, a statistically significant increase in the number of opiate and/or crack cocaine users in the older 35 to 64 age group. While an increase of approximately 8,000 problem drug users in that age group may initially appear strange, it should be noted that if there is just under an estimated 140,000 opiate and/or crack cocaine users in the 25 to 34 age group, then it could reasonably be assumed that there could be approximately 28,000 opiate and/or crack cocaine users who would be aged 34 in sweep 3 but 35 or 36 in sweep 5. Thus the increase of about 8,000 in the older age group could be an artefact of an ageing drug using population, rather than people over the age of 34 beginning to use drugs such as opiates or crack cocaine.

5. Discussion and Conclusion

This report has presented estimates for the prevalence of problem drug use (defined as opiate and/or crack cocaine), opiate use and crack cocaine use for the financial year 2008/09. A similar approach was taken to producing these estimates as for the three consecutive sweeps for the years 2004/05, 2005/06 and 2006/07. Comparisons between the results of the third sweep (2006/07) and the fifth sweep (2008/09) at the Government Office Region and national level have been presented in this report. DAT area comparisons have also been made and those results are to be found in a series of regional reports.

Nationally, the decrease in prevalence of opiate and/or crack cocaine use between 2006/07 and 2008/09 was not statistically significant. However the individual prevalence rate for opiate use decreased significantly between the two sweeps and the crack cocaine estimate increased but not at a significant level. There were statistically significant decreases in the prevalence of opiate and/or crack cocaine use within the 15 to 24 and 25-34 age groups and a statistically significant increase in the number of opiate and/or crack cocaine users in the older 35 to 64 age group.

The study has demonstrated that it is possible to use the capture-recapture method and the multiple indicator method to successfully estimate the prevalence of opiate and/or crack cocaine use in a systematic manner.

References

Hay, G, Gannon, M, MacDougall, J, Millar, T, Eastwood, C and McKeganey, N. (2006) Local and national estimates of the prevalence of opiate use and / or crack cocaine use (2004/05) in Singleton, N, Murray, R and Tinsley, L. Measuring different aspects of problem drug use: methodological developments. Home Office Online Report 16/06, Available: <http://www.homeoffice.gov.uk/rds/pdfs06/rdsolr1606.pdf> [08/04/2008].

Hay, G, Gannon, M, MacDougall, J, Millar, T, Eastwood, C and McKeganey, N. (2007a) National and regional estimates of the prevalence of opiate use and/or crack cocaine use 2005/06: a summary of key findings. Home Office Online Report 21/07, Available: <http://www.homeoffice.gov.uk/rds/pdfs07/rdsolr2107.pdf> [08/04/2008].

Hay, G, Gannon, M, MacDougall, J, Millar, T, Eastwood, C and McKeganey, N. (2007b). New local and national estimates of the prevalence of opiate use and/or crack cocaine use: Sweep 2 technical report. Home Office unpublished report.

Hook, E. B., and Regal, R. R. (1997) Validity of methods for model selection, weighting for model uncertainty, and small sample adjustment in capture-recapture estimation. *American Journal of Epidemiology*, **145**:1138-1144.