



Home Office

Impact of the reduction in heroin supply between 2010 and 2011

Research Report 91

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Disclaimer: ‘The views expressed in this report are those of the authors, not necessarily those of the Home Office (nor do they represent Government policy).’

Summary

Heroin is strongly associated with both health and social harms. Around half of clients in contact with treatment in 2014/15 were using opiates (52%)¹ and 952 deaths were related to heroin and morphine use in 2014, out of a total 3,346 drug poisoning deaths.² Regular opiate and crack cocaine users are estimated to commit up to 45 per cent of acquisitive crime, costing almost £6bn per year.³

The European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) reported that a small group of European countries, including the UK, appeared to have experienced a reduced supply of heroin to varying degrees⁴ in 2010/11.

This change in the availability of heroin provides a unique opportunity to expand the currently limited evidence base on the impacts of reduced supply. This report makes best use of available secondary data to examine how the reduction in heroin supply in England and Wales manifested itself at street level and to attempt to quantify any impact on drug use and associated harms. Feedback from Drug and Alcohol Action Teams (DAATs)⁵ and service providers is also presented to provide additional context to the analysis.

Approach

- Time series analysis of a range of data to identify change in health and criminal justice outcomes between October 2008 and June 2012.
- Survey of Drug and Alcohol Action Teams.
- In-depth interviews with a range of service providers.

Key findings

- According to Drug and Alcohol Action Teams, changes in heroin supply varied at a local level. Furthermore, differences in supply were not necessarily observed at the same time and were not of the same length compared to the overall national level.
- There was a lack of availability of heroin reported in many local areas in 2010/11 and a

¹ Public Health England (2015) *Adult substance misuse statistics from the National Drug Treatment Monitoring System (NDTMS) 1 April 2014 to 31 March 2015*; <http://www.nta.nhs.uk/statistics.aspx>

² Office for National Statistics. (2015). *Deaths related to drug poisoning in England and Wales, 2014 registrations*. Newport: Office for National Statistics; <http://www.ons.gov.uk/ons/rel/subnational-health3/deaths-related-to-drug-poisoning/england-and-wales---2014/index.html>

³ Mills, H., Skodbo, S. and Blyth, P. (2013). *Understanding organised crime: estimating the scale and the social and economic costs*. Home Office Research Report 73; https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/246390/horr73.pdf

⁴ European Monitoring Centre for Drugs and Drug Addiction (2011). *Trendsetter Summary Report – Recent shocks in the European Heroin Market: Explanations and Ramifications*; http://www.emcdda.europa.eu/attachements.cfm/att_144648_EN_TrendspotterSummaryReport.pdf

⁵ Drug and Alcohol Action Teams were responsible for delivering the drug strategy at a local level. However, in April 2013 responsibility for commissioning of drug and alcohol services moved into local authorities, meaning that DAATs no longer exist in the majority of areas. In Wales, Community Safety Partnerships have had the statutory responsibility for delivering substance misuse services since 2003. However, in 2010 responsibility for substance misuse services was transferred to Substance Misuse Area Planning Boards.

marked fall in the average purity of heroin seizures in November 2010. Although levels generally increased after this, by June 2012 the average purity of heroin seized on the streets did not return to levels previously seen before the reduction in supply.

- Although wholesale prices of heroin rose substantially, street-level prices remained relatively stable. However, individuals were getting less for their money as the purity levels of heroin dropped markedly.
- Drug and Alcohol Action Teams and a number of service providers reported that heroin users switched to, or increased their use of, other substances. The most common substances reported by Drug and Alcohol Action Teams as being used alongside or instead of heroin were benzodiazepines and alcohol.
- The number of new presentations to drug treatment for opiate use in England fell significantly in February 2011 and subsequently did not generally return to previous levels. In contrast, feedback from treatment agencies suggests a more mixed picture. The low heroin purity levels appear to have been a catalyst for some users to tackle their addiction and enter treatment. There were also reports of users substituting heroin for other drugs.
- There were no significant falls in England in the number of fatal and non-fatal overdoses shown in the quantitative data during the reported period of reduction in heroin supply period. However, some Drug and Alcohol Action Teams did report increases in overdoses in their areas, as well as other side effects, due to the additional adulterants contained in the heroin and/or replacement substances which individuals were using.
- Overall, no changes were reported in the level of drug-related acquisitive crime⁶ committed in England and Wales indicating that heroin users are no more likely to offend or, for those who do not offend, to commit further crime during the reduction in supply. However, there was a significant decline in the number of 'possession' as well as 'possession with intent to supply' offences for heroin, possibly due to individuals being less likely to be caught with the drug when there is a lack of heroin availability/reduced purity.
- Service providers reported that they increased communication with drug users, colleagues and other services over the period to share information and provide guidance. They recommended that a more reactive and responsive approach should be taken to any future recurrences of a change in drug supply.

⁶ Drug-related acquisitive crime is a measure which was derived from the Arrestee Survey. It is an index of acquisitive crime that is weighted so as to try and capture a trend in drug-related crime and not necessarily committed by drug users.

Acknowledgements

We would like to thank the National Crime Agency, Public Health England, National Health Service and Ministry of Justice for providing the data required for this study as well as all the Drug and Alcohol Action Teams and other service providers who took part in the qualitative element of this study. Additional thanks to Crime and Policing Analysis Unit colleagues at the Home Office as well as David Mann, Alan Hall, Nick Manton and Graeme Inglis for their comments, suggestions, fact checking or input into the analysis. We also acknowledge the support of an independent academic peer reviewer who commented on an earlier draft of this report.

1. Introduction

Context

Heroin is strongly associated with both health and social harms. Around half of clients in contact with treatment in 2014/15 were using opiates (52%)⁷ and 952 deaths were related to heroin and morphine use in 2014, out of a total 3,346 drug poisoning deaths.⁸ Regular opiate and crack cocaine users are estimated to commit up to 45 per cent of acquisitive crime costing almost £6bn per year.⁹

This report examines a particular period in time in 2010/11 when there was a well-documented reduction in the supply of heroin in the UK, and in a number of other European countries.

As, under usual circumstances, it is not possible to artificially construct a situation where drugs are made more or less available on any significant or widespread scale, it has provided a unique opportunity to expand our limited understanding of how drug markets react to changes in supply.

This report attempts to make best use of available secondary data to identify any impact of the reduction of heroin supply. The reliance on aggregate, secondary data not specifically collected for the purpose of this research imposes some limitations on the conclusions that can be drawn. Nevertheless, this analysis provides an important first attempt to quantify the impact of changes to the heroin market observed during this time period. Furthermore, it should be noted that any changes observed in the data cannot necessarily be fully attributed to the changing heroin market. Qualitative data from a selection of Drug and Alcohol Action Teams (DAATs)¹⁰ and service providers was collected to provide some additional context and first-hand experience of the reduction in supply at a local level. These data may not represent the views and experience of all DAATs and service providers and therefore should be considered as supplementary to the quantitative data presented.

Furthermore, this report does not attempt to explain why the reduction happened, although previous commentaries cite a range of contributory factors including the impact of enforcement, changing drug markets and crop failure.¹¹

⁷ Public Health England (2015). *Adult substance misuse statistics from the National Drug Treatment Monitoring System (NDTMS) 1 April 2014 to 31 March 2015*; <http://www.nta.nhs.uk/statistics.aspx>

⁸ Office for National Statistics. (2015). *Deaths related to drug poisoning in England and Wales, 2014 registrations*. Newport: Office for National Statistics; <http://www.ons.gov.uk/ons/rel/subnational-health3/deaths-related-to-drug-poisoning/england-and-wales---2014/index.html>

⁹ Mills, H., Skodbo, S. and Blyth, P. (2013). *Understanding organised crime: estimating the scale and the social and economic costs*. Home Office Research Report 73; https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/246390/horr73.pdf

¹⁰ Drug and Alcohol Action Teams were responsible for delivering the drug strategy at a local level. However, in April 2013 responsibility for commissioning of drug and alcohol services moved into local authorities, meaning that DAATs no longer exist in the majority of areas. In Wales, Community Safety Partnerships have had the statutory responsibility for delivering substance misuse services since 2003. However, in 2010 responsibility for substance misuse services was transferred to Substance Misuse Area Planning Boards.

¹¹ United Nations Office on Drugs and Crime (2012). *World Drug Report 2012*; www.unodc.org/documents/data-and-analysis/WDR2012/WDR_2012_web_small.pdf

Aims

This report explores what happened to the availability, price and purity of heroin in England and Wales during the reduction in supply. The research also attempts to assess whether changes impacted on a range of health and criminal justice indicators.

Specifically, the research addresses the following questions.

- Did the quantity of heroin seizures, purity and price change in the period before and after the period of reduced supply?
- How widespread was the reduction in heroin supply?
- What was the impact of the reduced heroin supply to drug users and society? In particular, has it resulted in a change in:
 - patterns of drug use among heroin users;
 - the number of people seeking treatment for opiate addiction;
 - the number of heroin overdoses; and
 - the level of drug-related offending.

Method

- **Evidence review**

An initial search of literature was conducted to identify existing evidence on the impact of a reduction in heroin supply.¹² Research in this area is predominantly focussed on the national reduction in heroin supply in Australia which occurred in 2001 (see Appendix A for list of references).

- **Quantitative data analysis**

Quantitative data analysis formed the core of the research to identify evidence of change over the period. A time series analysis¹³ was conducted across a range of national level data sources to identify any statistically significant changes during the period of reduced supply compared to the longer-term trend. For the purposes of this analysis, the six-month period from October 2010 to April 2011 was taken as the period of the heroin supply reduction in England and Wales. This was based on the first reports of a change in supply occurring around October 2010.¹⁴ Discussion of the findings mainly refers to significant changes in the data. However, non-significant results are also occasionally reported when considered to be of note. Appendix B lists data sources used.

In addition, local area analysis was undertaken based on eight of the 76 DAATs reported to have experienced a reduction in heroin supply. This analysis was conducted so as to ensure that the national data were not substantially masking different patterns in the data at a lower level. The results from this analysis are summarised in Section 6 of this report.

¹² For a complete list of research documents, refer to the references in Appendix A.

¹³ For a description of the time series analysis conducted, refer to Appendix B.

¹⁴ Drugscope (2011); *The great heroin crash*;

<http://www.drugscope.org.uk/Resources/Drugscope/Documents/PDF/Publications/GreatHeroinCrash.pdf>

- **Drug and Alcohol Action Teams feedback**

In February 2012, an email questionnaire was sent to the 170 DAAT co-ordinators in England and Substance Misuse Area Planning coordinators in Wales to gather information about heroin supply in their local area¹⁵. This was used to determine if there had been any regional variations in heroin supply. It also provided context around the quantitative data and useful information on changes observed in the local areas. Of the 170 email questionnaires sent out, there were 103 responses (61% response rate) to the questionnaire and the responses often included local area information from the police, Drug Intervention Programmes, drug treatment providers and heroin users.

- **Service provider interviews**

In-depth interviews with key service providers were undertaken to aid explanation of the quantitative data and to provide insight into what was happening at street level.

In November and December 2012, 12 telephone interviews were conducted with stakeholders in three local DAATs where a reduction in heroin supply had been observed to get more of an understanding about what was happening at street level. The service providers interviewed came from a range of non-statutory drug treatment agencies and the criminal justice service. Many responses from these interviews were based on the experiences of heroin users and so gave an insight into what was happening on the ground.

Considerations

In this report, we have used a combination of qualitative and quantitative methods to examine patterns in the heroin market and explore any impact on outcomes. As mentioned above, there are limitations to the conclusions that can be drawn from the quantitative data and while the qualitative data provide useful local insight, they may not be representative of all service providers and do not always reflect the findings from the quantitative data. In addition, there are a number of other considerations which need to be taken into account when interpreting the findings, as follows:

- Where changes in the data were observed during the period of the reduction in heroin supply and otherwise, these cannot necessarily be attributed to the changing heroin market. Other external factors not taken into account in this study may play a part in any change. For example, changes in enforcement activities, drug treatment provision or changes in reporting of the data may contribute to any variation in the data.
- Any localised effects reported may not necessarily be attributed to the change in heroin supply.
- Regional differences across England and Wales mean that the period of occurrence, duration and extent of any reduction in heroin supply is likely to vary. The quantitative data presented in this study are reported on a national scale and so are likely to mask these variations.
- Findings in this report need to be considered in the broader context of the changing landscape of drug use and crime over time – e.g. the decline in opiate use over the last few years as well as the reduction in drug-related acquisitive crime, the emergence of New Psychoactive Substances, and the introduction of the Drug Interventions Programme drug testing on arrest in additional police force areas.

¹⁵ Collectively referred to as DAATs throughout the report.

- The winter of 2010/2011 brought heavy snowfalls and record low temperatures. December 2010 was the coldest December since Met Office records began. This needs to be taken into account when interpreting the results of the quantitative data analysis around this period as this could have led to changes in behaviour and/or activities among drug misusers and those working in drug treatment services or the criminal justice system.
- All data sources included in the analysis have different time lags and are made publicly available at different points in the year.
- Whilst the qualitative interviews provide more direct data on drug use than is available from quantitative secondary data, it is not possible to determine how representative this sample is. Furthermore, there may be issues of recall accuracy of participants given the time delay between the end of the reduction in heroin supply and the interview.
- It is possible that the effects of the reduced supply of heroin will have differential effects on different populations; for example, it is possible that lower income users may be generally more susceptible to price and purity changes. It will not be possible within the scope of this research to identify the effects on different heroin user groups.
- The modelling of the costs and benefits of a restricted supply was attempted as part of this research. However, this was not possible given findings on the effects of a reduced supply were unclear.

2. Findings

1. Evidence review

Previously the main source of information about the impact of reductions in heroin supply comes from research following a reduction of supply in Australia in 2001. A range of impacts, both positive and negative, across crime and health indicators were identified, including:

- a switch to other substances (including benzodiazepines, cocaine and methamphetamine) among problem drug users;¹⁶
- a reduction in the number of individuals accessing drug treatment services for heroin use;¹⁷
- abrupt reductions in heroin overdoses with no associated increase in deaths related to other drugs;¹⁸ and
- short-term increases in offending among individuals who normally committed crime to fund their drug habit, although no enduring impact on crime levels was identified.¹⁹

Whilst this gives some understanding of the potential impact of drug supply disruption, the different drug markets and drug user populations in England and Wales mean that research undertaken to understand the impact of the Australian reduction in heroin supply may not be directly comparable.

Although findings reported so far for England and Wales are more limited, the 2011 DrugScope street drug trends survey²⁰ showed that the reduction in heroin supply in England and Wales drove the purity of the drug at street level down to record lows of 13 per cent for several months in some areas. As in Australia, this change in supply resulted in reports of increased use of other drugs such as tranquilisers and benzodiazepines. This is supported by recent qualitative research that explored the impact of, and responses to, the reduced supply among 37 London-based heroin users.²¹

¹⁶ Degenhardt *et al.* (2005); "Effects of a sustained shortage in three Australian states".

¹⁷ Mattick *et al.* (2004); "A reduction in the availability of heroin in Australia".

¹⁸ Degenhardt *et al.* (2005); "Effects of a sustained shortage in three Australian states".

¹⁹ Weatherburn *et al.* (2004); "Supply control and harm reduction: lessons from the Australian heroin 'drought'".

²⁰ Druglink (2011); "DrugScope street drug trends survey 2011";

http://www.drugscope.org.uk/Resources/Drugscope/Documents/PDF/111111_Druglink_survey_article.PDF

²¹ Harris *et al.* (2014) 'It's Russian roulette': Adulteration, adverse effects and drug use transitions during the 2010/2011 United Kingdom heroin shortage.

Despite this reported change in purity, a report²² by the UK Drug Policy Commission in 2008 suggests that drug markets have proven to be extremely resilient and able to adapt to reductions in drug supply. For example, by altering purity levels traffickers and dealers are able to increase their profit margins to alleviate the effects of increased seizures and/or enforcement action. Although there is some evidence to suggest that drug-law enforcement action can have some localised impacts, any benefits tend to be short-lived and disappear once an intervention is removed or ceases to operate.

Nevertheless, based on the findings from research into the impact of the heroin supply change in Australia, the reduced supply and availability of heroin might be expected to have the following effects:

- a reduction in purity;
- individuals switching to or using other substances along with heroin;
- a change in the level of offending;
- a reduction in heroin overdoses; and
- a fall in the number of individuals accessing drug treatment for opiates.

2. Understanding the market response to changes in heroin supply in England and Wales

In order to understand how the reduction in heroin supply manifested itself and how drug markets reacted at street level, we examined what happened to the availability, purity and price of heroin.

Key points

- Changes in heroin supply varied at a local level. Furthermore, differences in supply were not necessarily observed at the same time and were not of the same length compared to the overall national level.
- Drug and Alcohol Action Teams and local drug services reported a reduction in purity and, to a lesser extent, a lack of availability of heroin. There were some reports of individuals changing suppliers and/or travelling further afield to obtain heroin.
- Analysis of drug seizure data did not find any significant changes in the quantity of heroin seized during the period of the heroin reduction, although there were notable rises in the months prior to the reduction.
- There was a marked fall in the average purity of heroin seized in November 2010. The extent of adulteration taking place meant that users were often buying substances with very little (or in some cases no) heroin content.
- Although wholesale prices of heroin rose substantially, street-level prices remained relatively stable. This indicates that suppliers were holding prices constant but reducing the purity, resulting in individuals getting less for their money.

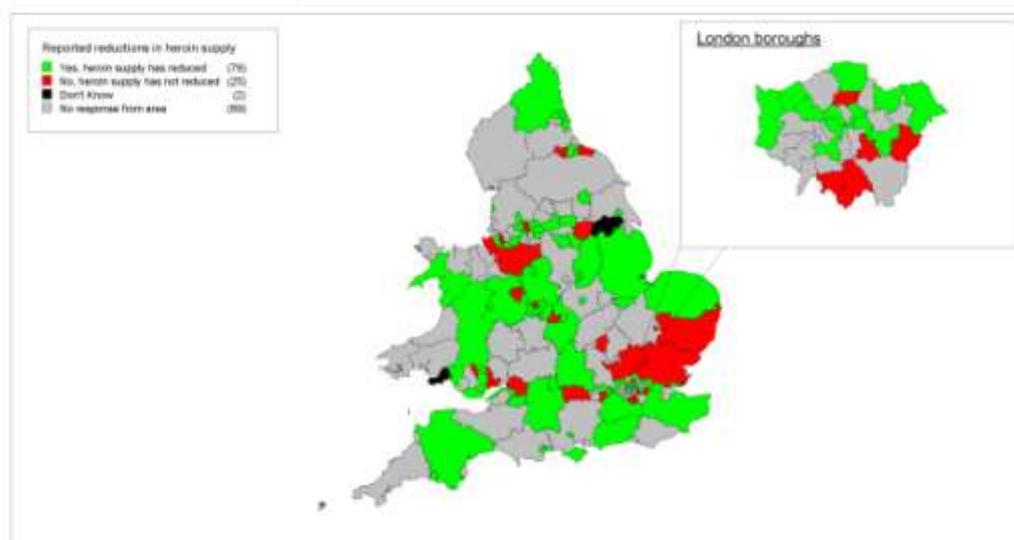
²² McSweeney *et al.* (2008); "Tackling drug markets and distribution networks in the UK"; <http://www.ukdpc.org.uk/wp-content/uploads/Policy%20report%20-%20Tackling%20drug%20markets%20and%20distribution%20networks%20in%20the%20UK.pdf>

Extent of the change in heroin supply in England and Wales

The variation in drug markets at a local level means that it is unlikely that different parts of the country experience changes in drug supply in exactly the same way and/or at the same time. To identify local differences, DAATs were asked to comment on the extent and scale of any recent changes in the availability of heroin in their area.

The map below gives an indication of the extent of the reduced heroin supply reported by DAATs. Out of the 103 DAATs which responded, the majority (76) had observed a drop in heroin supply.

Map 1. Response from areas in England and Wales on whether heroin supply has reduced in their areas



Of the 76 DAATs that observed a change in supply, 37 had observed a gradual change whilst 38 said it had been sudden. Twenty-three DAATs reported reduced availability was still ongoing at the time of responding to the questionnaire in February 2012 (Table 1).

Table 1: Extent of reduction in heroin supply

Nature of change	Number of Drug and Alcohol Action Teams
Gradual	37
Sudden	38
Unsure	1
Total	76
Had the reduction in heroin supply ended?	Number of Drug and Alcohol Action Teams
Yes	42
No	23
Unsure/unclear	11
Total	76

There were sizeable variations in the onset and longevity of the reduction. DAATs generally reported the onset between January 2010 and September 2011; the peak period of onset being around November 2010. In terms of longevity, eight DAATs said that it lasted less than three months in their area, 11 between three and six months, nine over six months and the remaining areas did not specify or said it was hard to tell. These findings show that the changes in heroin supply differed depending on the area and were not observed at the same time and of the same duration on a national scale.

Similarly to feedback from DAATs, interviewees were split as to whether they thought the reduction in heroin supply had ended. Most considered it to be ongoing at the time of interview which also indicated that its effects may not have ended.

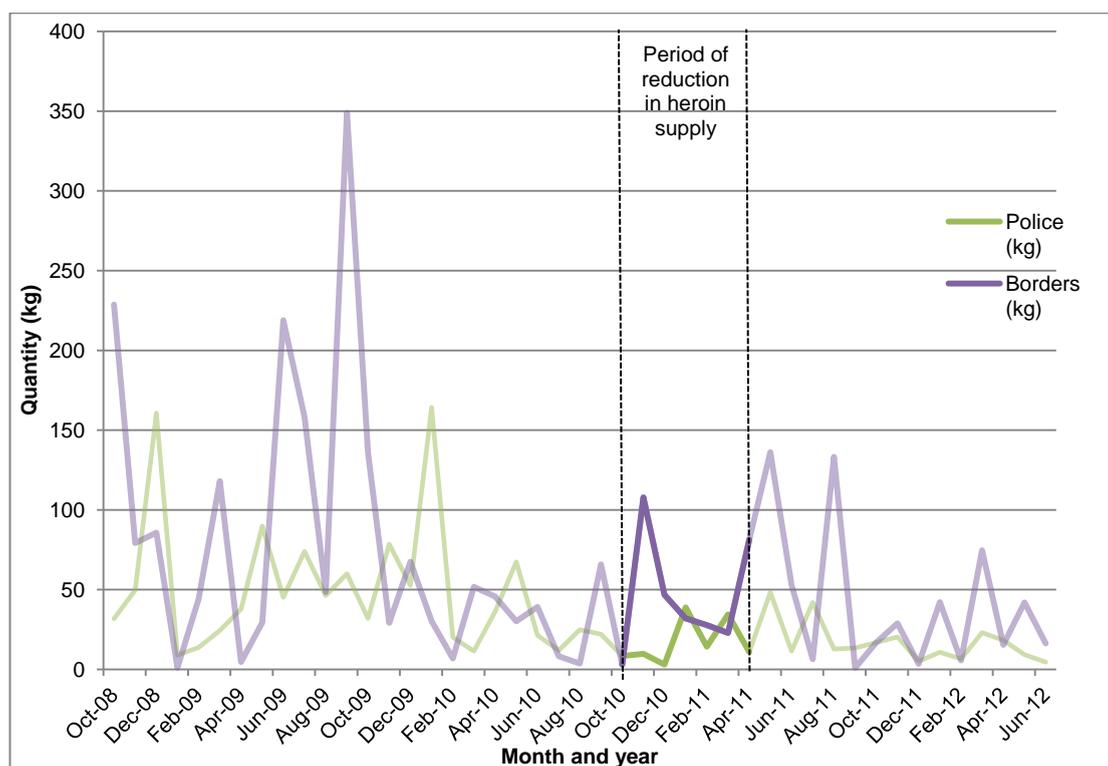
“The supply is still really bad at the moment; if there are rumours of somebody having a good supply, people go and try to find that person. Dealers will promote, yeah, I’ve got a really, really good supply. People go and purchase and then realise, actually, it’s exactly the same as what the other guy down the street is selling.” [Drug treatment-based service provider].

Availability and purity

There are no direct quantitative measures of drug availability, so as a proxy data on the quantity of heroin seized when it first arrives into the country at the border and at street level by the police have been analysed. Note, however, that quantity of seizures could reflect levels of enforcement activity as much as drug availability.

The data show that there were no significant changes in the quantity of heroin seized during the period of the heroin reduction. Sharp rises and falls in the quantity of heroin seized approximately occur every six months, largely due to border seizures (Figure 1), whilst the quantity seized on the street tends to fluctuate more by month. However, there were no significant change points observed over the years despite the quantity seized appearing to be lower in the run-up to the reduced heroin supply period.

Figure 1: Total quantity of heroin seized, England and Wales



In contrast, the data on average heroin purity levels showed a clear downward trend over time, particularly in average purity of heroin seized by the police on the streets, from a peak of 63 per cent in December 2008 to just 19 per cent in June 2012 (Figure 2)²³. This fall appeared to be more marked from September 2010 onwards. In general, the purity of heroin at wholesale level ranges from around 40 per cent and 60 per cent²⁴, but this reduces substantially by the time heroin is sold on the streets after it has been cut with other substances. Other things being equal, we would expect the purity of heroin to decrease during a period of reduced supply as the drug becomes scarcer.

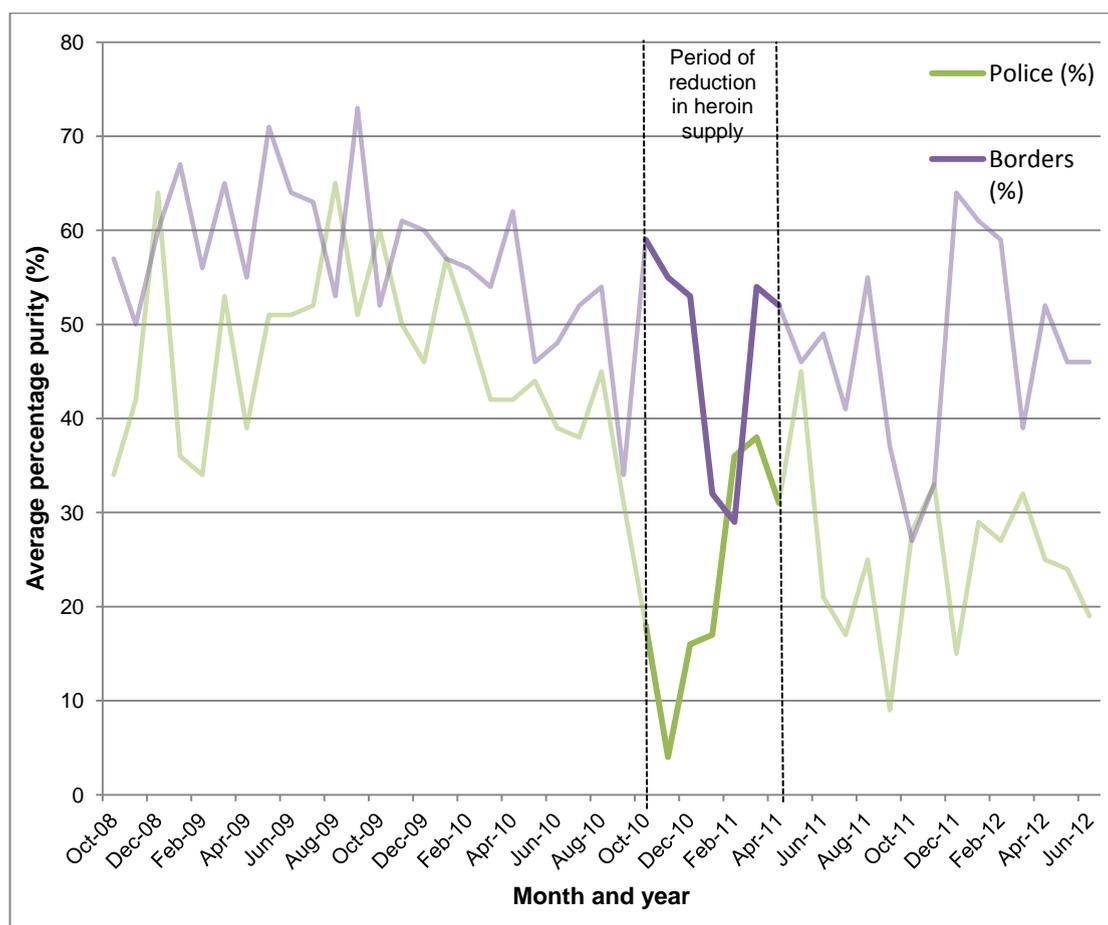
During the period of heroin reduction between October 2010 and April 2011, there was an additional fall in purity of heroin seized by the police when it fell to just four per cent in November 2010. Although levels generally increased after this point, the average purity of heroin seized on the streets until June 2012 did not return to levels previously seen before the reduction in supply. However, according to the UK Focal Point on Drugs (2014), heroin purity rose in 2013²⁵.

²³ More generally, seasonal fluctuations occur when average purity tends to fall in the autumn/winter although significant changes in purity are seen in November 2009 and September 2011.

²⁴ UK Focal Point on Drugs (2013); *United Kingdom Drug Situation 2013 Edition*; <http://www.nta.nhs.uk/uploads/24780focalpointreport2013.pdf>

²⁵ UK Focal Point on Drugs (2014) *United Kingdom Drug Situation, 2014 Edition*; <http://www.nta.nhs.uk/uploads/uk-focal-point-report-2014.pdf>

Figure 2: Average percentage heroin purity, England and Wales



The data on quantity of seizures and purity indicate that the reduction in heroin supply manifested itself predominantly through changes in purity levels. This finding is supported by feedback received from the DAATs and service providers.

Almost half the DAATs that reported a change in heroin supply said this was reflected in a reduction in the purity of heroin, and to a lesser extent, the availability of heroin. Purity was often considered to be very poor and heroin was often heavily adulterated with a variety of substances, the most common being benzodiazepines and/or paracetamol.²⁶ This apparently resulted in some users buying more heroin to achieve the same effect and also some reports of heroin users travelling further afield to areas which were thought to have a relatively good supply of heroin. DAATs also expressed concern around the increased likelihood of overdose given the fluctuation in the purity of heroin.

Similarly, the service providers interviewed had not observed any difficulties in users obtaining heroin, although there were some reports that the heroin available was of particularly low quality and widely cut with other substances. There were some reports of users who thought they had taken heroin later testing negative for opiate use.

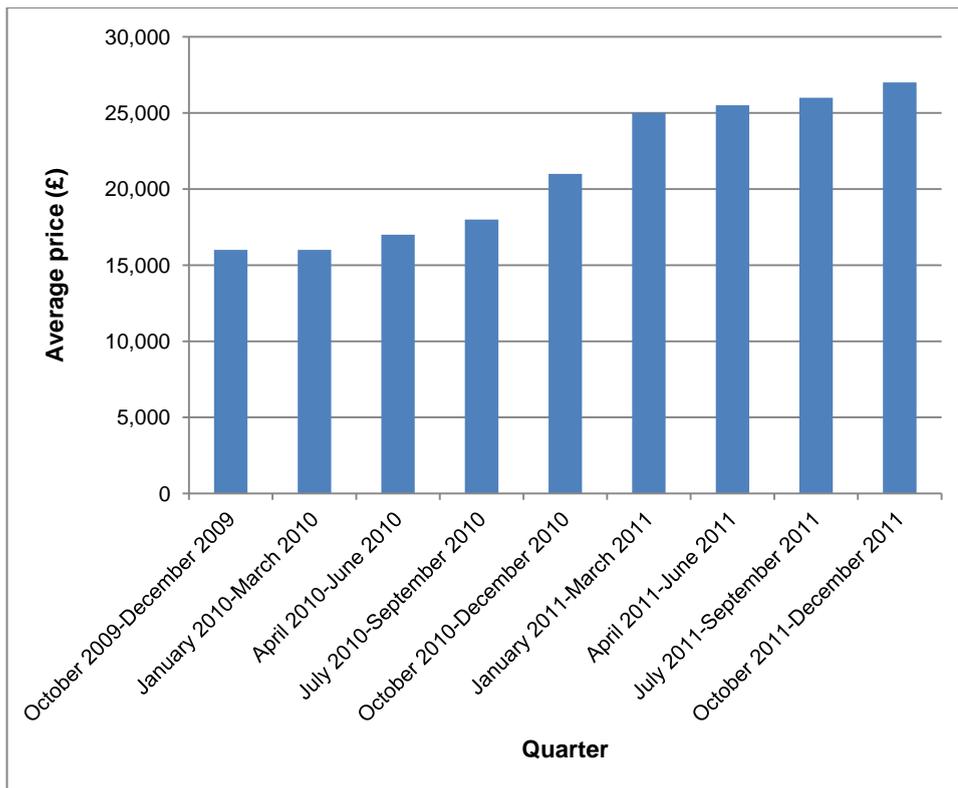
²⁶ An adulterant is any substance that has been added deliberately to an illicit drug preparation. Adulterants may be added to enhance or prolong effects of drugs, to add bulk or to do both of these things.

Price

Given that the analysis above showed a marked reduction in heroin purity, particularly at street level, it is likely that drug suppliers responded to the change in supply by reducing purity rather than increasing prices. The available data on price support this theory.

Quarterly data on average wholesale heroin prices are presented in Figure 3. Since late 2009/early 2010, wholesale prices increased with the largest rise coinciding with the peak of the heroin reduction period (from £21,000 to £25,000 per kilogram) from October-December 2010 to January-March 2011. Since then, prices continued to rise albeit at a lower rate.

Figure 3: Wholesale heroin prices per kilogram in the UK



In contrast to the rise in wholesale prices, annual figures from Focal Point 2012 show that street-level prices remained fairly stable.²⁷ Furthermore, information from the Serious Organised Crime Agency suggests that street-level prices have not reflected the increase in wholesale prices over the years but, more often, the quality of the drug throughout the supply chain decreases. This is also reflected in the findings of the DrugScope 2012 annual survey which reported a fall in the quality of heroin. There is also some evidence that during late 2010/early 2011, there was increased use of cutting agents such as paracetamol, caffeine and a combination of both to bulk out supplies, presumably in reaction to high wholesale prices.

These findings were also supported by DAAT feedback and service provider interviews – there were very few reports of an increase in the price of heroin at street level. Users tended instead to alter their buying patterns to obtain a higher-purity heroin either through changing their usual supplier or locating stronger batches in other locations.

²⁷ Public Health England (2013); "United Kingdom Drug Situation 2013 Edition, UK Focal Point on Drugs"; <http://www.nta.nhs.uk/uploads/24780focalpointreport2013.pdf>

“... what I hear from clients, and from my practitioners with clients, ... is that the heroin in this borough is no good. ... they do say specifically... heroin in this borough is terrible... that’s the usual kind of feedback we have. I guess, it goes hand to hand with the fact that they’re extremely cheap. The cheaper (it) is obviously you won’t find the great quality.” [Drug treatment-based service provider].

“... it was always available, it was the purity.... it was cut so much, (people) would be using and ... it wasn’t getting the desired effect, and that was when I think people generally started to come out and say, actually the quality is rubbish out there. That wasn’t their exact words, but it was along those lines that the quality was bad. The price had remained the same, but the quality was really bad.” [Drug treatment-based service provider.]

3. Health outcomes

This section explores whether there were any changes in behaviour related to health outcomes over the period of the heroin reduction; in particular, it looks at any changes in drug use as well as drug treatment presentations and hospital admissions in England related to substance misuse. The impact of the reduction of supply on drug-related deaths is not covered in this report, though this is an important outcome measure which warrants further exploration.²⁸

Key points

- Local drug services reported that during the period of the reduction in heroin supply, heroin users switched to or increased their use of other substances. The most commonly used substances were benzodiazepines and alcohol.
- Analysis of treatment data found that the number of new presentations to drug treatment for opiate use in England fell significantly during winter 2010 and subsequently did not return to previous levels.
- Although not supported by the quantitative data, some agencies suggested that low heroin purity levels could act as a catalyst for some users to tackle their addiction and enter treatment or engage with other support services, whilst others may have responded to low purity levels by switching to other substances.
- Hospital admission data on heroin poisonings and mental and behavioural disorders in England generally did not show any significant changes during this period. There were some reports from DAATs and service providers of increases in overdoses being seen, as well as other side effects due to the additional adulterants contained in the heroin and/or replacement substances which individuals were using.

²⁸ The Office for National Statistics produces statistics on deaths related to drug poisoning (including figures broken down by drug type) registered in a particular calendar year in England and Wales. However, due to the length of time it takes to hold an inquest, the date of registration of a drug-related death may be months or even years after the actual date of death. Due to the impact of these registration delays, we have excluded analysis of deaths related to heroin poisoning as the data required were not available at the time of this analysis.

Drug use

The most recent estimates show that there were around 256,000 opiate users in England in 2011/12, a fall from just over 282,000 opiate users in 2004/05 when estimates began.²⁹ It is therefore important to note that any fall in opiate use during the period of the reduction in heroin supply should be put in the context of this continued downward trend in the number of heroin users.

As shown previously, purity of heroin decreased during the heroin reduction period and some users had difficulty obtaining heroin. Under these circumstances, we may expect to see users switching to other drugs or supplementing their heroin use with other substances.

Generally DAATs reported they had observed a decline in heroin use over the period with over half reporting an increase in the use of other substances or polydrug use.³⁰ Alcohol and benzodiazepines were, in particular, often cited as being used alongside heroin (Table 2).

Table 2: The most common substances reportedly used alongside or instead of heroin during the reduction in heroin supply

Substance type	Number of DAATs
Alcohol	25
Benzodiazepines	25
Crack and/or powder cocaine	14
Other drug type	24
Drug type not specified	10
Total	98

Findings from the service provider interviews were similar to those from the DAAT feedback. Some individuals continued using heroin in the same way (despite it being of lower purity), some carried on using heroin but took other substances at the same time, while others switched completely to using new drugs, including methadone, cocaine (powder and crack), New Psychoactive Substances (NPS), cannabis, prescription drugs and amphetamines.

“Obviously a lot of reports from services and clients themselves moving onto cocaine, couldn't get heroin, so, you know, cocaine was quite readily available. Not the most fantastic quality in the world, but a lot of people have been moving onto just using cocaine as well, and alcohol. If one supplier has changed or altered, they will kind of deviate onto something else. But they still want the heroin, it was very, very clear that if it's there, they want it, and even though we know it's absolutely crap, we'll still go and get it, and we'll still inject it, because that's what we want.” [Drug treatment-based service provider]

“... we were told by a few people as well that they were choosing to move away from (heroin) because they simply weren't getting the effects that they wanted from the heroin,

²⁹ Hay, G., Rael Dos Santos, A. and Worsley, J. (2014); “Estimates of the Prevalence of Opiate Use and/or Crack Cocaine Use, 2010/11: Sweep 7 report”; <http://www.nta.nhs.uk/uploads/estimates-of-the-prevalence-of-opiate-use-and-or-crack-cocaine-use-2011-12.pdf>

³⁰ There are no suitably detailed datasets available on heroin users' drug use over this period; instead we focus on feedback from DAATs and findings from the stakeholder interviews.

and were moving onto other things, barbiturates, and some other sort of prescription medications as well.” [Criminal justice-based service provider]

Findings suggest that substitution and supplementation were common. The impact of this was unclear. In some circumstances it could have resulted in users taking potentially less harmful drugs. However, the high number of reports of increasing polydrug use suggested a heightened probability of increased risk of health-related side effects and/or overdoses.

Drug treatment

A change in heroin supply could both act as a push and a pull factor in terms of accessing treatment. On one hand the lower purity heroin available may act as a catalyst for users to access treatment. On the other, a reduction in numbers accessing treatment may be considered to be an indication that individuals may be self-detoxing or replacing heroin with other drugs.

This section looks at entry into drug treatment over the period of the reduction in heroin supply, as well as the referral source, to see whether there are any differences in how individuals accessed treatment services during this time compared to the overall trend.

As with the estimated number of opiate users in England, the number of people newly entering treatment for opiate and/or crack use in England has also declined over the years (from 59,734 in 2009/10 to 47,241 in 2014/15).³¹ This is important context to bear in mind when interpreting the findings in this section.

New treatment seekers

Figure 4 presents the number of new treatment seekers³² over time for ‘opiates only’ and ‘opiates and crack’ use in England.³³ As well as an increase in the number of new treatment seekers in November 2010, there were seasonal falls and rises in the number of new treatment seekers each December and January. However, the number of individuals entering treatment for opiates actually continued to fall after December 2010 during the period of reduced heroin supply. By February 2011, this change was significantly different statistically compared to the same point in time in previous years.

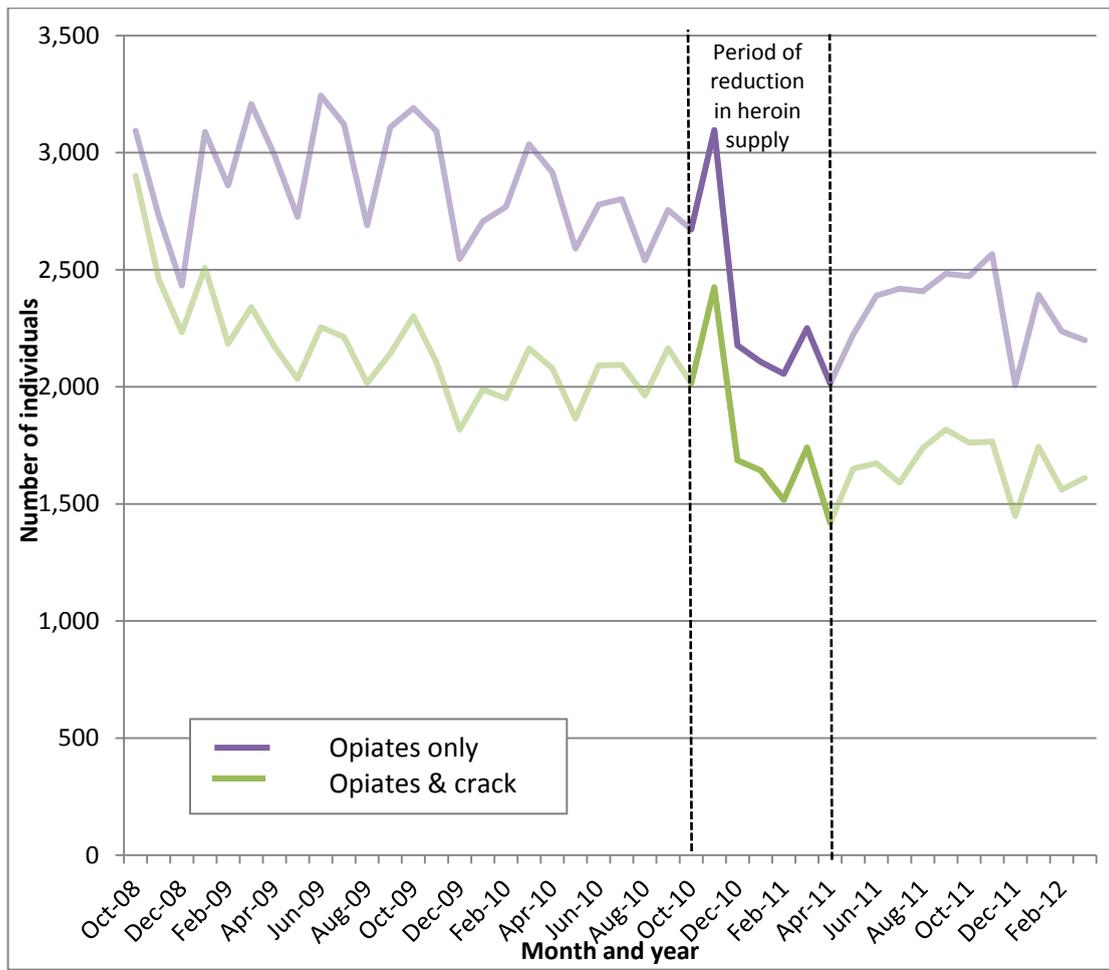
Although the number of new entrants seeking treatment for opiates then increased in spring 2011 (i.e. towards the end of the reduction in heroin supply), it generally remains at lower levels compared to the period before the reduction in heroin supply. This is possibly as a result of individuals who switched to other drugs during the reduction in heroin supply continuing to do so, hence not needing to seek treatment for opiate use. Alternatively, it may reflect the ongoing decline in the overall number of opiate users in England. Similarly, significant decreases were also seen in those seeking treatment for both opiates and crack.

³¹ Public Health England (2015) *Adult substance misuse statistics from the National Drug Treatment Monitoring System (NDTMS) 1 April 2014 to 31 March 2015*; <http://www.nta.nhs.uk/statistics.aspx>

³² New treatment seekers refers to anyone entering treatment and may include individuals who have been treated before.

³³ Refer to Appendix B for treatment seeker figures for Wales.

Figure 4: Number of individuals newly entering drug treatment over time, England



The majority of DAATs reported an increase in individuals accessing drug treatment and support services, though this was not supported by the quantitative data presented above.³⁴ Furthermore, once in treatment, retention seemed to be better than usual. The conflicting findings between treatment entry data and feedback from DAATs suggest a more mixed picture, possibly as a result of local variation and/or the different stages of the reduction in heroin supply.

A number of DAATs also observed fewer individuals wanting to access needle exchange services but an increase in substitute prescribing. This may have been due to a reduction in injecting behaviour and/or more users seeing the change in supply as a catalyst to tackle their addiction through either substitute prescribing or other means.

These varied findings on treatment seekers were also reflected in comments from service provider interviews. Based on information from performance management figures and feedback from teams, some areas thought that the number of individuals entering treatment had increased while others reported a decrease.

In addition to local variation possibly creating this mixed picture, feedback suggests that there were also two overarching responses in deciding whether to enter treatment as a result of

³⁴ In this case accessing drug treatment and support services refers to one or more of the following: accessing treatment services, new treatment presentations, referrals to treatment, pharmacy appointments, prescribing services, better retention in treatment, referrals for heroin use, self-referrals into structured treatment.

reduced heroin availability (or lower-purity heroin at least). Some users reportedly accessed treatment because the purity of heroin was low and as a result were experiencing withdrawal symptoms which encouraged them to seek help; others did not access treatment because they were able to buy other drugs instead of heroin.

“... If you can go... If I can go on the street and buy a bottle of Methadone, do you know what I mean, quite easily, or I can go and buy a load of benzos, illicit benzos, very easily, why would I need to walk through the doors of a treatment service when I can go and purchase it for myself, and I don't have to jump through lots of treatment hoops, I don't get it when I buy it off the street. I may be buying something that's rubbish, and crap, as crap as the heroin, but I don't have to jump through some hoops.” [Drug treatment-based service provider on feedback from service users.]

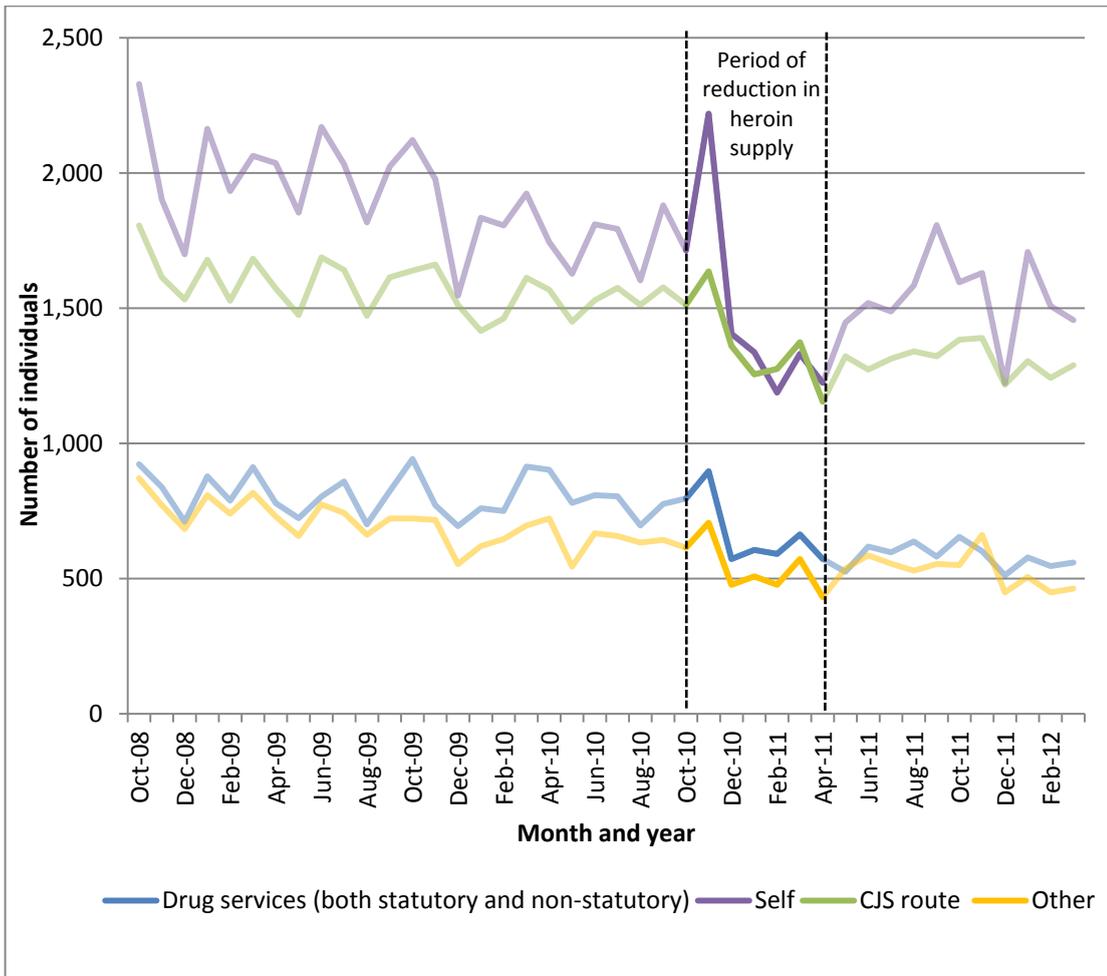
“Clients were questioning ‘what am I doing?’, ‘I used to like this; I'm not liking it now it's not heroin’, ‘Why am I continuing to do this?’ And some people took that event as the trigger to stop. So, in some respects, there was a positive element in actually (treatment services) helping people think about what they were doing. ... there was an impact on treatment services. People were... wanting to get on the methadone script or rethinking why they're doing this quality of (heroin).” [Drug treatment-based service provider].

Referral source

Figure 5 shows the differences in the number of new treatment entrants over time by referral source. As with the data on new treatment entrants, a non-significant increase in November 2010 was observed for all referral sources as well as seasonal rises and falls each December and January respectively.

Since the period of the reduction in heroin supply, the number of referrals into drug treatment generally remained lower and did not return to the levels observed before December 2010. It is likely that the decline in the overall number of opiate users in England is a strong contributory factor to this trend.

Figure 5: New treatment entrants over time by referral source, England



Overdoses and health-related side effects

A further possible consequence of the reduction in the purity of heroin is a change in overdoses and other health-related side effects. This could potentially result in declines in overdoses and related health harms or increases due to a rise in polydrug/substance use or uncertainty about the purity of heroin.

Overdoses

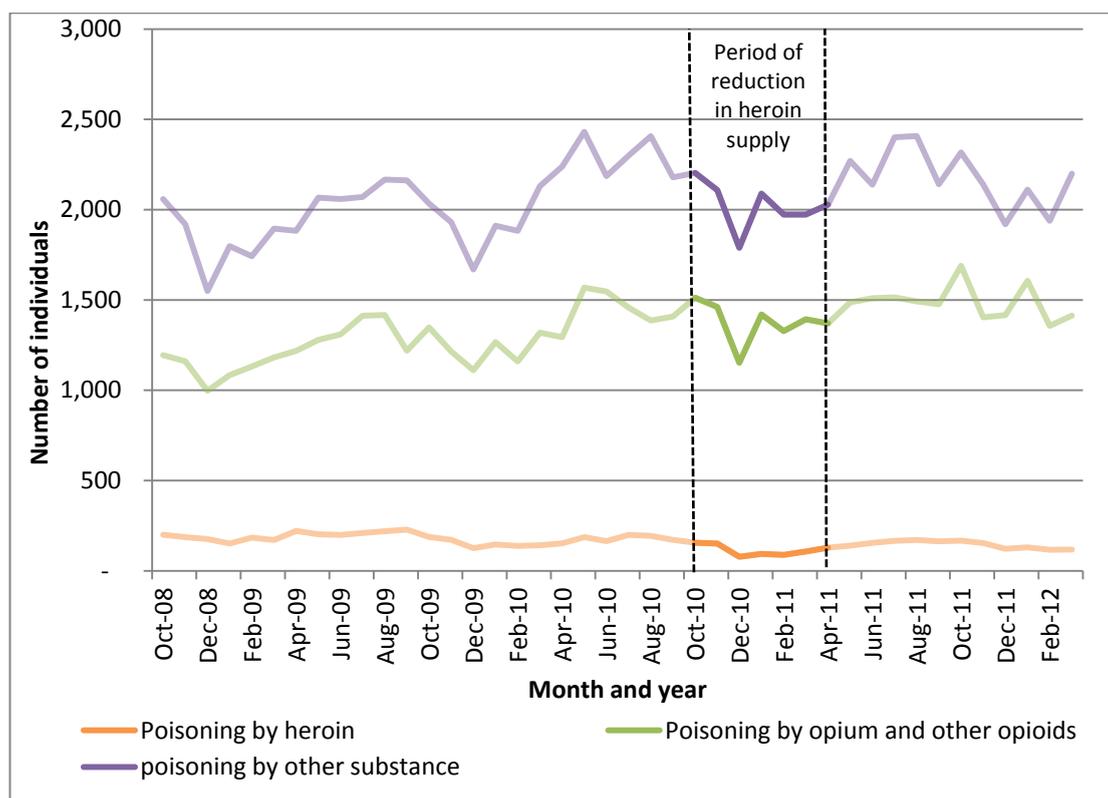
Figure 6 shows the number of hospital admissions in England³⁵ for drug poisonings³⁶ broken down for heroin, opium/other opioids and other substances. As with previous datasets, seasonal fluctuations occurred including overall falls in admissions in December for all substances, followed by a rise in January. There was a more marked decline in heroin overdoses during the period of reduction in heroin supply, especially around December 2010, although this was not statistically significant.

Significant changes in the data occurred throughout the years but none was seen during the reported period of the reduction in heroin supply.

³⁵ Refer to Appendix B for drug-related poisonings and mental and behavioural disorders hospital episode figures in Wales.

³⁶ Includes fatal and non-fatal poisonings.

Figure 6: Number of hospital admissions for poisoning due to substance misuse, England



Some DAATs thought that there had been increases in overdose cases as a result of other unknown adulterants used in poor quality heroin. There was also concern that following the end of the reduction in heroin supply there was risk of a potential increase in overdoses as the purity of heroin increased and users' tolerance levels to the drug diminished.

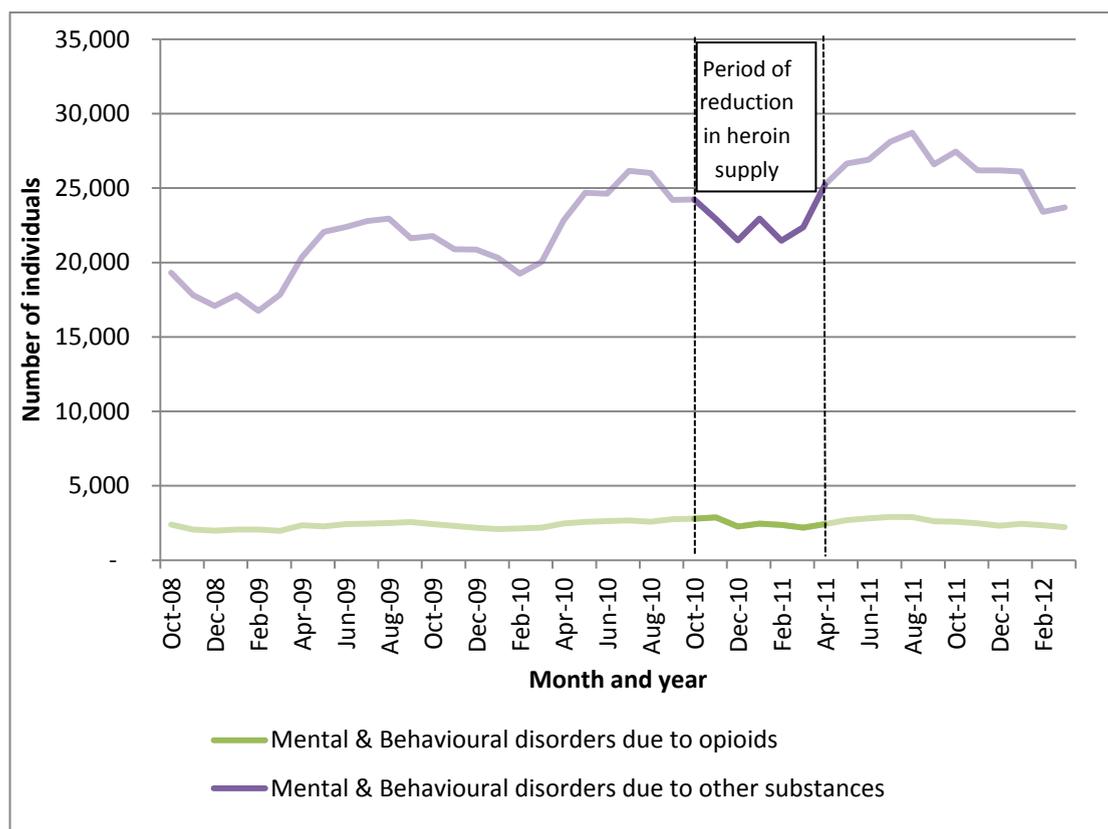
Given the poor purity of the heroin supply, service provider interviewees also voiced concerns about the potential for users to overdose if the purity increased without their knowledge, especially if a particularly strong batch became available. A rise in overdoses, near misses and accidental deaths was observed in some areas whilst, in contrast, other areas reported fewer overdoses.

“So it's kind of a double-edged sword in that sense that if the purity level does take a sharp decrease then what you find is you probably begin to use more and more, which could actually then increase the likelihood of them overdosing. Or they then use a combination of different substances, so they may then be using alcohol which is a depressant as well, and that could have some quite harmful effects, and increase the likelihood of an overdose.”
 [Drug treatment-based service provider]

Health-related side effects

Generally, hospital admissions for mental and behavioural disorders in England due to opioids were relatively stable (Figure 7). A statistically significant rise in mental and behavioural disorders due to opioids towards the start of the reduction in heroin supply period in November 2010 followed by a drop in the following months was observed.

Figure 7: Hospital admissions for mental and behavioural disorders due to substance misuse, England³⁷



In addition, DAATs reported an increase in users reporting that they experienced side effects associated with other substances and/or cutting agents, including headaches and feelings of sickness (which would not be picked up by the hospital episodes data). There were also reports of a rise in risk-taking behaviour among individuals, largely due to individuals taking different drugs and/or alcohol.

4. Criminal justice outcomes

As stated earlier, the reduction in heroin supply in Australia led to a short-term increase in offending among individuals who normally commit crime to fund their drug use. In this section we explore whether this pattern was seen in England and Wales. It may be expected that heroin users would need increased income to purchase an increased amount of lower purity heroin, leading to a rise in offending.

As there is no existing single data source to measure levels of **drug-related offending** directly, as a proxy, this section examines the number of arrests as well as convictions, cautions, warnings and reprimands for **drug-related acquisitive crime**³⁸ and **drug-specific offences** (i.e. possession, possession with intent to supply, and supply offences). We also look at the number of Drug Interventions Programme (DIP) drug tests. In April 2013, DIP ceased to be a nationally funded programme. It is for Police and Crime Commissioners (PCCs) to decide which local interventions (including drug testing on arrest) they fund to address Class A drug-related

³⁷ Refers to inpatient admissions with any diagnosis of substance misuse.

³⁸ For a list of drug-related offences, refer to Appendix B.

offending. Drug testing continues to operate in many areas across England and Wales with the aim of directing adult drug-misusing offenders into drug treatment and reducing offending behaviour. Note that all of these factors can be affected by changes in police or criminal justice system activity as much as any changes in actual offending.

Key points

- No changes were identified in the quantitative data on **drug-related acquisitive crime levels** during the heroin supply reduction period.
- In terms of **drug-specific offending**, although there were no differences in the number of supply offences, there was a greater decline than expected in possession as well as possession with intent to supply offences for heroin.
- DAATs and service providers did not report much change in drug-related acquisitive crime during this period.
- Data on Drug Interventions Programme drug tests on arrest showed a significant fall in the number of positive opiate tests during the period of the reduction in heroin supply and, although numbers then started to rise again, they did not return to previous levels. Anecdotally, a decline in the number of positive tests for opiates among heroin users was reported by DAATs and service providers.

Drug-related acquisitive crime

Caution needs to be taken when interpreting the results in this section as the term 'drug-related acquisitive crime' refers to an index of acquisitive crime that is weighted so as to try and capture a trend in drug-related crime and is not necessarily crime committed by drug users. With this in mind, analysis shows that there were no statistically significant changes in the number of arrests or the number of convictions, cautions, warnings and reprimands for drug-related acquisitive crimes (Figure 8) during the period of the reduced heroin supply. These findings suggest that individuals using heroin may not have been offending significantly more or committing further crime to fund their heroin use.

There was, however, a general downward trend in drug-related³⁹ acquisitive crime with further annual reductions in December 2010. Furthermore, the number of convictions, cautions, warnings and reprimands for drug-related offences showed a similar pattern over time (Figure 9).

³⁹ Drug-related acquisitive crime is a measure which was derived from the Arrestee Survey. It is an index of acquisitive crime that is weighted so as to try and capture a trend in drug-related crime and not necessarily committed by drug users. Refer to Appendix B for list of offences.

Figure 8: Number of drug-related acquisitive crimes committed, England and Wales

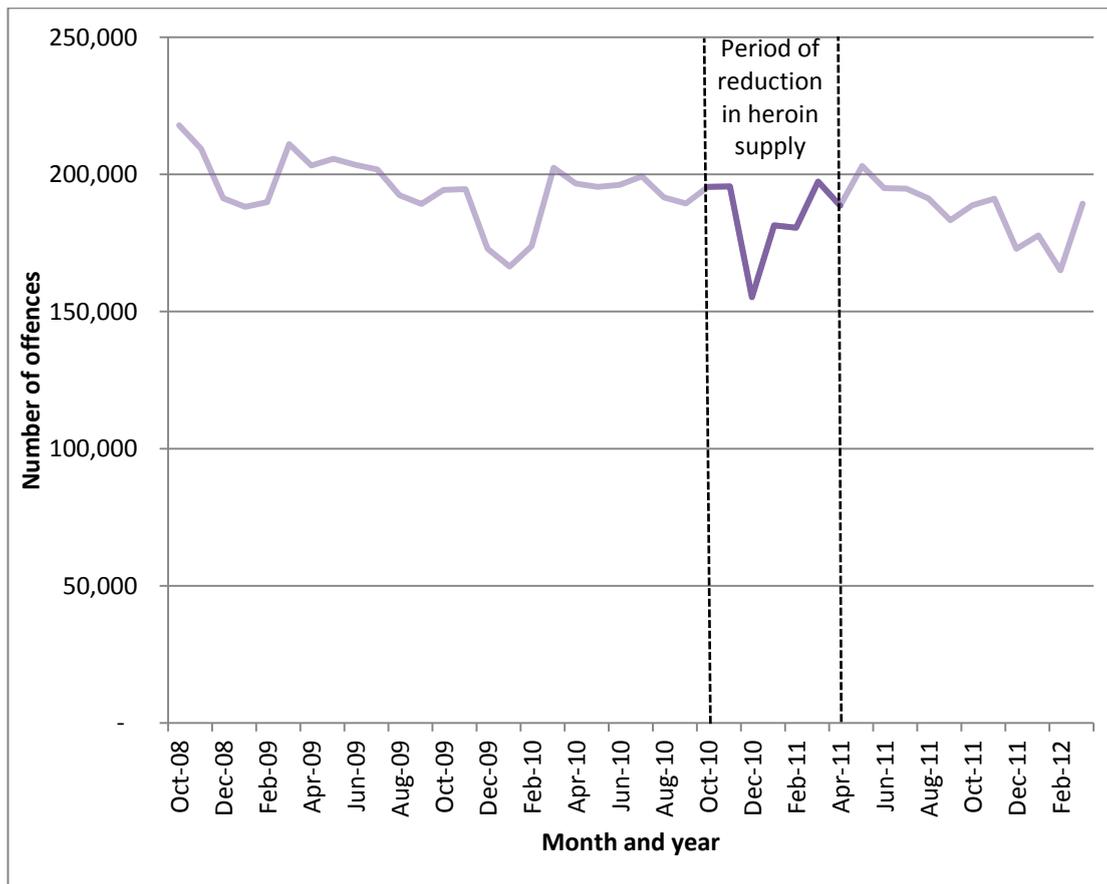
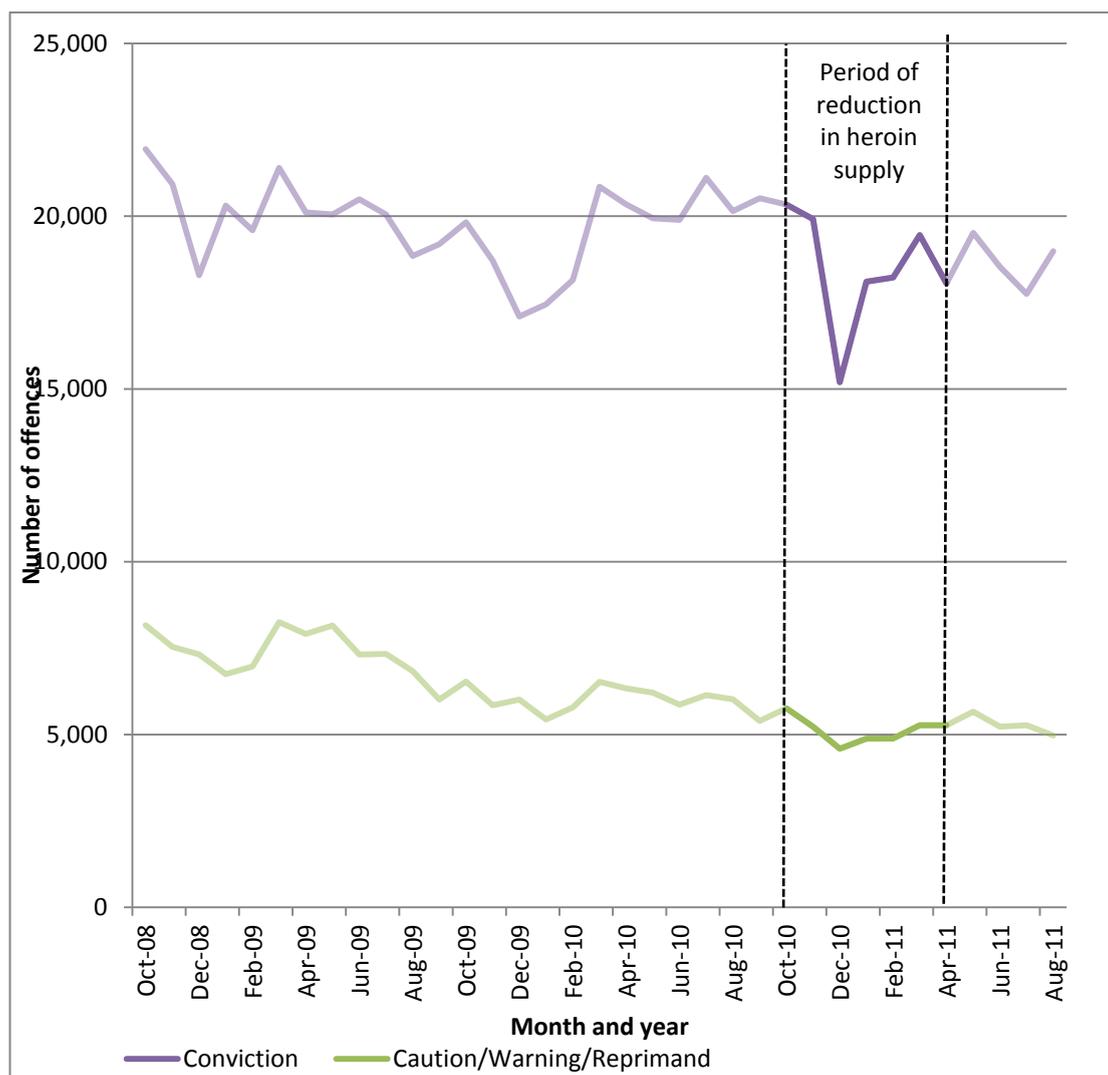


Figure 9: Convictions/cautions/warnings/reprimands for drug-related offences, England and Wales



In line with the data showing no significant changes in drug-related acquisitive crime, most DAATs reported no obvious change in offending levels among users. Likewise, service providers generally concluded that they could not tell, or were not aware of any differences, further suggesting that drug-misusing offenders were not committing more crime to fund their heroin habit.

“We didn’t see a massive decline in that sort of behaviour, we didn’t notice a significant decline in acquisitive crime but what we did notice was that where people were being arrested for acquisitive crime they weren’t necessarily testing positive for the drugs that we would test ...” [Criminal justice-based service provider]

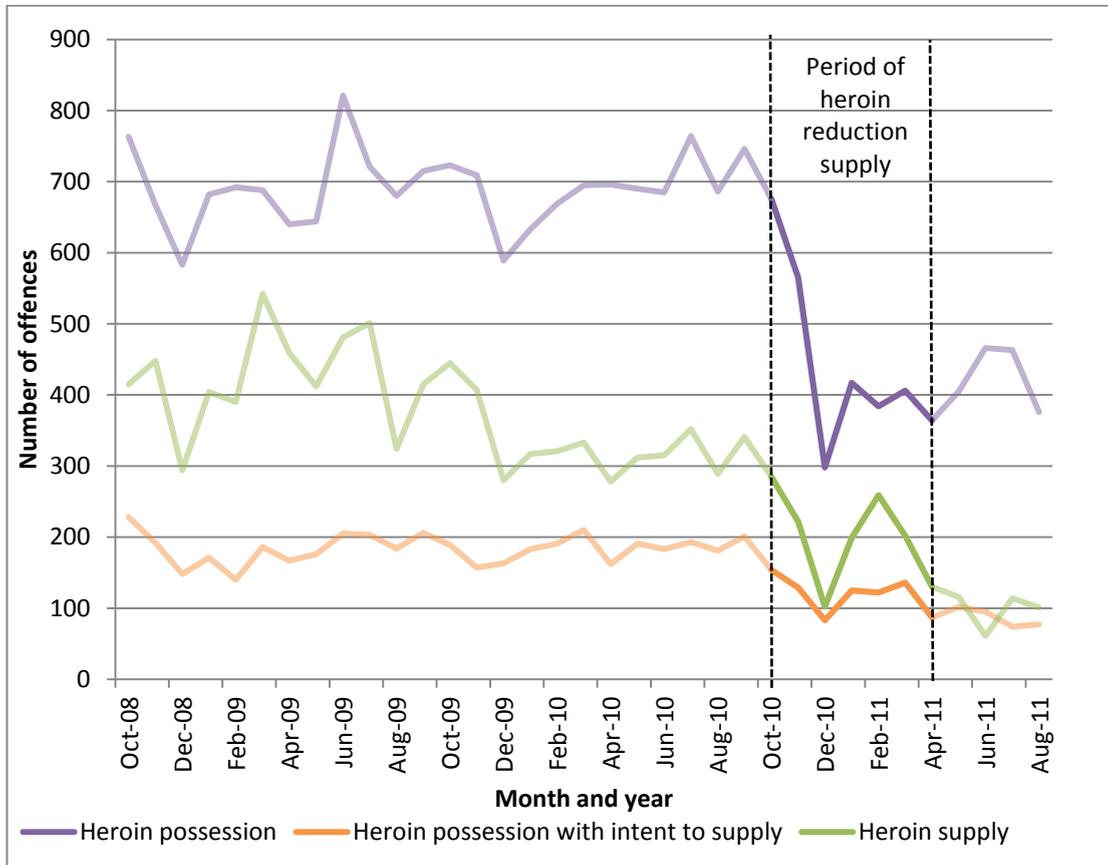
“... we did notice a reduction in people being arrested for sort of drugs-related offences ... But really that wasn’t until much later because our figures are always sort of slightly out. At the time, I think we were kind of aware there was a slight reduction, but it wasn’t massively noticeable. We ... had to wait a little while to see what was happening.” [Criminal justice-based service provider]

Drug-specific offending

There were statistically significant sharp falls in the number of convictions, cautions, warnings and reprimands for **possession** and **possession with intent to supply** offences related to heroin during the period of the reduction in heroin supply (Figure 10). In contrast though, the number of convictions, cautions, warnings and reprimands for **supply offences** related to heroin showed some changes during the time when heroin supply was reduced, although these were not statistically significant.

The fall in possession and possession with intent to supply offences suggests that this may have been due to individuals being less likely to be in possession of heroin when there is a lack of heroin available and/or reduced purity.

Figure 10: Convictions, cautions, warnings and reprimands for drug-specific offences, England and Wales



Contact with the Drug Interventions Programme

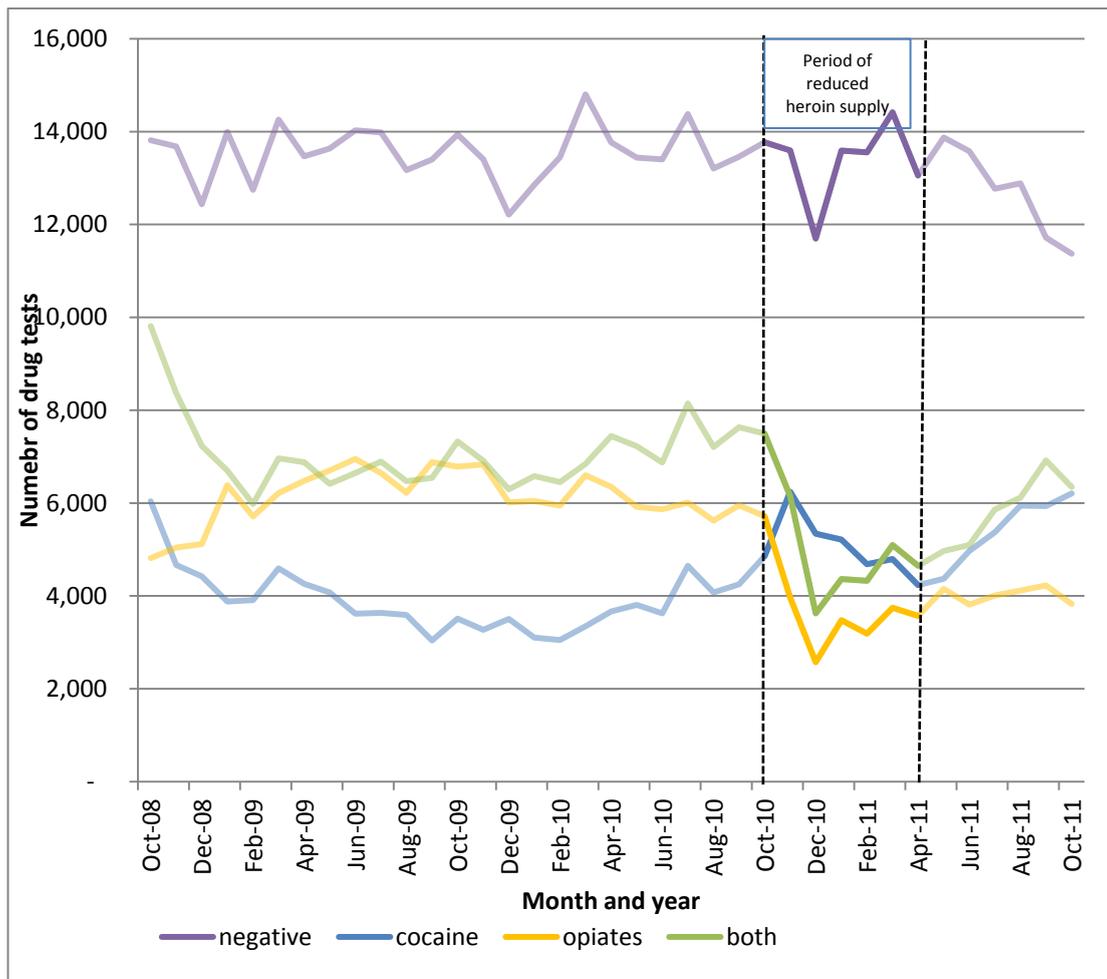
The Drug Interventions Programme provides an opportunity for drug-misusing offenders to access the help and support they need to tackle their drug use by using integrated teams across the criminal justice system, drug treatment and other support services. The following section looks at individuals at their initial contact with the Drug Interventions Programme (i.e. drug test on arrest⁴⁰) to see if any changes in the numbers of users testing positive for heroin took place during the period of reduced supply.

There was a significant decline in the number of positive drug tests on arrest for opiates during the period of the reduction in heroin supply (Figure 11). Although this slowly began to recover from January 2011, the number of positive opiate tests on arrest did not return to the levels they were prior to the reduction in heroin supply. This changing pattern in the number of positive opiate tests may have been due to drug tessees being unable to obtain heroin or that the purity was so low making it difficult to detect by a drug test. In either case this provides evidence that fewer individuals were testing positive for opiates since the reduction in heroin supply began, indicating declining use of heroin among the arrestee population.

A fall was also observed during this time in the number of tests for both opiates and cocaine combined as well as negative tests although this was not significantly different to the overall trend over time. A rise in cocaine positive tests was also seen over this period but similarly was not significant.

⁴⁰ Drug Testing on Arrest was introduced as part of the Drug Interventions Programme in April 2005. The police gained this power as part of the Drugs Act 2005. Previously the police could test individuals on charge only. Within geographical areas that operate the 'Intensive' Drug Interventions Programme, all offenders arrested for certain types of offences are routinely tested for opiates and cocaine metabolites (a list of offences that can 'trigger' a drug test can be found in the Appendix B). Those arrested for other offender types may also be tested, at the discretion of a senior police officer.

Figure 11: Number of Drug Interventions Programme drug tests on arrest, England and Wales



Feedback from DAATs mirrored the data on drug tests on arrest. Many areas reported a fall in the number of positive opiate drug tests. There were some reports of users testing negative even though they had taken what they believed to be heroin, which indicates purity issues.

Service providers reported similar findings. For example, people may have thought they had taken heroin but the tests were negative. Furthermore, there were instances of users reporting taking heroin and subsequently feeling the effects of withdrawal, indicating that the heroin was very weak.

“Obviously we take into account what people are telling us they're taking, but we also bear in mind that during the drought people were adamant that they were taking heroin because they were being told they were being sold heroin. So they were convinced they were, but it just wasn't being borne out by the (drug) tests. So really in terms of that, we base everything on our testing really to see what people are coming up with.” [Criminal justice-based service provider].

5. Contact with heroin users

Service providers were asked about how they responded to the reduced supply in terms of the information and advice they provided to clients. Most treatment service providers who were interviewed reported that they attempted to increase their communication with users during the period of reduced heroin supply by providing them with information and advice on a number of issues, including the dangers of New Psychoactive Substances, maintenance of methadone levels and the different support services available to them. Some also used the situation as an opportunity to encourage users to engage more with treatment services.

Increased communication with colleagues and other service providers also took place more regularly during the period of reduced heroin supply. There were also examples of further information and guidance being produced on changes in drug supply and how this may impact on other areas such as drug use and offending.

Service providers were also asked how their organisation would deal with a recurrence of a change in heroin supply. Interviewees said that they thought they would need to take a more reactive approach and implement changes more quickly when the drug market changes. Service providers said they would try and ensure there was greater flexibility in working with both drug users and other service providers – ideas of how to do this included providing more drug-related warnings, increasing the numbers of shifts/clinics, having good intelligence systems in place, and getting information on the situation out to commissioned services.

6. Local area analysis

Given the extensive regional variations across England and Wales, local area quantitative data analysis was undertaken, where possible, on eight DAATs to ensure that the national findings were not substantially masking patterns in the data at a local level and to verify that changes were broadly similar across areas. Of the 76 DAATs that were identified from their responses to the email questionnaire as having experienced a reduction, eight were selected in order to carry out local area analysis of data on drug treatment, Drug Interventions Programme drug testing and acquisitive crime⁴¹.

This analysis found that overall patterns in the data were not being obscured by the national picture with the exception of drug treatment data. Areas observed a fall in the number of opiate positive DIP drug tests and a general decline over time in drug-related acquisitive crime, mirroring results at a national level. In contrast though, the number of individuals newly entering treatment for opiates seems to be at odds with the national picture to some extent as three DAATs saw a rise during the heroin supply disruption. However, any variations in local level data could also be as a result of other factors, such as differences in the period of the heroin reduction being observed across areas.

⁴¹ For aggregated results, refer to Figures B5 to B7 in Appendix B.

7. Conclusion

This report found strong evidence of a reduction in heroin supply across large parts of England and Wales in 2010/11. This was evidenced by substantial increases in wholesale prices whilst marked decreases in purity allowed street-level prices to remain relatively stable. At the height of the reduction (around November 2011) the purity of heroin seized by police forces fell as low as four per cent.

Feedback from local areas suggests that heroin users largely responded to the reduction by either increasing or widening their use of other substances (most common substances being benzodiazepines and alcohol).

The impact of the reduction in supply on a range of health and criminal justice indicators paints a more mixed picture.

In terms of presentations to drug treatment significant falls in the number of new presentations to treatment for opiate use in England were observed over the period. Feedback from local areas suggests that the reduction in supply either acted as a catalyst for heroin users to seek treatment or alternatively shifted use to other substances. It is possible, though, that there were other reasons as to whether individuals accessed treatment or not, but these were not captured sufficiently by the DAAT responses.

Analysis of Hospital Episode Statistics in England did not identify an increase in either fatal or non-fatal heroin overdoses during the period of the reduction. However, feedback from local areas highlighted concerns about increases in overdoses as a result of uncertainty about purity levels or due to the additional adulterants and/or increased poly-substance use.

In contrast, there appeared to be no change in drug-related acquisitive crime in England and Wales. This indicates that there is no evidence to suggest that heroin users were no more likely to offend or, for those who did offend, to commit additional offences during the reduction in heroin supply. However, there were significant declines in possession and possession with intent to supply offences related to heroin which could be due to individuals being less likely to be in possession of the drug when there is a lack of heroin availability and/or reduced purity. There was also a significant decline in the number of positive drug tests on arrest for opiates during the period of the reduction in heroin supply. This suggests that those who would have usually tested positive for opiates were unable to obtain a supply of heroin, or that the purity may have been so low making it difficult to detect by a drug test.

Service providers reported that they increased communication with drug users, colleagues and other services over the period to share information and provide guidance. In retrospect, services thought that a more reactive and responsive approach should be taken in any future recurrence of a change in drug supply.

Evidence review

Research documents used in the initial evidence review:

Best, D., Strang, J., Beswick, T. & Gossop, M. (2001) Assessment of a concentrated high-profile police operation: no discernable impact on drug availability, price and purity. *British Journal of Criminology*, 41: 738-745.

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Day, C., Degenhardt, L. & Hall, W. (2006) Changes to the initiation of heroin use after a reduction in heroin supply. *Drug Alcohol Rev.*, 25(4): 307-13.

Day, C., Topp, L., Rouen, D., Darke, S., Hall, W. & Dolan, K. (2003) Decreased heroin availability in Sydney in early 2001. *Addiction*, 98:93-95.

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Degenhardt, L., Day, C., Gilmour, S. & Hall, W. (2006) The "lessons" of the Australian "heroin shortage". *Substance abuse, treatment, prevention and policy*, 1:11.

Degenhardt, L., Reuter, P., Collins, L. & Hall, W. (2005) Evaluating explanations of the Australian 'heroin shortage'. *Addiction*, 100: 459-469.

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Wood, E., Tyndall, M.W., Spittal, M., Li, K., Aslam, A., Hogg, R., Montaner, J., O'Shaughnessy, M.V. & Schechter, M.T. (2003) Impact of supply-side policies for control of illicit drugs in the face of the AIDS and overdose epidemics: investigation on a massive heroin seizure. *Canadian Medical Association Journal*. 168: 2; 165-169.

Appendix B

Quantitative data analysis

Data sources

The data used were as follows:

Table A1: Data used in this research

Data	Data source	Information gathered
Quantity, purity and price data	Serious Organised Crime Agency (now National Crime Agency)	Quantity of heroin seizures, average purity and wholesale price
National Drug Treatment Monitoring System	National Treatment Agency (now Public Health England)	Number of new drug treatment referrals and referral source
Hospital Episode Statistics	National Health Service	Number of admissions for diagnosis of mental & behavioural disorders and poisonings related to substance misuse
Recorded crime data	Home Office	Number of arrests for drug-related acquisitive crime offences
Drug Interventions Programme drug test data and assessments	Home Office	Number of positive drug tests and Drug Interventions Record assessments
Police National Computer data	Ministry of Justice	Number of convictions, cautions, warnings and reprimands for drug and drug-related offences

Time series analysis

Time series analysis is a method for analysing an ordered sequence of values of a variable at equally spaced time intervals data in order to extract meaningful statistics and other characteristics of the data; in the case of this research, to identify any real changes in the data over time. In order to do this, we first adjusted the data to take into account seasonal variations naturally occurring in the data. Calculation of the Moving F statistic was then carried out. The Moving F statistic is used to identify points of change in the series of data. To form the Moving F, a theory of the process on a baseline sample estimates the series model and the residual mean square about it is calculated – in this case, the baseline sample for each dataset analysed was taken as the first 12 months of data available and the assumption that this period was a typical 12-month period. This series model is then extended past the baseline with residuals assumed to be normally distributed. The Moving F is calculated as the moving average of squared deviations about the series model in ratio to the baseline mean square. The Moving F then crossing the critical F then identifies a significant change in the series model (i.e. signals its presence and location). In this case, significant change points were analysed both at the 95 per cent and 99 per cent confidence level.

Deaths related to drug poisoning

The Office for National Statistics produces statistics on deaths related to drug poisoning (including figure broken down by drug type) registered in a particular calendar year in England and Wales. However, due to the length of time it takes to hold an inquest, the date of registration of a drug-related death may be months or even years after the actual date of death. Due to the impact of these registration delays, we have therefore excluded analysis of deaths related to heroin poisoning as the data required were not available at the time of this analysis.

Drug-related crime

The following offences are classed as drug-related offences:

- Methylamphetamine (Crystal meth): possession; Misuse of Drugs Act 1971 S.5(2) & Sch.2
- Having possession of a controlled drug:- GHB (Hydroxy-n-butric acid). Misuse of Drugs Act 1971 S.5 (2) & Sch.2
- Having possession of a controlled drug (Ketamine). Misuse of Drugs Act 1971
- Methylamphetamine (Crystal meth): possession with intent to supply; Misuse of Drugs Act 1971 S.5 (3) & Sch.2
- Having possession of a controlled drug with intent to supply:- GHB (Hydroxy-n-butric acid). Misuse of Drugs Act (3) & Sch.2
- Having possession of a controlled drug (Ketamine) with intent to supply. Misuse of Drugs Act 1971
- Methylamphetamine (Crystal meth): permitting premises to be used for unlawful purposes; Misuse of Drugs Act 1971 S.8 & Sch.2
- Permitting premises to be used for unlawful purposes:- GHB (Hydroxy-n-butric acid). Misuse of Drugs Act 1971 S.8 & Sch.2
- Permitting premises to be used for unlawful purposes (Ketamine). Misuse of Drugs Act 1971
- Theft Act 1968 S.12 (1) as amended by Criminal Justice Act 1988 S.37 Unauthorised taking of a motor vehicle
- Theft Act 1968 S.12 (1) as amended by CJA 1988 S.37. Unauthorised taking of conveyance other than motor vehicles or pedal cycle

- Theft Act 1968 S.12 (1) as amended by Criminal Justice Act 1988 S.37 Being carried knowing vehicle to have been taken or driven away without consent
- Aggravated vehicle taking (1992 onwards)
- Theft Act 1968 S.12A as added by the Aggravated Vehicle Taking Act 1992 S.2 – Aggravated taking where the only aggravating factor is criminal damage of £5000 or under.
- Theft Act 1968 Sec.12 (5) or Bylaw. Take or ride a pedal cycle without consent etc.
- Misuse of Drugs Act 1971 Sec.9 A Supply etc. of articles for administering or preparing controlled drugs.
- Failure to comply with a Pre-sentence Drug Testing Order
- Failure to provide a sample
- Failure to attend or stay for the duration of an initial assessment following test for class A drug. Drugs Act 2005
- Failure to attend or stay for the duration of a follow-up assessment following test for class A drug. Drugs Act 2005
- Failure to comply with any requirement of intervention order. Crime and Disorder Act 1998 as added by Drugs Act 2005
- Conspiracy to defraud. Common Law and Criminal Justice Act 1987 S.12
- Conspiracy to defraud or extort (1963–68)
- Make, adapt, supply or offer to supply any article knowing that it is designed or adapted for use in the course of or in connection with fraud, or intending it to be used to commit or facilitate fraud; Fraud Act 2006 S.7
- Possession etc. of articles for use in frauds; Fraud Act 2006 S.6
- By any dishonest act obtains services for which payment is required, with intent to avoid payment; including attaching a decoder to a television to enable viewing access to cable/satellite television channels for which there is no intention of paying
- Theft Act 1968 Sec.15 Obtaining property by deception
- Dishonestly fails to disclose information to make a gain for himself or another or to cause loss to another or to expose another to a risk; Fraud Act 2006 S.1(2a)(3)(4), 3(1a)(b)
- Criminal Attempts Act 1981. Section 1. Attempts to commit offences are punishable as, and should be classified as the substantive offence except where a separate classification is proved
- Criminal Attempts Act 1981 Sec 9. Interference with a motor vehicle
- Vagrancy Act 1824 Sec. 3 Begging, wandering abroad or being in any street, to beg or gather alms or causing or procuring any child so to do
- Dishonestly makes a false representation to make a gain for himself or another or to cause loss to another or to expose another to a risk; Fraud Act 2006 S.1(2a)(3)(4), 2(1a)(b)

Drug Interventions Programme Drug Testing on Arrest – List of offences classed as ‘Trigger’ offences

The following offences are taken from the list of trigger offences applicable to drug testing:

Theft Act 1968

- Theft Act 1968 S. 12 (1) as amended by CJA 1988 S. 37. Being carried knowing vehicle to have been taken or driven away. Unauthorised taking of motor vehicle
- Theft Act 1968 S.12 (1) as amended by CJA 1988 S.37. Unauthorised taking of conveyance other than motor vehicles or pedal cycle
- Theft Act 1968 S.12a – aggravated taking where: a) the vehicle was driven

dangerously on a road or other public place or b) owing to the driving of the vehicle an accident occurred causing injury to any person or damage to any property other than the vehicle

- Theft Act 1968 S.12A as added by the Aggravated Vehicle Taking Act 1992 S.2 – Aggravated taking where the only aggravating factor is criminal damage of £2000 or under
- Theft Act 1968 S.12A as added by the Aggravated Vehicle Taking Act 1992 S.1 – Aggravated taking where owing to the driving of the vehicle an accident occurs causing the death of any person
- Theft Act 1968 Sec.1 Stealing by an employee
- Theft Act 1968 Sec.1 Stealing conveyance other than M V or cycle
- Theft Act 1968 Sec.1 Stealing from automatic machines and meters
- Theft Act 1968 Sec.1 Stealing from motor vehicles
- Theft Act 1968 Sec.1 Stealing from other vehicles
- Theft Act 1968 Sec.1 Stealing from shops and stalls (shoplifting)
- Theft Act 1968 Sec.1 Stealing from the person of another
- Theft Act 1968 Sec.1 Stealing in a dwelling other than from automatic machines and meters
- Theft Act 1968 Sec.1 Stealing not classified elsewhere
- Theft Act 1968 Sec.1 Stealing pedal cycles
- Theft Act 1968 Sec.1 Theft of motor vehicle
- Theft Act 1968 Sec.10 Aggravated burglary in a dwelling (including attempts)
- Theft Act 1968 Sec.10 Aggravated burglary in a building other than a dwelling (including attempts)
- Theft Act 1968 Sec.12 (5) or Bylaw. Take or ride a pedal cycle without consent etc.
- Theft Act 1968 Sec.22 Receiving stolen goods.
- Theft Act 1968 Sec.22 Undertaking or assisting in the retention, removal, disposal or realisation of stolen goods or arranging to do so.
- Theft Act 1968 Sec.25 Going equipped for stealing etc.
- Theft Act 1968 Sec.8 Assault with intent to rob.
- Theft Act 1968 Sec.8 Robbery.
- Theft Act 1968 Sec.9 Burglary in a building other than a dwelling with intent to commit or the commission of an offence triable only on indictment
- Theft Act 1968 Sec.9 Burglary in a dwelling with intent to commit or the commission of an offence triable only on indictment
- Theft Act 1968 Sec.9 Burglary in a dwelling with violence or the threat of violence
- Theft Act 1968 Sec.9 Other burglary in a building other than a dwelling
- Theft Act 1968 Sec.9 Other burglary in a dwelling
- Theft Act 1978 Sec.1 Obtaining services by deception (except railway frauds)

Misuse of Drugs Act

- Having possession of a controlled drug with intent to supply. Class A ' Crack'
- Having Possession of a controlled drug. Class A ' Crack'
- Misuse of Drugs Act 1971 – Sec 4 (2) Production of or being concerned with the production of a Class A Drug – Methadone
- Misuse of Drugs Act 1971 – Sec 5 (2) Having Possession of a controlled Class A Drug – Methadone
- Misuse of Drugs Act 1971 – Sec 5 (2) Having possession of a Controlled Drug with intention to supply – Class A Methadone
- Misuse of Drugs Act 1971 – Supplying or offering to supply a controlled Class A Drug – Methadone.
- Possession of Class A controlled drug Cocaine. Misuse of Drugs Act 1971 Sec 5 (2)

- Possession of Class A controlled drug Heroin. Misuse of Drugs Act 1971 Sec 5 (2)
- Possession with intent to supply Class A controlled drug Cocaine. Misuse of Drugs Act 1971 Sec 5 (3)
- Possession with intent to supply Class A controlled drug Heroin. Misuse of Drugs Act 1971 Sec 5 (3)
- Production or being concerned in the production of a controlled drug Class A' Crack'
- Production or being concerned in the production of Class A drug Cocaine. Misuse of Drugs Act 1971 Sec .4 (2)
- Production or being concerned in the production of Class A drug Heroin. Misuse of Drugs Act 1971 Sec .4 (2)
- Supplying or offering to supply a controlled drug Class A' Crack'
- Supplying, offering to supply or being concerned in Class A controlled drug Cocaine. Misuse of Drugs Act 1971 sec 4 (3)
- Supplying, offering to supply or being concerned in Class A controlled drug Heroin. Misuse of Drugs Act 1971 sec 4 (3)

Fraud offences

- Common Law Conspiracy to defraud
 - Conspiracy to defraud or extort (1963–68)
 - Fraud Act 2006 Make or adapt articles for use in fraud
 - Fraud Act 2006 possession of articles for use in fraud
 - By dishonest act obtain services for which payment is required with intent to avoid payment
 - Fraud
 - Dishonestly makes a false representation to make a gain for himself or another
 - Obtaining property by deception (values known and unknown)
 - Dishonest representation for obtaining benefit
 - Dishonestly fails to disclose information to make a gain for himself or another
 - Fraud Act 2006 Section 1 Fraud
 - Fraud Act 2006 Section 6 possession of articles for use in frauds
-
- Criminal Attempts Act 1981
 - Wandering abroad to beg or gather alms (first conviction)
 - Wandering abroad to beg or gather alms (second or subsequent conviction)
-
- Fraud Act 2006 Section 1 Fraud
 - Fraud Act 2006 Section 6 possession of articles for use in frauds

Additional tables

Figure B1: Number of individuals entering drug treatment for opiates over time, Wales⁴²

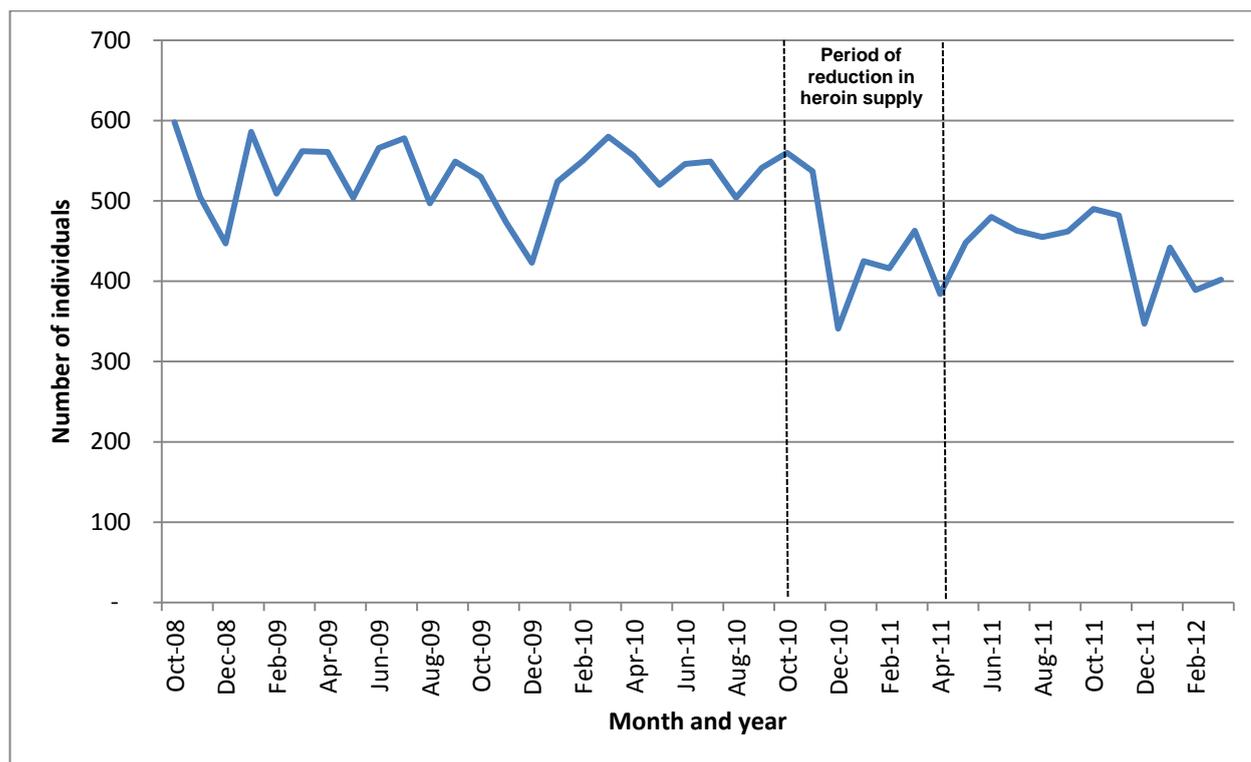
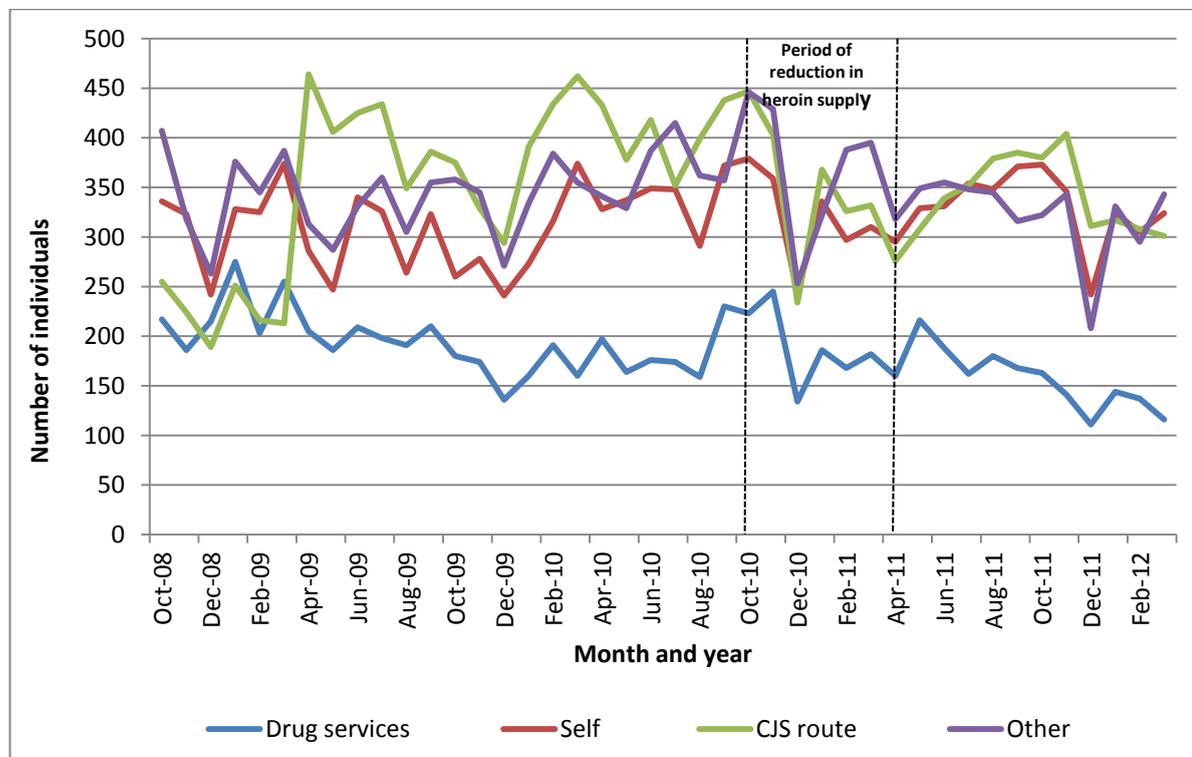


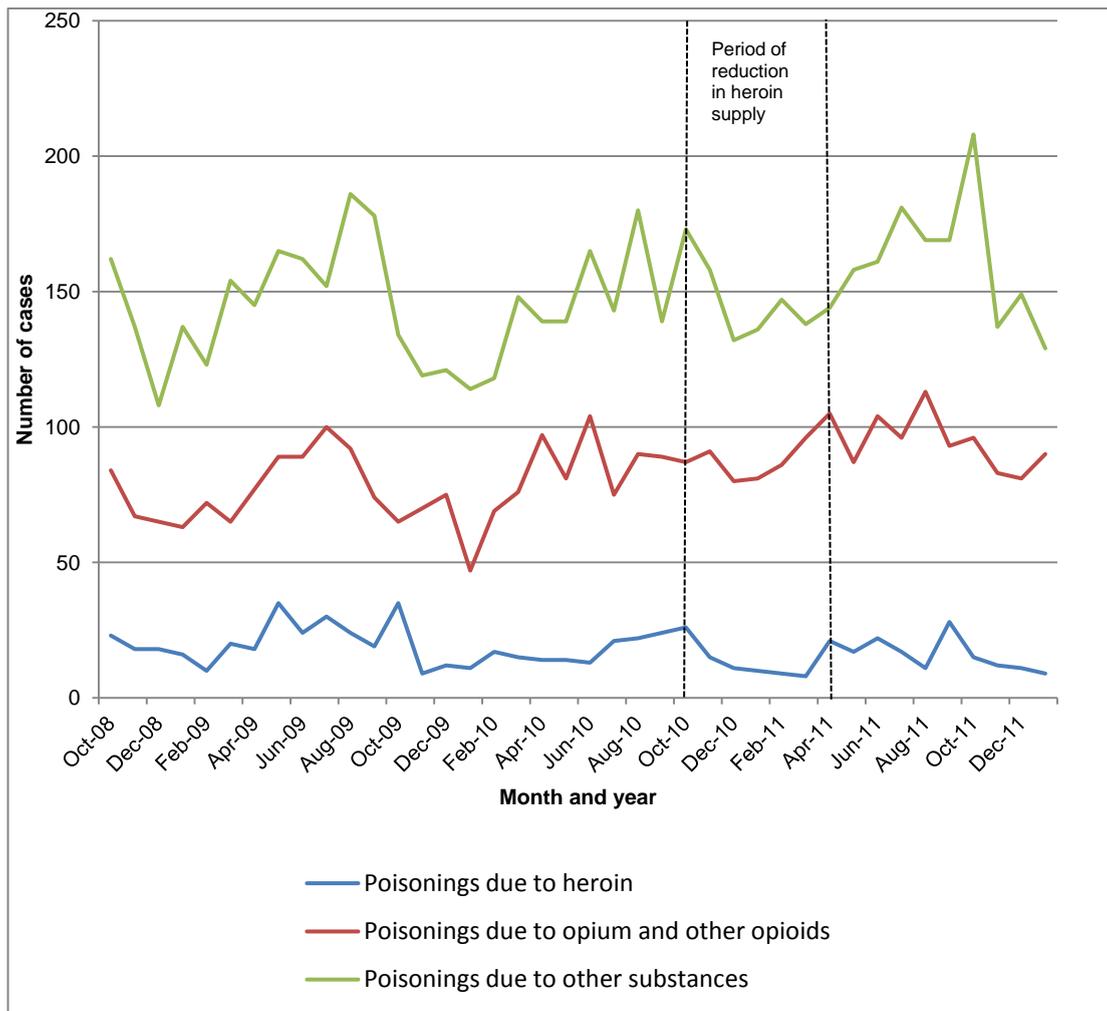
Figure B2: Treatment entrants over time by referral source, Wales⁴³



⁴² Data from the Welsh National Database for Substance Misuse, NHS Wales Informatics Service.

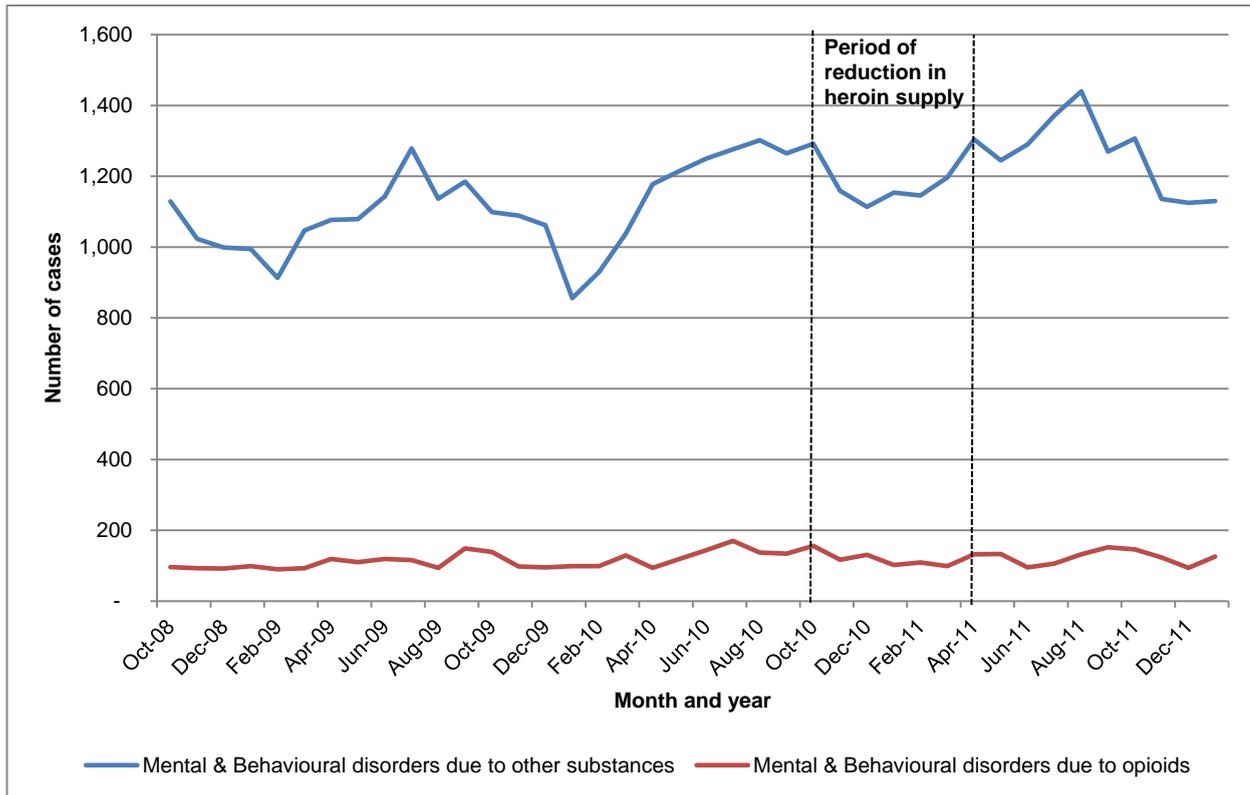
⁴³ Data from the Welsh National Database for Substance Misuse, NHS Wales Informatics Service.

Figure B3: Number of hospital admissions for poisoning due to substance misuse in Wales⁴⁴



⁴⁴ Data from the Admitted Patient Care dataset, NHS Wales Informatics Service.

Figure B4: Hospital admissions for mental and behavioural disorders due to substance misuse in Wales⁴⁵



⁴⁵ Data from the Admitted Patient Care dataset, NHS Wales Informatics Service.

Local area analysis

Analysis of data on drug treatment, Drug Interventions Programme drug testing and acquisitive crime for eight Drug and Alcohol Action Teams which responded to the email questionnaire as having experienced a reduction in heroin supply in their area.

Figure B5: Number of individuals newly entering treatment for opiate use – aggregated results

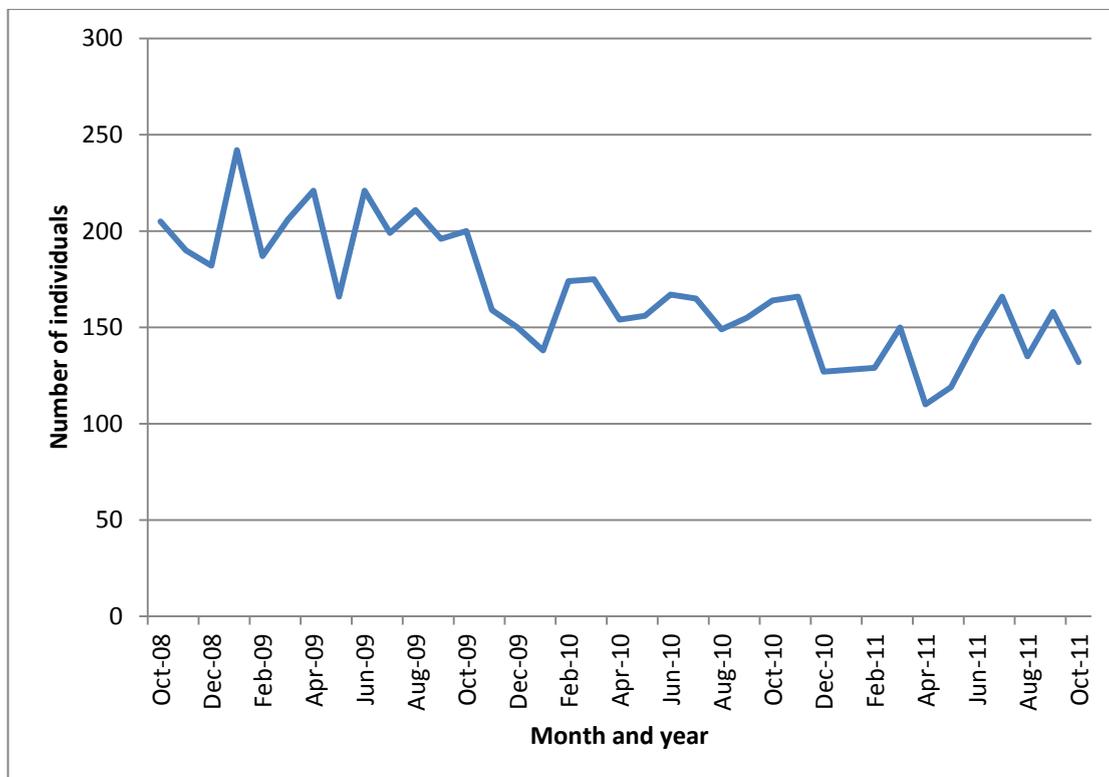


Figure B6: Number of Drug Interventions Programme opiate positive drug tests on arrest – aggregated results

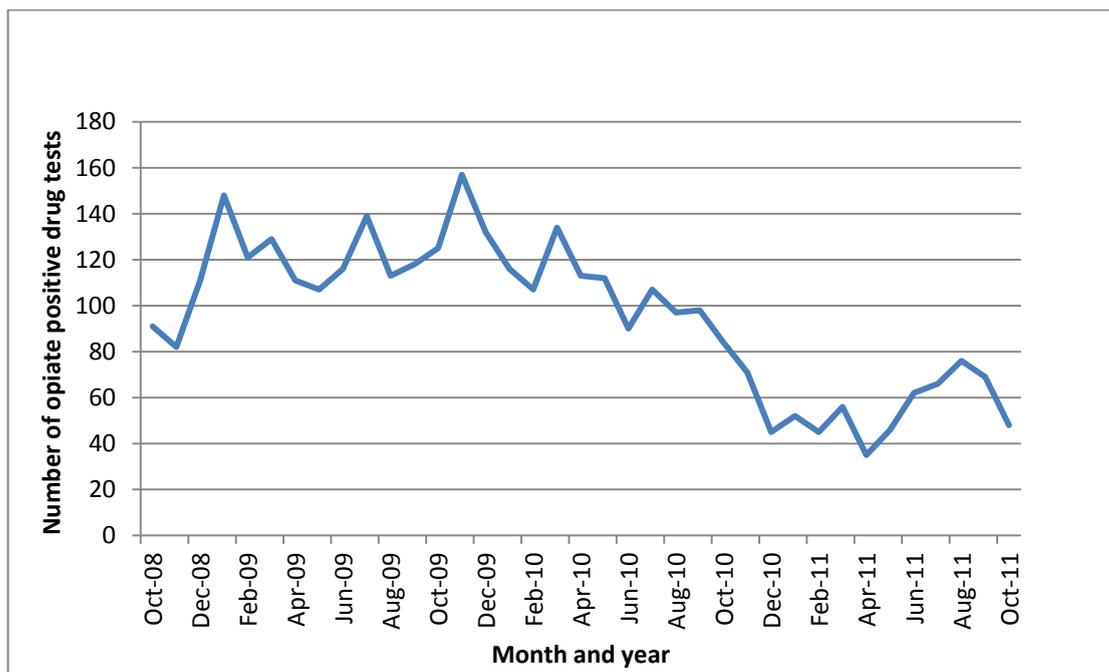
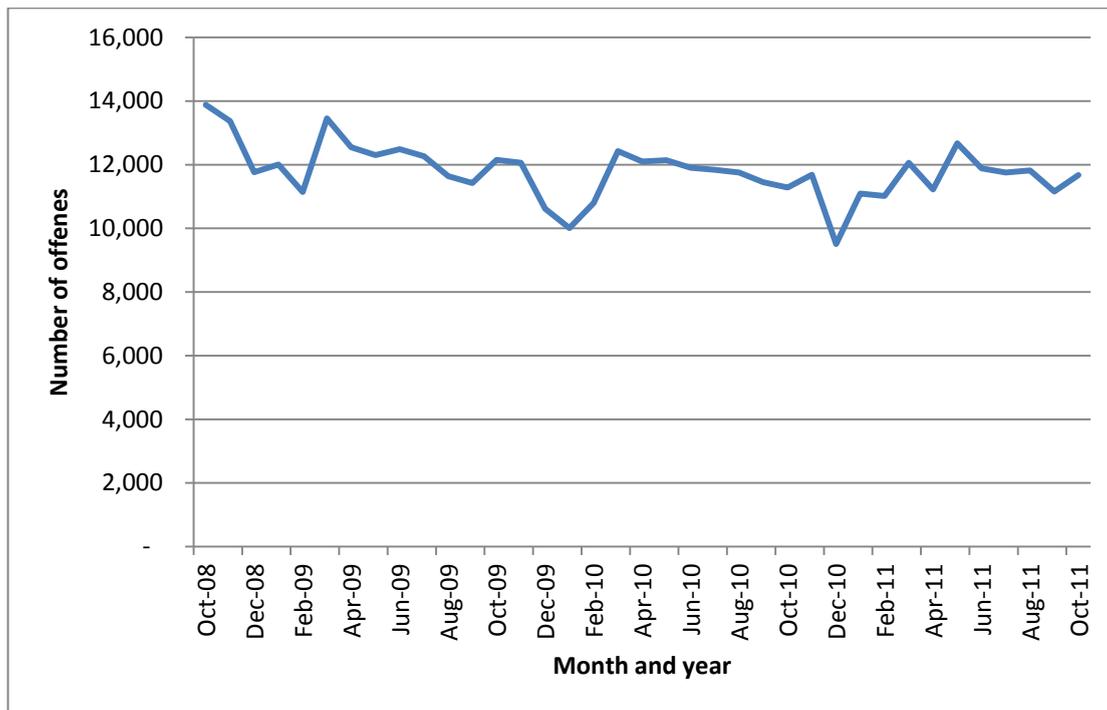


Figure B7: Number of drug-related crimes committed – aggregated results



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