

# Tackling problem drug use

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# Executive summary

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The National Audit Office (NAO) is conducting a value-for-money study on the UK Government's 2008 drug strategy, *Drugs: protecting families and communities* ('the Strategy'). The NAO study, *Tackling Problem Drug Use*, focuses in particular on local delivery authorities' capacity and capability to effectively tackle problem drug use through delivery of local services. As part of its value-for-money study, the NAO commissioned RAND Europe to conduct two work streams:

- a literature review on problem drug use, and
- a review of the evidence base underpinning the Strategy.

This report presents findings from our work on these two work streams.

## Reviewing the broader literature on problem drug use

The Strategy focuses on problem drug use (PDU), and aims to improve knowledge of what works in supply and demand reduction, and our understanding of how delivery of local services can be achieved. These local services include treatment, prevention and law enforcement to reduce supply or tackle drug markets and drug use. In doing so, the Strategy settles on a definition of problem drug *users* (our italics) as "those using opiates (e.g. heroin, morphine, codeine) and/or crack cocaine", but does not provide a definition of PDU per se.

### Understandings of PDU have changed over the last few years

We find evidence that there have been significant changes in the way PDU is conceptualised – particularly in the non-peer reviewed literature emerging from the UK – over the past few years (especially since 2001-2). This has included growing acceptance in the UK that definitions of PDU should include references to drug type.

In general, though, there remains a good deal of uncertainty over what the most appropriate definition and measures of PDU may be, partly reflecting the range of dimensions along which drug use may be considered to be "problematic". These dimensions are: (1) the *type* of drug involved; (2) the *frequency* or *pattern* of use; (3) *harms* or *outcomes* associated with drug use; and (4) *demographic* considerations associated with drug use (e.g. prevalence among youth populations).

**There is little consensus in the international peer reviewed literature on what constitutes PDU**

Each of the four dimensions of ‘problematic’ drug use listed above is a subject of debate in the international peer-reviewed literature, both within and between disciplines. In this study, we focused on research in the fields of criminal justice, economics, public health and epidemiology because they cover the areas the Strategy seeks to address (law enforcement, drug markets, treatment and prevention).

Understandings of what is problematic about PDU in the peer-reviewed literature are not uniform. There is no consensus on the types of drugs that should be included; in addition to those drugs explicitly considered under the Strategy, the peer reviewed literature includes references to cannabis, tranquilisers, amphetamines, psychotropics, alcohol and, in a few cases, tobacco. Frequency and pattern of use do not seem to be consistently regarded as criteria for defining PDU. Harms also do not appear to be decisive indicators of PDU - for some authors, *any* psychoactive drug use is viewed as problematic.

**Measurement of PDU is a key area of contention**

Definitional differences are reflected in the existence of varied approaches to measurement of PDU. Many of the peer-reviewed studies we looked at were prevalence studies. For US studies, the focus is on using health-related harms as proxies to help measure PDU – usually using data from nationwide surveys such as the National Survey on Drug Use or Health (NSDUH) and Monitoring the Future (MTF). For the UK peer-reviewed studies, the focus tends to be on data from agencies and bodies that regularly interact with drug users – Drug Action Teams (DATs), for example. Turning to the non-peer reviewed literature from the UK, there was broader acceptance of particular approaches to measurement – specifically the Multiple Indicator Method (MIM), and capture-recapture approaches for reaching populations less likely to be well represented in household surveys. Some recent studies have sought to combine the two methods in their analyses to validate prevalence estimates.<sup>1</sup>

**There is greater consensus on the definition of PDU in the grey literature from the UK**

By contrast with the wider international literature, we find evidence of a significant convergence of academic opinion in the UK non-peer reviewed literature on PDU – namely, that PDU is defined in this literature by use of crack cocaine and/or opiates.<sup>2</sup> As with the international peer-reviewed literature, frequency and pattern of use are generally not regarded as central issues in these studies. However, in contrast to the international peer-reviewed literature, certain harms, and especially costly harms, from drug use are

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<sup>1</sup> Triangulating data from a variety of sources to get a sense of "omitted" populations is likely to be the most robust approach currently. In particular, RAND's Drug Policy Research Center has triangulated information from household surveys, treatment admissions, mortality data, and arrestees, adjusting for double representation across these data sets of some populations, to get a general estimate of the number of problem drug users in the US (as homeless individuals are represented in treatment data, arrestee data and mortality data, although not in the household survey; criminally involved are captured in arrestee data; and so on). A similar strategy using a variety of data systems that capture different "elements" of the problem could be used in the UK, as any one of these alone provides a glimpse of the problem among a particular type of user.

<sup>2</sup> The definition, however, does not specify if opiates include only illicit opiates or licit ones as well (such as morphine).

perceived as particularly important indicators of PDU. A number of the studies and reports reviewed identified the drugs whose use cause most significant and costly harms as opiates and crack/cocaine, which has led to a consensus that these drugs should be the focus of concern and strategy to tackle PDU. Those harms considered include mortality, mental health impacts and broader social impacts, including disrupted employment and education, and acquisitive crime.

### **The narrower focus in the UK on most significant harms may be useful, but also carries risks and drawbacks**

The focus on harms and on the drugs that appear to generate the most harms is in many ways reasonable and in keeping with an approach supported by a scientific literature and increasing in profile in the field of drugs and substance abuse. That is, there is growing consensus for some around the need to focus resources on identifying and reducing harms, rather than pursuing a blanket approach to reducing drug supply or consumption. The clear emphasis on targeting a small number of high harm causing drugs or users could be a useful way of directing resources where there is most need, especially at a time when resources are scarce, in a field where delivery is complex and requires cross-departmental and multi-agency collaboration. However, there is a risk of circularity, whereby focusing on the drugs found to be associated with most significant harms and costs may risk excluding drug problems that have not so far been as well identified, recorded or quantified. This could be problematic if the excluded drugs and users cause harms that are as yet relatively unmeasured, in part through lack of attention to them. Further, the focus on these two types of drugs, and the associated health and criminal justice costs, may be more suitable for some departments than others, and for some local areas than others. While the Strategy explicitly notes that local areas need the flexibility to respond to local needs, and there are mechanisms in place for monitoring emerging drug threats, in the context of the narrow focus of the Strategy on PDUs it may be important to bear in mind these risks, protect flexibility and remain aware of the need to monitor potential new threats and harms.

## **Reviewing the evidence base underpinning the Strategy**

### **The provision of an evidence base in a government strategy document is unusual and to be commended**

Neither the previous drug strategy (HM Government, 1998) nor the updated Strategy (HM Government, 2002) provides separate evidence bases to support the information and actions therein. Instead, in places they provide individual citations as references to support information and proposed actions.<sup>3</sup> The provision of a broad-ranging separate evidence base drawing on robust research is to be commended, and could provide an extremely valuable resource for those involved in addressing drugs problems in the UK. However, it would be even more useful if the information and evidence base was provided alongside

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<sup>3</sup> The updated evidence base provides a separate brief reference list as a bibliography, and includes a section on updating the evidence base about work in progress to improve the state of knowledge.



important contextual details and the implications of the information for those seeking to address drugs problems.

**There are some clear gaps in the UK evidence base where more work is needed as they are only partially filled by research from elsewhere**

The need to draw on evidence from elsewhere is acknowledged in the Strategy, and it is clear that there are many areas in which further research is needed to improve the state of knowledge in the UK. There are important moves in this direction with the establishment of The Cross Government Research Programme on Drugs (CGRPD) in 2008, following the commitment under the Drug Strategy 2008 to improve the drugs evidence base. The CGRPD is supported by a Strategic Board, overseeing the programme, and a Delivery Group, tasked with developing the Cross Government Research Strategy on Drugs. The Cross Government Research Strategy on Drugs is being developed to aide collaboration within government, and between government and other stakeholders, in developing a robust scientific evidence base for long and short term government drug policy. The strategy provides the policy context for the Cross Government Research Programme on Drugs, and describes key challenges and priorities for drugs research, from a government perspective.<sup>4</sup> This work should make a welcome contribution and provide the impetus to address evidence gaps that respond to policy needs.

**The strategy draws on robust evidence on drug treatment and drug-related crime**

There are areas of real strength in the analysis and incorporation of material in the evidence base. For instance, the Strategy draws on a robust evidence base in the areas of what works in drug treatment and what works in reducing drug-related crime. With respect to drug treatment, cited evidence includes a wide range of peer-reviewed empirical studies, as well as robust (in some cases systematic) literature reviews, four of which are Cochrane Reviews.<sup>5</sup>

With respect to drug-related crime, a number of the studies that the Strategy draws on are randomised controlled trials (RCTs). Robust research is drawn on to commend high-dose methadone treatment programmes, although the Strategy acknowledges that much of this research depends on self-reported data.

**Some other evidence and information is weaker and would benefit from more detail and linking more closely to actions and implications**

In some areas there is less robust evidence available, and the Strategy relies heavily on grey literature rather than independent evaluations and peer-reviewed research. For instance, policy recommendations on prevention of PDU in young people are based on evidence drawn from a variety of sources – none of which are apparently peer-reviewed. In other places peer-reviewed sources are referenced, but at times would benefit from further context or detail, and in places it is difficult to relate the evidence base to implications for intervention and delivery of services. This creates a risk that interventions may overlook

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<sup>4</sup> It is intended that the CGRPD research strategy is published later this year.

<sup>5</sup> The Cochrane Collaboration provides systematic reviews of the effects of healthcare interventions with the aim of improving healthcare decision-making globally. Reviews are published in The Cochrane Library. For information or reviews see <http://www.cochrane.org/index.htm>

potentially important determinants of success, including environmental factors, the importance of age in some areas such as wraparound care and the significance of gender in certain outcomes and in programme design to optimise those outcomes.

With respect to drug supply and law enforcement, the Strategy usefully includes descriptive detail on current activities. However, further evidence would be useful here. For example, partnerships with local agencies are clearly regarded as key to the success of drug supply and law enforcement initiatives, but without further detail on the types of local partner organisations involved, and the length or nature of their involvement, this information would be difficult for local delivery bodies to use to inform their actions. Thus, without further detail, context and linking to further action, some aspects of *Appendix 5* may miss the opportunity to optimally inform delivery bodies and those seeking to draw on the information to guide design and implementation of interventions.

## **Final remarks**

These observations are intended to inform the NAO's VfM study on the UK Government's Drugs Strategy. These observations relate to the definition of PDU used in the Strategy, the evidence base underpinning the Strategy, and the implications of these for those seeking to draw on the Strategy and its evidence base. In doing so, this report seeks to respond to a subset of questions within the NAO's broader examination of local authorities' capacity to deliver on the aims of the Strategy with respect to PDU at the local level.

Illicit drugs impact on the health and social outcomes of those using drugs, but also their families, others in close relationships with them, and communities. Drug trafficking and distribution, or supply, also generates costs and challenges.<sup>6</sup> It is estimated that the UK market in illicit drugs is worth between £4 and £6.6 billion (HM Government, 2008, p. 8). Use of Class A drugs has been estimated to incur £15.4 billion each year in health and crime costs, with problem drug users (PDUs), generally defined in Home Office reports as those using opiates and/or crack cocaine, accounting for 99 per cent of these costs (HM Government, 2008, p. 8). The costs associated with Class B and C drugs, which include non-injection amphetamines and cannabis, have not been formally measured.<sup>7</sup>

Through the 2008 drug strategy, *Drugs: protecting families and communities*, (the ‘Strategy’) the UK Government aims to enhance knowledge of what works in terms of supply and demand reduction and how delivery can be achieved, “by conducting a cross-government programme of research and pilot programmes.” In addition, a series of three-year Action Plans, running concurrently with Comprehensive Spending Review cycles and Public Service Agreement (PSA) reviews, will be implemented to further the Strategy’s core aim of reducing the harm drugs inflict on society (HM Government, 2008, p. 8).

Against this background, the National Audit Office is now conducting a value-for-money study, *Tackling Problem Drug Use*, focusing in particular on local delivery authorities’ capacity and capability to effectively tackle problem drug use through delivery of local services. As part of its value-for-money study, the NAO commissioned RAND Europe to conduct two of the VFM study workstreams:

- a literature review on problem drug use, and
- a review of the evidence base underpinning the Strategy.

This report presents our findings from these two workstreams. We begin with an examination of the way in which ‘problem drug use’ (PDU), is conceptualised in the UK Drug Strategy, particularly in *Appendix 5* (the Strategy’s evidence base), and compare this

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<sup>6</sup> <http://www.interpol.int/Public/Drugs/Default.asp>

<sup>7</sup> The classification of drugs in the UK is as follows: Class A drugs include Ecstasy, LSD, heroin, cocaine, crack, magic mushrooms and amphetamines (if prepared for injection); Class B drugs are amphetamines, cannabis (recently re-classified from Class C), methylphenidate (Ritalin) and Pholcodine; Class C drugs are tranquilisers, some painkillers, Gamma hydroxybutyrate (GHB) and Ketamine (see <http://www.homeoffice.gov.uk/drugs/drugs-law/Class-a-b-c/>, last accessed May 2009).

conceptualisation to those offered in international and UK peer review and grey literatures. Chapter 2 reports on this work stream. In Chapter 3 the second study is discussed, examining the Strategy's evidence base, with a particular focus on the robustness of the evidence used, on the way the evidence is used, its relevance to the Strategy and on identifying any gaps in the evidence base which may have important implications for the aims and implementation of the Strategy.

## 2.1 Introduction

The National Audit Office (NAO) commissioned RAND to provide an overview of the way in which ‘problem drug use’ (PDU) is conceptualised in the Strategy, and in the peer-reviewed and grey literature.<sup>8</sup> Setting the Strategy’s definition of problem drug use against other definitions in the literature informs an assessment of the usefulness and possible limitations of the definition when considering local delivery bodies’ need to coordinate action to deliver services that treat, prevent and enforce the law around illicit drugs.

This is important because drug use may be conceived as problematic in different ways, for different reasons, by different research disciplines, government departments, agencies and practitioners. It is not surprising, therefore, that the term ‘problem drug use’ has been used to describe a range of different drug use behaviours in the scientific, treatment, criminal justice and other policy literatures. The definitions frequently differ around key issues, including inclusion or exclusion of particular drugs (e.g. cannabis, methamphetamines), different classifications of types of drug use (injection drug use only, dependent use) and different views about cut-off points for ‘problematic’ frequency of drug use (daily, weekly, etc).

In conducting this review, we began with an analytical framework focused on what is considered problematic about drug use, for example type of drug, the means or frequency of use, and/or the (range of) harms (health, criminal justice, employment, education, etc). Each of these areas, and the interactions between them, could be the subject of literature reviews and detailed examination in their own right, but this is beyond the scope of the current study. Instead, this review aims to establish the range of definitions for PDU and implications of differences in how PDU is defined. In order to do so, we begin by briefly considering the evolution of PDU as a concept, then summarise the definition and use of the term PDU in the Strategy and related documents. We then present a brief summary of recent literature on ‘problem drug use’ or ‘problematic drug use’ from UK and international peer-reviewed publications, as well as selected relevant grey literature. The final section of this chapter summarises the implications of our findings.

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<sup>8</sup> Particularly in the evidence base for the Strategy, found in *Appendix 5*.

## 2.2 Use of the term 'problem drug use'

Problem drug use (PDU) per se is not defined in the current Strategy; instead the focus is on problem drug users. The Strategy defines 'problem drug users' (PDUs) as 'those using opiates (e.g. heroin, morphine, codeine) and/or crack cocaine' (Home Office, 2008, p. 50). Logically, therefore 'problem drug use' can be defined as the use of opiates and/or crack cocaine'.

One of the key themes to emerge from our literature review is the apparent fragility of the concept of PDU in the eyes of academics writing on the subject, including for Home Office sponsored studies. The authors of one academic study of PDU commissioned by the Home Office (Godfrey et al., 2002) acknowledge this, in a passage that is worth quoting at some length:

*"Problem drug use would ideally be defined in relationship to an individual's experiences. There is no agreed definition of a problem user... Problem drug users are generally understood to be those whose drug use is no longer controlled or undertaken for recreational purposes and where drugs have become a more essential element of an individual's life... Problem drug use is associated with certain drugs, opiates and cocaine, as well as injecting drug use of amphetamines. However, not all consumers of these drugs are currently problem users (p.9)."*

The authors suggest that the identification of PDU with crack cocaine and heroin over and above other drugs is perhaps one of analytical convenience:

*"To estimate the number of young recreational and older regular users, some division had to be made from these surveys of problematic and non-problematic use. **It was assumed therefore that all opiate use and crack use reported in such surveys is problematic; this assumption may be revised in time if better evidence and monitoring data become available.** All ecstasy, LSD and magic mushroom use is assumed not to be problematic (p.9)."*

This study was published in 2003; a further Home Office study published the following year (Hickman et al., 2004) suggests convergence towards the definitions of PDU used in the Strategy for reasons of practicality. The authors state that:

*"Questions remain as to what "problem drug use" represents and whether it is meaningful without reference to drug type... Treatment services and many other data sources on problem drug use are dominated by opiate and crack-cocaine use. The problematic use of illegally obtained benzodiazepines in non-heroin users may not be large. Cannabis, ecstasy, and non-injecting use of amphetamine and powder cocaine are estimable through different methods: direct methods or population surveys. It is recommended, therefore, that prevalence estimation of problem drug use focus on injecting drug use, opiate and crack/cocaine use with an assessment of the most appropriate data sources for each type (p.28)"*

Tackling the harms and costs associated with drug use is a central theme in the Strategy. For example, the Strategy explains its focus on users of opiates and crack-cocaine as 'PDUs are of particular interest because it is estimated they account for 99 per cent of the costs to society of Class A drug misuse' (HM Government, 2008, p. 50), some £15.4 billion in crime and health costs each year (HM Government, 2008, p. 8). The Strategy document

notes that ‘our focus will remain on the drugs that cause the greatest harms to communities, families and individuals, local areas will have more flexibility to determine their response to the drugs that are causing the greatest harm to their communities (p. 12).’ The Strategy highlights specific costs of ‘problem drug use’ of Class A drugs in Britain (Godfrey et al., 2002), including health care costs associated with substance abuse-related hospitalisations, psychotic disorders, and other health problems; the cost of substance abuse-related mortality; cost of drug-related infectious disease, including HIV, Hepatitis C and Hepatitis B; the cost of acquisitive crime and use/possession/sale crimes committed by problem drug users (Godfrey, Stewart, and Gossop, 2004).

Other related documents, such as The UK Drug Harms Index (DHI) developed by the Home Office, also focus on harms.<sup>9</sup> The DHI’s main focus is on health impacts (new cases of HIV, Hep B and Hep C associated with injection drug use; drug related deaths; drug related mental health and behavioural problems; drug overdoses; and neonatal problems), so-called ‘community harms’ (captured through measures of community perceptions of drug use/dealing, and drug dealing offences), and crime (MacDonald et al., 2005).

While the focus on harms is relatively consistent, the relatively narrow range of drugs encompassed in the definition of PDUs is not always consistent with the focus of either the Strategy itself, or the evidence review that underpins the Strategy, and which is summarised in *Appendix 5* of the Strategy document (op cit pp. 49 and 53). The evidence base *Appendix* especially appears to encompass a somewhat broader working definition of PDU than the one set out in the main Strategy document.<sup>10</sup> In particular, the *Appendix* refers to drugs other than heroin and crack cocaine, including cannabis, tobacco, alcohol and solvents. At the same time the *Appendix* gives particular focus to the problems of drug use in young people. This includes school children and young people aged between 16 and 24, and ‘vulnerable young people’ including looked-after children, those who are homeless, truant, excluded from school or serious and/or regular offenders (Morrall, McCaffrey, and Paddock, 2002, p. 49), and who are less likely than older age groups to be PDUs (according to the narrower definition).

Thus, in providing both an evidence base and strategic aims around drug problems, harms and interventions, both the *Appendix* and the Strategy as a whole appear to include concern about drug problems beyond the narrow parameters of PDU, and with a particular focus on *harm*.

### 2.3 Definitions of ‘problem drug use’ in the peer-reviewed literature

The following discussion draws on a literature review to provide an overview of how the terms ‘problem drug use’ and ‘problematic drug use’ are used in the academic literature and relevant grey literature – that is, papers, reports and other documents published by governmental agencies, academic institutions and other groups that are not distributed or

<sup>9</sup> <http://www.homeoffice.gov.uk/rds/pdfs05/rdsolr2405.pdf> (Last Accessed September 2009)

<sup>10</sup> Indeed, this is reflected in the more frequent use of a range of other terms, apparently to describe the same issue. This includes ‘substance misuse’ (n=59) and ‘drug misuse’ (n=50). The term ‘problem drug use’ is used only five times throughout the document.

indexed through commercial publishers. Our aim was to provide a conceptual mapping of the range of definitions and current use. The original search was supplemented with additional economic literature and incorporated input from the team's internal drug experts (see Appendix B for a more detailed description of the methodology).

Here we present a summary of the findings from the review of 25 international scholarly papers and 23 from the UK. Table 1 shows the range of definitions and foci found within the papers.

**Table 1: Definitions of 'problem drug use' in peer review literature included in review**

Definition of Problem Drug Use	International Literature	UK specific literature	Total
Problem drug use not explicitly defined in the article	13	8	21
Problem drug use defined in terms of use of a particular substance	2	9	11
Problem drug use includes alcohol or prescription drug abuse	8	11	19
Problem drug use defined in terms of ANY use (regardless of frequency or method) of a drug	0	0	0
Problem drug use defined in terms of type of use (e.g. injecting drug use (IDU), weekly or daily use, dependent use)	3	7	10
Problem drug use defined in terms of related harms	1	5	6
Harm associated with drug use defined in terms of health and mortality	10	5	15
Harm associated with drug use defined in terms of crime	2	2	4
Harm associated with drug use defined in terms of lost productivity	3	2	5
Harm associated with drug use defined in terms of lost child welfare	3	5	8
Problem drug use defined in terms of age of user	0	1	1

Table 1 shows clearly that there is no consensus around a single definition of 'problem drug use', nor any broad adherence to restricting the drugs considered under PDU to opiates and crack cocaine, as suggested by the Strategy's definition of PDUs. It also suggests that the majority of definitions of 'problem' or 'problematic' drug use focus on harms. Most of the studies took assessments of impacts of drug use (especially health-



related impacts) as the main proxy for PDU (Edlund et al., 2007; Sullivan et al., 2006; Okulicz-Kozaryn and Sierosławska, 2007; Holland et al., 2006; Barnard, 2005).

### 2.3.1 Use of particular drugs

Internationally, there is no common specification of which drugs to consider in definitions of problematic use. The economics literature tends to discuss all drugs together (i.e. any illicit drug) or to make distinctions between ‘hard’ and ‘soft’ drugs as embodying a distinction between drugs with significant addiction potential (including cocaine, crack cocaine, heroin, methamphetamine, other stimulants and non-prescribed methadone) from cannabis (the ‘soft’ drug). Several articles in the economics literature examine the specific harms unique to: cannabis, such as hospital admissions, dropping out of school and productivity effects (Edlund et al., 2007; Pokhrel et al., 2007; Holland et al., 2006; Weaver et al., 2003; Aidala et al., 2007; Payne, 2007; Trujillo et al., 2006; Rehm et al., 2005; Gemmell, Millar, and Hay, 2004); to tranquilisers/benzodiazepines (Edlund et al., 2007; Hay and Gannon, 2006); to amphetamines (Edlund et al., 2007; Aidala et al., 2007; Payne, 2007; Rehm et al., 2005; Weaver et al., 2003); to alcohol (Edlund et al., 2007; Fothergill et al., 2008; Pokhrel et al., 2007; Trujillo et al., 2006; Holland et al., 2006); and tobacco (Trujillo et al., 2006; Bogart et al., 2006). On balance, cocaine and heroin are the most frequently identified drugs in discussions of PDU in the public health and epidemiological literature.<sup>11</sup>

There is also no clear pattern in the UK-specific peer-review literature with respect to particular kinds of drugs included in definitions of PDU. Heroin, crack cocaine, cocaine, ecstasy, amphetamines, cannabis and alcohol were included in discussions in the papers examined (Meier, Donmall, and McElduff, 2004; Weaver et al., 2003; Willner, 2000; Backett-Milburn et al., 2008; McCrystal et al., 2007; Seddon, 2006; McCrystal et al., 2005).

### 2.3.2 Problem drug use and harm

Harm is the most common defining parameter for problem drug use in the implicit definition that appears to underpin the Strategy and the Strategy’s *Appendix 5*.

In the international economics literature the social cost of drug misuse is the most common theme. Here the focus is on primary harms from drug use associated with the greatest cost, including lost productivity, crime, and health-related impacts including premature death. Outcomes receiving particular attention in this literature include level of schooling, unemployment, reduced earnings, absenteeism from work, engaging in crime

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<sup>11</sup> In our literature search we came across a paper that defined problem drug use as the “misuse of psychotropics”, which are pharmaceutical drugs such as painkillers or tranquilizers. This definition, however, appears to have been derived from the situation in the region they examined, namely Kabul in Afghanistan. Nevertheless, the same article confounds the definition by stating that “an assessment of problem drug use in Kabul city found 14,298 users of pharmaceutical drugs, compared to 10,774 opium users and 7,008 heroin users” (Macdonald, 2008). Similarly, a paper on drug use in the Czech Republic identifies methamphetamine use as part of problem drug use; the paper states that data on methamphetamine trends were obtained from, among others, estimates of problem drug use in the country (Zabransky, 2007).

(property and violent crime), drug treatment, accidents, and the spread of communicable diseases. Economic studies attempt to calculate a monetary cost of these outcomes.

In the public health and epidemiology fields, the particular harms receiving the most attention include drug-related mortality and mental health impacts in terms of the increased prevalence of common disorders (Edlund et al., 2007; Sullivan et al., 2006; and Sullivan et al. 2006; among many others); low levels of self control (Pokhrel, 2007); aberrant use of analgesic drugs among problem drug users (Tsao, Stein, and Dobalian, 2007); poor educational outcomes in adolescent users (Okulicz-Kozaryn and Sierosławska, 2007); and the prevalence of acquisitive crime (Holland et al., 2006). These studies recognise the complexity of trying to unravel the causal relationship between negative outcomes and drug use.

For the UK peer-reviewed literature, discussion of harms is similarly wide-ranging, and perhaps more so. For example, besides a focus on crime and health impacts (Bloor et al., 2008), there is also an interest in the impact of PDU on home life and particularly child development (Barnard and McKeganey, 2004; Backett-Milburn et al., 2008; Street et al., 2008; among others), and broader impacts were also considered, including antisocial behaviour and the future impact of PDU on social exclusion (McCrystal et al., 2007).

### 2.3.3 Problem drug use and demographics

The *Strategy* does not highlight age in defining PDU, but age is covered in the *Appendix*. For both international and UK-specific studies, there is some evidence of a particular focus on youth, typically in the age range 11-16, or young people between the ages of 15 and 27 (Willner, 2001; Willner, 2000; Backett-Milburn et al., 2008; McCrystal et al., 2007; Johnston et al., 2008). There is also a small literature on the experience of PDU within particular groups, for example parents and families (Barnard and McKeganey, 2004), the homeless (Neale, 2001), and sex workers (Roxburgh et al, 2008).

### 2.3.4 Measuring problem drug use

Measuring problem drug use is a complicated endeavour because of the illicit nature of the activity and the hard to reach populations that may be involved. A narrow definition of PDU may help to reduce the measurement challenges (Godfrey et al. 2002). Here we provide an overview of how 'problem drug use' is measured in the wider literature, with the aim of identifying possible alternatives to be considered.

A large proportion of the papers reviewed (33 per cent) were prevalence studies, seeking to estimate prevalence for the extent of 'problem drug use' across whole populations (Vaissade and Legleye, 2009; Holland et al. 2006; and in the UK, Gemmell, Millar, and Hay, 2004). There are a number of ways in which these are done, and none is considered to be without limitations. Some of these approaches are discussed briefly below.

For those studies originating from the United States, it appeared that by far the most common method of measurement involved indicators of prevalence of specific types of use (injection drug use; daily use; DSM-IV criteria for abuse and dependence; early initiation). Studies such as the National Survey on Drug Use or Health and the Monitoring the Future Survey provide information using these sorts of indicators which are then examined and reported by a range of researchers and government agencies (for example in Johnston et al., 2008; SAMHSA, 2008; Compton et al., 2004; Jacobson, 2004). The U.S. National

Drug Strategy also provides evidence on the number of emergency room hospital episodes, treatment episodes, and overdoses that are reported nationally as further indicators of problematic drug use, and researchers have examined trends in these (e.g. Caulkins 2001; Cunningham and Liu, 2003; Dave, 2006; Dobkin and Nicosia, 2009).

Population-based studies are less common in UK-based research. Instead the focus of data collection tends to be on agencies and bodies that regularly interact with problem drug users (Holland et al., 2006; Gemmell, Millar, and Hay, 2004). These include health service providers and criminal justice agencies, for example, or data from the arrest referral system, probation service, and local police forces. Drug Action Team (DAT) data, collected using standardised templates across all areas of the country, is also a common source of information about drug use for UK-based studies (Holland et al., 2006; Frisher, Heatlie, and Hickman, 2006; and others). Qualitative studies also tended to rely on agency-type sources to assemble small samples for analysis (Willner, 2001; Willner, 2000; Backett-Milburn et al., 2008).

A key limitation of these studies is that sampling depends on problem drug users coming forward for treatment. This limitation has led the authors of one study to conclude that they had under-estimated prevalence in their target population (Payne, 2007; Story et al., 2007; Gemmell, Millar, and Hay, 2004). One proposed solution to this limitation is the use of a capture-recapture methodology to generate estimates for the number of ‘hidden’ problem drug users in a group of London boroughs, to try to generate more robust figures (Hickman et al., 1999). In basic form, the capture-recapture method involves capturing a sample of a population, ‘marking’ and then releasing them. A second sample is then captured; the proportion of marked individuals in this second sample is assumed to be equivalent to the proportion of individuals in the population that were captured in the first sample, hence the population size can be estimated.

## 2.4 Definitions of ‘problem drug use’ in the grey literature

In this section we discuss some of what is commonly referred to as ‘grey’ literature. The section focuses on reports published by, or on behalf of, various UK government departments, agencies and other bodies, using the search terms ‘problem drug use’ and ‘problematic drug use’. A total of 39 documents were reviewed. Of these, 14 were produced by or on behalf of the Home Office.

Table 2 shows the range of definitions identified in the grey literature reviewed.

**Table 2: Use of different definitions of ‘problem drug use’ in UK grey literature**

Definition of Problem Drug Use	UK specific literature
Problem drug use not explicitly defined in the article	14
Problem drug use defined in terms of use of a particular substance	26
Problem drug use includes alcohol or prescription drug abuse	6
Problem drug use defined in terms of ANY use (regardless of frequency or method) of a drug	0

Problem drug use defined in terms of type of use (e.g. IDU, weekly or daily use, dependent use)	7
Problem drug use defined in terms of related harms	9
Harm associated with drug use defined in terms of health and mortality	22
Harm associated with drug use defined in terms of crime	16
Harm associated with drug use defined in terms of lost productivity	7
Harm associated with drug use defined in terms of lost child welfare	4
Problem drug use defined in terms of age of user	0

A review of the grey literature mirrors that of the peer review literature, with problem drug use often not defined at all, and where it is defined it tends to be associated with harms. However, in addition to this similarity, there is also a striking difference in this literature as compared with the peer review literature: in this grey literature a larger proportion of reports define PDU in terms of particular substances. This finding is discussed in more detail below.

#### 2.4.1 Use of particular drugs

UK government departments and agencies in this review were in general more likely to use a definition of problem drug use that related to opiates and crack/cocaine. Earlier Home Office studies, however, (generally pre-2006, though there are some exceptions to this) either avoid drug-based definitions of PDU (Tilley et al., 2004; Hickman et al., 2004), or discuss a much wider range of drugs, including cannabis, amphetamines, LSD, ecstasy, tranquilisers and others (Beckett et al., 2004). Later Home Office studies (from 2006 onwards), by contrast, then focus more explicitly on the use of opiates and crack cocaine (Singleton, Murray, and Tinsley, 2006; Hay et al., 2007; Beckett et al., 2004; Ward et al., 2003; Wincup et al., 2003; Godfrey et al., 2002).

For those agencies responsible for health-related issues (specifically National Institute for Health and Clinical Excellence (NICE), the National Treatment Agency (NTA) and the Health Protection Agency (HPA)), we could not find clear evidence to suggest that heroin and crack cocaine use were regarded as key determinants of PDU. While there was some focus on opiates, this was usually in the context of guidelines specifically focused on treatment for opiate abuse. On the whole, guidelines and other sources from health-related bodies used definitions that focused explicitly on harms, rather than the particular drugs used (British Psychological Society and Royal College of Psychiatrists, 2008a; British Psychological Society and Royal College of Psychiatrists, 2008b). This also reflects apparent discrepancies in the language used to describe drug usage by health-related agencies – which rarely make reference to ‘problem drug use’ or ‘problematic drug use’ at all, generally preferring terms such as ‘substance misuse’ or ‘drug misuse’ (British Psychological Society and Royal College of Psychiatrists, 2008a; British Psychological Society and Royal College of Psychiatrists, 2008b).

It is worth considering the extent to which the definition of PDU in the Strategy is aligned with that of the European Monitoring Centre on Drugs and Drug Addiction (EMCDDA). As the acting data collection agent for the EC, the EMCDDA requests that

each Member State provides information on the number of problem drug users within its borders. The definition adopted by the EMCDDA is:

*'injection drug use or long duration/regular use of opioids, cocaine and/or amphetamines. This definition specifically includes regular or long-term use of prescribed opioids such as methadone, but neither includes their rare nor irregular use, nor the use of ecstasy or cannabis. Existing estimates of problem drug use are often limited to opioids and polydrug use'* (EMCDDA, 2009).<sup>12</sup>

The different definitions of problem drug use drawn on by the UK Drug Strategy and the EMCDDA raises a question about provision of information to the EMCDDA allowing comparability of findings on problem drug use between the UK and other Member States. If this data is reported according to the EMCDDA's definition, then it is noteworthy that there remains adherence to an alternative definition. If such information is provided according to the alternative UK, rather than EMCDDA, definition, it would be worth drawing out the caution this necessitates with respect to comparability.

#### 2.4.2 Problem drug use and harm

As in the apparent understanding of PDU underpinning the Strategy, *Appendix 5*, and much of the peer review literature, harm is also the primary focus of the grey literature. The range of harms considered by the studies reviewed was broad, and understandably usually focused on harms that were of most relevance and interest to the sponsoring or related departments and agencies.

For example, in Home Office-sponsored studies there was a strong focus on homelessness, acquisitive crime and the impact of drug use on educational outcomes (Tilley et al., 2004; Beckett et al., 2004; Ward et al., 2003; Wincup et al., 2003; Edmunds et al., 1996). Acquisitive crime examined in these studies tended to include fraud, burglary, robbery, shoplifting, and arrests for drug-related offences (Singleton, Murray, and Tinsley, 2006; Frischer, Heatlie, and Hickman, 2004; Godfrey et al., 2002; and others). For the Ministry of Justice, the main concerns were harms relating to prison inmates, including the impact of PDU on the balance of order in prisons, the potential for depression and self-harm among inmates, and potential harms to their families outside prison (Blakey, 2008).

Clinical guidelines produced by the National Institute for Health and Clinical Excellence (NICE), the National Treatment Agency (NTA) and the Health Protection Agency (HPA) were overwhelmingly concerned with mental health impacts of drug use, wider impacts on the families and children of problem drug users, and ultimately increased mortality associated with PDU (NTA, 2007; NTA, 2006; NICE, 2007a and b). Other related harms identified include: 'increased mortality from overdose and from other directly or indirectly associated harms such as increased risk of infection with blood-borne viruses (HIV, hepatitis B and hepatitis C); high levels of depression and anxiety disorders; social problems such as disrupted parenting, employment and accommodation; and increased participation in income generating crime' (British Psychological Society and Royal College of Psychiatrists, 2008a; British Psychological Society and Royal College of Psychiatrists, 2008b).

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<sup>12</sup> See: <http://www.emcdda.europa.eu/stats08/pdu/methods> (last accessed June 2009).

In these studies PDU is defined as ‘a condition that may cause an individual to experience social, psychological, physical or legal problems related to intoxication and/or regular excessive consumption, and/or dependence’ (British Psychological Society and Royal College of Psychiatrists, 2008a; British Psychological Society and Royal College of Psychiatrists, 2008b). Similarly, the Health Protection Agency (HPA) reports tend to focus on intravenous drug use (IDU) (HPA, 2003; HPA, 2005; HPA, 2007), probably reflecting their concern with understanding the spread of blood-borne infections such as Hepatitis B and C, and HIV.

#### **2.4.3 Problem drug use and demographic issues**

In the grey literature, as in other literature reviewed, few of the studies examined were concerned with specific demographic groups, although there was some evidence of interest in vulnerable young people in Home Office-sponsored studies (Drugscope, 2000; Beckett et al., 2004; Ward et al., 2003; Wincup et al., 2003). One study, for example, was specifically concerned with drug use among young people making the transition from care to independent living (Ward et al., 2003). Another looked at homeless young people (Wincup et al., 2003), and others at the impacts of parental PDU on child welfare and development (Advisory Council on the Misuse of Drugs (ACMD), 2003).

#### **2.4.4 Measuring problem drug use**

A significant number of the studies we examined (14 out of the 39 studies) were concerned with generating prevalence estimates. It is clear from these documents that there remains an ongoing debate as to the most robust methods for estimating the number of problem drug users nationally, and among various populations in Britain.

Earlier studies commissioned by the Home Office focused on using one of two approaches: either a capture-recapture method to estimate prevalence (Singleton, Murray, and Tinsley, 2006; Hay et al., 2006), or the Multiple Indicator Method (MIM) (Frischer, Heatlie, and Hickman, 2004; Hay et al., 2006; Beckett et al., 2004). Capture-recapture is described above, in section 2.3.4. MIM, by contrast, involves generalising from areas in which local estimates of prevalence have been derived, to try to develop regional or national-level figures. Local areas then provide ‘anchor points’ for these national estimates.

There is, however, ongoing uncertainty as to the relative strengths and weaknesses of the two approaches, exemplified by the publication of two Home Office-commissioned studies in the same year that rejected the use of MIM (Hickman et al., 2004) and capture-recapture-based approaches respectively (Frischer, Heatlie, and Hickman, 2004). For MIM, authors acknowledge two key areas of weakness, namely that: (1) the anchor points are themselves estimates, and (2) an assumption that the relationship between prevalence and the predictors in the calibration sample is transferable to all other areas (Frischer, Heatlie, and Hickman, 2004). For capture-recapture, on the other hand, there is particular concern at the potential for double-counting of individual users, given that multiple data sources are usually used at the same time (Singleton, Murray, and Tinsley, 2006).

Finally, it should be noted that the vast majority of the studies examined in the non-peer reviewed literature were cross-sectional in design. Authors of these studies readily admit the limitations of cross-sectional designs in much the same terms identified for the peer-reviewed literature: namely that they do not capture trajectories of drug use such as

pathways into and out of PDU. A notable exception to this was the National Treatment Outcome Research Study (NTORS) – a prospective longitudinal cohort study that was run from 1995-2000 (Gossop, Marsden, and Stewart, 2001, 2000a, 2000b; Gossop, Marsden, Stewart and Kidd, 2003a, 2002a, 1998; Gossop, Marsden, Stewart and Treacy 2002; Gossop, Trakada, Stewart and Witton, 2006). Others are Drug Outcomes Research in Scotland (DORIS) and ROSIE (Comiskey et al 2009).

## 2.5 Discussion

The Drug Strategy identifies key challenges as the high health and criminal justice costs associated with ‘problem drug users’, who are defined as users of those problem drugs (Strategy, p. 8) and *Appendix 5* (p. 50). This focus is understandable on a number of dimensions, and aligns with the particular focus of the Home Office as a Department. It is recognised within the literature that draws on this narrower definition of PDU that current use has emerged partly as an analytical convenience, to facilitate measurement and prioritise and focus on harms indicated by that measurement. The wider literature encompasses many other ways of defining ‘problem drug use’, highlighting the myriad ways in which PDU can be used and some of the possible limitations of particular uses.<sup>13</sup>

Even within the Strategy and its evidence *Appendix* there is explicit acknowledgement of concerns and harms associated with drug use, beyond the narrow definition of PDU. This is important because, if applied rigidly, a narrower definition could raise challenges for delivery of drug policy. While estimates indicate that problem drug use as defined in the Strategy generates a significant proportion of the costs from drug use, the link is not necessarily straightforward or linear. It is not clear whether all users of opiates and crack cocaine generate costs, nor is it clear what costs are generated by use of other drugs, such as methamphetamines, cannabis, ecstasy and psychotropics that have for the most part not been measured (or included in the measures commonly cited). Low prevalence is not necessarily tantamount to low cost or impact. For example, a recent study on methamphetamine use in the United States, which has a general prevalence rate of only one per cent nationally, estimates that the economic burden of the drug in 2005 was \$23.4 billion, which amounts to approximately 20 per cent of the estimated \$143 billion total cost of drug use in the country<sup>14</sup> (Nicosia et al., 2009). The implication is that other drug use not included in the definition of PDU (and even in the category of Class A drugs) may incur great costs to society which, at present, remain largely unquantified in the UK.

Furthermore, whilst addressing the challenging area of measurability, the focus on opiates and crack-cocaine may raise three further challenges. First, it is important to ensure that focusing on a narrow range of drugs does not preclude or divert attention from

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<sup>13</sup> It should be noted that, given the specific focus on the terms ‘problem drug use’ and ‘problem drug users’ in this study, there is a substantial body of peer- and grey literature on drug use which is *not* captured here. For example, a significant portion of the literature on drug abuse and/or dependence, and much of the associated treatment literature, do not use the terms PDU or PDUs specifically, and thus do not feature prominently in this review.

<sup>14</sup> See [http://www.whitehousedrugpolicy.gov/publications/pdf/economic\\_costs98.pdf](http://www.whitehousedrugpolicy.gov/publications/pdf/economic_costs98.pdf) (last accessed August 2009).

measurement of other drug harms. That is, while identifying those aspects of drug use currently generating the most health and criminal justice costs as ‘problem drugs’, it is important to continue to attend to research and measurement of costs and harms of other drugs. Otherwise there is a risk of circularity whereby current problems attract attention, become better quantified, appear even more significant in being quantified, and thereby attract further attention. Such circularity is by no means inevitable – researchers interested in drug misuse focus their attentions on a range of drugs and users irrespective of strategy at a given time. However, it is at least worth a note of caution, given the flag raised even by those researchers who set the parameters of the definition in the first place (Godfrey et al., 2002), that

*‘It was assumed therefore that all opiate use and crack use reported in such surveys is problematic; this assumption may be revised in time if better evidence and monitoring data become available (p. 9)’.*

A second challenge raised by the narrower definition is the risk that if different agencies, countries and researchers and departments are measuring different drugs used or aspects of drug use, there is a need to ensure that assessment of any data generated takes these differences into account, to ensure comparability. Of course, this challenge is not specific to policy makers, researchers and others in this field. Rather it is required of anyone attempting to conduct such research and evaluation, or compare findings (Edwards, Arif and Hodgsons, 1981).

Finally, focusing on particular drugs encapsulates the association of those drugs with particular significant and costly harms, but does not provide traction on causality, or specifically on possible drivers of those harms. Thus, the specific focus on ‘problem drug use’ and ‘problem drug users’, defined as those using opiates and crack cocaine, does not encompass the substantial literature on dependence or addiction. This is significant - because of its association with other problematic aspects of drug using behaviour, addiction is an example of a dimension of problem drug use that is not incorporated in current use, but which could usefully inform design and delivery of services.



### 3.1 **Introduction**

The second work stream of this project was based on a review of the evidence base for the Drug Strategy, and how this evidence base is used in the Strategy.

The evidence base for the Strategy includes evidence from a range of disciplines, including criminology, health, and economics. The breadth of evidence is condensed into one appendix, *Appendix 5: Evidence Review*, which has been peer-reviewed by academic experts.

*Appendix 5* aims to summarise “...the most recent evidence on illicit drug use, supply, intervention and prevention” (HM Government, 2008), which is then used as the basis for the emphasis on the five principal strands of the strategy: (1) protecting communities through robust enforcement to tackle drug supply, drug-related crime and anti-social behaviour; (2) preventing harm to children, young people and families affected by drug misuse; (3) delivering new approaches to drug treatment and social re-integration; (4) public information campaigns, communications and community engagement; and (5) overarching and underpinning actions related to the coordination of enforcement activities nationally and internationally and improving the treatment and prevention delivery systems.

The Home Office divides the discussion in *Appendix 5* of the Strategy into seven sections (14 sub-sections). *Appendix 5* begins with a description of the general drug use problem in the UK, as measured by a variety of different indicators (sections 1, 2 and 3), and then focuses on the scientific evidence in the five main areas identified in the Strategy (sections 4 through 7). The sections of *Appendix 5* are:

- Section 1: Prevalence of drug use in key populations
- Section 2: Drug use in young people
- Section 3: Drug-related harms
- Section 4: Prevention and young people (Strategy Aims #2 and #4)
- Section 5: What works in drug treatment (Strategy Aim #3)
- Section 6: Drug-related crime and interventions to reduce offending (Strategy Aims #1 and #3)

- Section 7: Drug supply and enforcement (Related to Strategy Aims #1 and #5)

Overall, it is worth noting that the Strategy is a policy document, not a scientific paper, and that it is therefore to be applauded for including a separate evidence base at all, and for providing a significant amount of information and the attendant sources upon which the reader may draw.<sup>15</sup> In doing so, *Appendix 5* succeeds in covering a broad range of issues in illicit drug supply, drug use and the treatment of illicit drug problems or interventions in drug markets. The provision of this evidence should be useful and referred to by a range of readers.

Within each of the sections in *Appendix 5* most of the information and assertions are supported by references, including journal articles, clinical guidelines, data sets, government reports, and books. We were commissioned by the NAO to examine those references on three dimensions: ‘robustness’, ‘use’, and ‘gaps’. ‘Robustness’, involved the identification, for each of the papers cited in *Appendix 5*, of the characteristics of the research design (for example, whether it was a randomised controlled trial) and/or data source (e.g. representativeness of the sampling frame) in order to determine whether the results are reproducible and whether characteristics of the research approach might produce biased results. In terms of ‘use’, we compared the findings of the reference to their citation in *Appendix 5* to assess consistency and appropriateness, and discuss possible implications of our findings in this respect. Regarding ‘gaps’, we considered whether other research findings, from citations in *Appendix 5* or from elsewhere, could have been useful either to further inform delivery bodies and others drawing on the evidence, or would change the nature of the information provided in *Appendix 5*. The focus of this assessment of the evidence base is on issues that would be consequential in informing prioritisation, design or delivery of services.<sup>16</sup> A more detailed description of our approach to conducting this evidence assessment is included in Appendix B of this report, on methodology. In this chapter we begin by summarising the headline findings of this work stream with respect to *Appendix 5*, the evidence base and its use. We then go on to discuss in more detail the assessment of the evidence base.

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<sup>15</sup> The 1998 and 2002 updated drug strategy documents did not provide a separate evidence base, but did provide some references to support statements integrated throughout the documents. While this makes it more difficult to access a distinct body of relevant literature as a whole the way that the current drug strategy allows, in some ways the use made of evidence, and the implications of this use, were more clearly evident and available to the reader. One reason for this is that the earlier two strategy documents include citations in the text, drawing strategy and actions from the statements and citations. The document structures of the earlier strategy documents are also organised to make clear what actions are being suggested and, for example, what further research is necessary.

<sup>16</sup> This criteria for ‘consequential’ has been agreed with the commissioning team, and accordingly this chapter does not highlight less significant errors such as mis-citation of references that are unlikely to effect the information provided or how it can be used. For a much more detailed summary assessment of each of the papers and studies referenced in *Appendix 5* of the Strategy, there is a technical appendix available on request. The elements extracted from the cited evidence and included in our table are a summary of each reference’s main findings as well as: sample demographics; type of drug; problem drug use definition; harms considered; measurement of harms (sampling frame); data source; data validation; methodology; limitations. The specific issues covered in the table include: what the evidence supports (statement in the strategy); how the evidence is used in Strategy (the section in the Strategy more broadly); whether we can find the evidence within the cited document; any apparent differences in this evidence from that cited in the Strategy.

### 3.2 Summary of main findings from reviewing the evidence base

‘Levels’ of evidence: *Appendix 5* cites a wealth of sources, many of which are methodologically robust, and the findings of which usefully inform the reader in the areas covered. In some instances other types of evidence are cited such as toolkits and guidelines. These may be based on extensive reviews of the literature and may draw on expert opinion that is useful and informative, especially in the absence of scientific papers in the area. However, in informing further action *Appendix 5 does not always distinguish levels of evidence or the conclusiveness of these different types of ‘evidence’.*

The use of findings: *Appendix 5* covers a wide range of subjects, providing a useful survey of illicit drug use in the UK. On many of these areas the wider ‘state of knowledge’ is comprised of only mixed, patchy or inadequate evidence. In touching on these areas, patchiness and inconclusiveness in the science are in places noted by the authors of *Appendix 5*. However, in places *Appendix 5 generalises from findings* within a particular population, or in a particular context, without noting where transferability of findings remains untested.

- Given the dearth of strong evidence from the UK in many of the areas covered it is useful to draw primarily on US data. In many of these instances there is good reason to believe that the findings can form a strong basis for further action in the UK. However, there are instances where such evidence is drawn upon in which there may be significant institutional or cultural factors that may affect *transferability of findings or implementation in the UK* context. In such instances it would be worth highlighting the need for further UK research and evaluation. This would be useful both to encourage those working in the area to build in such research and evaluation in planning and funding interventions and services when possible, and so that those using the evidence base to inform further action are less likely to draw conclusions that may not be justified by the evidence.
- There is a trade-off to be made between breadth and conciseness in such a document, and often it is appropriate to provide a broad sweep across an area. However, on occasion *detail, nuance or context is in places missing* from statements or information provided that could be significant for those seeking to inform action. For example, where there are significant differences in outcomes for males versus females, or if a finding is specific to one of these, those implementing services would benefit from this information.

Structure: In places the evidence presented in *Appendix 5* has a confusing structure. For example, “young people” are included in the document as a separate subsection, and then referred to sporadically in other sections. Those interested in drug interventions for young people may find it difficult to assess the evidence overall in such a structure. Perhaps more significantly, *Appendix 5* and the Strategy document itself do not appear to be aligned in structure, making it difficult for the reader to understand how the evidence is being used to support the various aims of the Strategy as a whole. These structural elements could make the evidence less accessible to delivery bodies and others seeking to understand drugs problems, how best to tackle them and why certain courses of action are being pursued or prioritised over others.

Implications: Finally, *Appendix 5* provides extensive information for those seeking to deliver services or understand problem drug use in the UK. However, the document does not always draw out the implications of statements, statistics and other information provided. This could be problematic for those seeking to draw lessons for implementation or to prioritise actions in this area. Two examples illustrate this aspect of the evidence review. First, while gender differences in drug use or outcomes are mentioned in a few places, there is little or no discussion of how treatment programmes could or should be tailored to accommodate these differences, or that there is a wider relevant literature to which the reader could refer: many studies, including many of those cited in the evidence base, distinguish outcomes or discuss different treatment conditions that appear to work for male versus female participants. Second, *Appendix 5* sets the context for its own discussion of illicit drugs by referring to an overall drop in prevalence of drug use, which it says is driven by falling cannabis use. This is interesting to note. However, *Appendix 5* does not discuss possible drivers of this fall in cannabis use, so the reader is left to infer for themselves whether changes in drug use are associated with the efforts of those working in the area over the time period mentioned, or whether wider demographic changes or changes in drug markets and preferences driven by other factors may be responsible or contributing factors. Establishing attribution is difficult in many areas of drugs research. However, providing the overall trend information with little discussion of potential causes misses an opportunity to further inform delivery bodies, agencies and other interested readers. Moreover, because cannabis is not included in the definition of PDU, and thus is not the primary target of the Drug Strategy, it is important to provide more relevant indications of trends in the key drugs of abuse (which might have been stable during this time period, or also falling).

The following sections describe and assess the evidence base for *Appendix 5* on a section by section basis in more detail, following the section order that is followed in *Appendix 5* itself.

### 3.3 The evidence-base for *Appendix 5*

#### 3.3.1 Prevalence of drug use in key populations

Section 1 of *Appendix 5* draws on the key sources of measurement used to describe the scope of the drug problem and monitor its change over time. The primary data sources employed include:

- the British Crime Survey (BCS), a nationally representative study of victimisation, offending behaviour and the circumstances under which crimes occur, conducted over 25 years; administered annually since 2001;
- the Offending, Crime and Justice Survey (OCJS),<sup>17</sup> a nationally representative longitudinal study of young people in England and Wales aged 10 to 25 started in

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<sup>17</sup> The first study in 2003 actually included 12,000 people between the ages of 10 to 65, but only those between the ages of 10 to 25 have been followed up annually. In addition to these panel respondents, a re-fresher sample is added so that each year a nationally representative sample of 5,000 young people are available.

2003. The survey conducted annual follow-ups in 2004, 2005 and 2006, and thus provides a unique source of information on self-reported offending behaviour of a cohort of young people over time within a single cohort;

- Smoking, Drinking and Drug Use in Young People (SDDUYP), a nationally representative survey of secondary school pupils aged 11-15 years that has been conducted for 10 years (administered annually in England with some years including Scotland). In 2001, 2003 and 2007, the survey focused mainly on drugs. In 2000, 2002 and 2004-2006, the survey focused on smoking and drinking;
- the Arrestee Survey, an annual survey of arrested persons, conducted between 2003 and 2006 in England and Wales. Questions in the survey refer to arrest events.

### **Robustness of the evidence base**

The evidence cited to indicate prevalence figures in the sub-section *Drug use in 16-59 year olds* is the British Crime Survey (BCS). The BCS presents the most comprehensive and complete set of data relating to the use of drugs in the UK. The survey has the largest coverage (in terms of time periods, sample size, and regions) and is free from intervention bias (i.e. the danger that observing someone can inherently change their behaviour).

The main possible limitation of the BCS is underestimating use in some segments of the population, for example low-income groups, due to sampling or response biases, (Pudney et al, 2006). There is a literature examining sampling and response biases in the BCS (Elliot and Ellingworth, 1997; Lynn, 1998; Lynn and Elliott, 2000) and the implications of these limitations. For example, Pudney et al. (2006) suggests the BCS significantly underestimates cannabis use, finding that there were 5.5m cannabis users in 2003/04, not the 3.4 million reported in the BCS.<sup>18</sup> If it is indeed the case that prevalence of some drug use in the population is significantly greater than that currently reported in the BCS, this would highlight the limitation with using BCS as the sole source of information on prevalence. It is worth noting that there is broad awareness of these potential limitations of the BCS (Elliot and Ellingworth, 1997; Lynn, 1998; Lynn and Elliott, 2000), and its methodology is currently under review.

The reports cited in this section of *Appendix 5* test estimates for statistical significance. These tests suggest the fall from 12 to 10 per cent is indeed indicative of a real fall in drug use in the sample, as cited in this section of *Appendix 5*.

### **Use of evidence**

The use of evidence in this section is descriptive, based on prevalence figures drawn from reports based on BCS data. For descriptive purposes, *Appendix 5* accurately cites the figures in these reports and sets the context clearly.

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<sup>18</sup> This finding was left out of Pudney et al. (2006) and can be found in Pudney et al. (2009).

### **Gap in evidence**

As *Appendix 5* notes (p. 48), supplementing BCS with other data would provide more accurate estimates on key target populations and potentially higher estimates for levels of drug use in the general population. One such estimate for use in the general population is provided in Pudney et al. (2006). Other useful sources include Hay et al. (2006 and 2007), which can be found in *Appendix 5*'s discussion of 'drug use in young people' (the section that follows, below).

### **3.3.2 Drug use in young people**

*Appendix 5* defines young people as 16-24 year olds. This is typical of much of the survey literature, and the BCS the category of 'young people' also includes those aged 16-24. In OJJS 'young people' includes those aged 16-25.

The section provides an overview drawing from different surveys, different years, and potentially different cohorts, including snapshots such as recent drug use, first drug use, percentage of sample who had drunk or tried drugs at least once. This variety of sources is in part necessitated by the relative dearth of longitudinal studies that would best inform those seeking to develop programmes about the populations they seek to serve, and to make useful projections as drug use patterns and epidemics change.<sup>19</sup>

### **Robustness of evidence**

The cited evidence is useful for the descriptive purpose of the section. The authors of the cited papers themselves acknowledge known issues with their methodologies. These are endemic to the literature because of the hard-to-reach population and the illicit nature of the subject being studied. The key issues cited are:

- possible sampling error;
- non-response bias;
- possible over- or under-stating of drug use/inaccuracy of responses;
- exclusions from the sample (for example those in prison).

The BCS provides a good overall picture from population-based survey data. However, in acknowledging the sample limitations of the BCS for measuring low-income groups, this section of *Appendix 5* usefully supplements information from Hay et al. (2006, 2007).

Hay et al. (2006, 2007) use indirect techniques to overcome some of the population based survey limitations for hard to reach groups and illicit activities. These techniques are, specifically: capture-recapture method and multiple indicator method. For PDUs, this can be a more reliable way than a household survey to calculate prevalence estimates for the use of opiates and/or crack cocaine.<sup>20</sup>

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<sup>19</sup> It is worth noting that the Home Office is currently undertaking a longitudinal study following young people arrested for a drug offense.

<sup>20</sup> While it does not appear as an issue in the Strategy *Appendix 5*, there is a health warning to bear in mind for those drawing on these alternative datasets for PDU. That is, traditional regression methods for analysis of a sample tend to use linear methods which assume normal, random error terms. However, because capture-

### Use of evidence

In this section, the Strategy appropriately uses terms such as ‘markers’, ‘associated’, and ‘indicators’ to describe risk factors for drug use in young people. These terms correctly imply that causality is not determined in the evidence for the use of drugs in young people.

A further strength of the Strategy is the explicit reporting of regional and gender variation for the prevalence of PDU, which are significant.

As discussed in more detail in Chapter 2, the wider scientific literature considers more drugs as ‘problem drugs’, such as cocaine, amphetamines, and long-term use of opioids and methadone (EMCDDA, 2009). The Strategy adopts a narrower definition of PDU. This narrower definition could be useful for those working in this field to provide services and prioritise, as it allows a tighter focus on heroin and crack cocaine, which currently appear to be those drugs associated with highest costs and harms (as indicated in *Appendix 5* p.50). However, it is worth noting that this narrower focus, while understandable in a resource-constrained environment, may carry the risk of diverting attention of delivery bodies and others from other potentially problematic drugs and harms, as well as from new and emergent problem drugs, and drugs that are associated with initiation and may be gateways to eventual use of heroin and crack cocaine.

Less significantly, *Appendix 5* notes with respect to PDU, “...use among people aged 25-34 is much higher than for those aged between 10-24 and 35-64” (p. 50), raising a question about why the subsection on PDUs is nested in the section on ‘Drug Use in Young People’. Given the importance of the specific topic of PDU to the document as a whole, this structure in *Appendix 5* raises a question about whether there is an implicit rationale that those drawing on the evidence base would benefit from knowing.<sup>21</sup>

### Gap in evidence

It is helpful that the Strategy mentions the relationship between alcohol and cocaine, polydrug use, and that school children have a tendency to use alcohol and tobacco more than illicit drugs. Whilst all of this is correct, there is relevant literature on drivers of these links and behaviours that would provide a more complete picture on which to base action. For example, it is useful for those implementing interventions to know whether the behaviours are driven by price, availability, or something else, and whether they are likely to be positively correlated with later drug use. Information on these areas is available. For example, some US research (Pacula et al., 2000) suggests that changes in the real, quality-adjusted price of marijuana contributed significantly to trends in youth marijuana use between 1982 and 1998. The research also finds youth perceptions of the harms of regular marijuana use contributed to the contraction in use in the US from 1982 to 1992. This

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recapture is a snowballing technique, the sample is not random. If analysis is conducted on this type of sample assuming normality of the error term, it will produce biased results.

<sup>21</sup> A detail in this section that is unlikely to be consequential is the statement that first drugs tried are cannabis and solvents (citation 3) refers to evidence from Becker and Roe (2005). The statement is correct, yet those who are interested in finding out more about first drug use would need to refer instead to the former citation of Budd et al. (2005) from where the statement is actually drawn.

information could provide useful context on drivers of young people's behaviour, improving understanding of how to implement effective interventions – in particular information about the efficacy of different interventions addressing schoolchildren's substance abuse.

### 3.3.3 Drug related harms

#### **Robustness of evidence**

This section of *Appendix 5* draws on grey literature and peer-reviewed journal articles to report on a number of harms associated with drugs, including mental health problems and crime.

At least two of the cited articles, Forrell and Marsden (2005) and Weaver et al. (2004), themselves point to two methodological limitations that are endemic to studies examining populations in the criminal justice system and in drug treatment centres. These are:

- Small sample sizes
- Attrition bias

Attrition bias refers to the problem of study subjects dropping out of surveys, in this case because they leave treatment or custody. Authors of the work cited in this section note the limitations of small samples and attrition bias, and note that robust measures of general prevalence and conclusions on drug users not in treatment or custody can not necessarily be drawn from these surveys.

As for the robustness of measures of harms provided by the Drug Harms Index, there is ongoing debate as to the methodological rigour of the DHI (Goodwin, A, 2007; Macdonald et al., 2005). These debates focus especially on measurement of harms. For example, the DHI linearly combines the amount of harm caused by each of the harms identified at a given time. However, in doing so it does not currently take account of additive effects, whereby when experiencing two harms at once either one or both of those harms may be exacerbated. This may be important for designing interventions and understanding progress against performance targets for interventions, because if some harms are more harmful when co-occurring with another, this would affect their indicated 'level' or score for harm and perceived importance.

The DHI also does not unpick what aspects of the harms under consideration may be attributed to use of drugs themselves, versus what aspects may be attributed to the prohibition of those drugs and the attendant law enforcement, imprisonment, et cetera for those who are caught using illicit drugs. This attribution is an important wider question, because if law enforcement practices change, one would expect the portion of harms attributable to illegality and law enforcement to change with those practices, as well as with changing classifications of legality and illegality. The DHI measures of harms are unable to take account of these changes in law enforcement and legality, and therefore should be used with caution when measuring government performance in reducing drug harms (as stated on p. 51 of Appendix 5).<sup>22</sup>

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<sup>22</sup> This is a common potential problem in law enforcement performance management – whereby it is possible that as police and other agencies focus on a problem, more of that problem gets detected and recorded, and



### Use of evidence

The relationship between stress/depression/anxiety and cannabis use is more contested in the wider scientific literature than it appears in this section of *Appendix 5*. This relationship is still debated and a consensus has yet to be reached (see Hall and Pacula, 2003 for more details of the evidence on this relationship). As discussed, there are some sampling limitations associated with the research drawn upon in this section. However, these are not evident to the reader of *Appendix 5*, as there is no indication of caveats with respect to using the cited evidence to understand general prevalence of the harms discussed (at least in the case of drug use and mental health problems), unlike other sections of *Appendix 5* where the caveats are more clearly articulated. For example, drawing on evidence for one study the Strategy appears to generalise to the population as a whole without mentioning that the finding is for teenage girls. The research paper in question refers to the relationship between cannabis use and depression and anxiety, finding: “[f]requent cannabis use in teenage girls predicts later depression and anxiety, with daily users carrying the highest risk” (Patton et al., 2002). It would be worth highlighting the specificity of the data if delivery and design of services may be built on this evidence for the general population, while the evidence cited is for a subgroup of the population.

### Gaps in the evidence

*Appendix 5* reports the overall estimated social and economic cost of Class A drug use as £15.4 billion in 2003/4. It is certainly interesting and useful to provide such an estimate. However, the proportion of these costs generated not only by illicit drug use itself, but by societal responses to the challenge of illicit drug use, should also be taken into consideration, as they can be significant (Pacula et al., 2009). This information is available, for example cost of crime estimates can be found in Home Office reports such as Home Office Online Report 30/05<sup>23</sup>. This report provides *overall* costs of crime as well as showing separately the costs of preventive measures, direct harms and law enforcement from which the overall costs are aggregated.

#### 3.3.4 Prevention in Young People

Although the UK government has funded several drug prevention programmes, they have not been systematically evaluated, hence the UK evidence on effectiveness is limited. The evidence for the prevention and young people section draws almost exclusively from grey literature including one guidebook (Stradling et al., 2007); reviews of government programs (FRANK review 2004-2006; Stead et al., 2007; National Collaboration Centre for Drug Prevention, (NCCDP), 2006); and one US-based study on drug prevention (Caulkins et al., 2002).

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thus if one is measuring harm by amount of a problem occurring, the attempt to target and remedy a problem has made it appear more prevalent and problematic. By contrast, if a particular drug is not the focus of attention and its use is therefore not subject to the same surveillance, sanctions and recording of problems, then that drug will appear to be less harmful or problematic. There is a problematic circularity in this process that makes measurement of harms partly simply reflect existing judgements of what is problematic, making it more difficult to unpick and measure progress, on the one hand, or identify heretofore unidentified harms and problems, on the other.

<sup>23</sup> <http://www.homeoffice.gov.uk/rds/pdfs05/rdsolr3005.pdf> (Last accessed September 2009)

### **Robustness of evidence**

The prevention programme review discussed in this section is underpinned by grey literature (FRANK Review, 2004-2006; Stead, 2006; and Stradling, 2007).

The study cited to support the call for school-based prevention programmes is Caulkins et al (2002). The authors of this study note several possible limitations with the methods of the study. First, the study relies on self-report measures, such as whether or not someone has tried cannabis. The use of self-reported surveys is a common and accepted approach in drug and crime research. However, one shortcoming of this approach is that people tend to under-report their drug use; for instance, a meta-analysis of 24 robust studies assessing the reliability of drug use self-report in high-risk populations indicated that the magnitude of drug use underreporting could seriously bias prevalence estimates and treatment outcome studies (Magura and Kang, 1996. See also, for example Fendrich and Vaughn 1994). The study also provides little evidence on the persistence of effects over time, though it includes a discussion of the implications of fall-off rates.

### **Use of evidence**

*Appendix 5* draws on US research to state that the "...wider evidence base suggests that, in general, the benefits of prevention programmes outweigh the costs, even where there is only a small change in behaviour." (p. 51) While the study used to support this statement (Caulkins et al., 2002) concludes that the benefits of school-based drug prevention programmes exceed the costs, it also notes that "roughly two-thirds of the quantifiable social benefits from drug use prevention are due to reductions in the use of legal drugs - alcohol and tobacco" (Caulkins et al., 2002, p.xviii). This is an interesting and useful finding, but the significance and implications of the high proportion of benefits attributed to reduced use of alcohol and tobacco could perhaps be more clearly drawn out for those working in this field to address problem drug use.<sup>24</sup>

*Appendix 5* cites evidence that "the High Focus Area Initiative has improved services for young people in 48 priority areas", (p. 51) referring to the source as The Annual Review of Drug Prevention. This Annual Review is a methodologically sound and peer-reviewed source of evidence (National Collaborating Centre for Drug Prevention, 2006). However, the cited statement does not appear in the Annual Review itself,<sup>25</sup> making it difficult for those who would like further information about this apparently significant initiative, and about how or why the initiative improved services, to know where to look for further information or guidance.

### **Gaps in evidence**

The Strategy comments on prevention programmes in general. However, there is a wide literature on the effectiveness of prevention overall that highlights the significance of contextual or environmental factors in determining the success of prevention activities. For

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<sup>24</sup> However, it should be noted that in relation to anti-social behaviour and crime, it has been shown that the benefits of a wide range of early intervention/prevention programmes do indeed far outweigh the costs, as the costs are often short term and one-off, while the benefits accrue over many areas – social criminal justice and health (Rubin et al 2006) and over many years.

<sup>25</sup> A Google search of the terms in the statement did not find the source reference.

example, a Cochrane review of interventions for young people (Gates et al., 2006) found that family-based interventions may have been beneficial in preventing self-reported cannabis use in young people, and that multi-component community interventions did not have any strong effects on drug use. The review found education and skills training were not effective in two of the studies. Another Cochrane review (Faggiano et al., 2005) determined that early intervention is key to prevent transition from experimental use to addiction, and that schools provided the framework for delivery. While there is no reason to believe that these findings are not useful or transferable, to inform further action it would be worth highlighting any significant culturally or contextually specific factors that could be important for delivery in the UK. For example, in some US based early interventions a registered nurse is the key figure relied upon for delivery of the intervention, whereas it has been suggested that health visitors in the UK may be a more trusted and less costly professional on whom to rely for a home-based intervention (Rubin et al., 2006). These aspects of intervention design have potential implications for effectiveness and efficiency of implementation across contexts and are relevant to practice.

### 3.3.5 What works in drug treatment

The Strategy suggests that particular treatments to reduce drug use and harms<sup>26</sup> from drug use are effective, and that combining medical treatments with meeting socio-economic needs improves outcomes. In terms of medical treatments, particular attention is paid to opiate use and methadone treatments. In addition to drug treatments and the effectiveness of particular settings (e.g. outpatient, community-based), the Strategy considers the range of psychological, social, and economic needs that influence 'what works'. The Strategy suggests that the employment and housing needs of drug users are key socio-economic factors to be addressed in attempting to reduce drug use and the negative outcomes associated with drug use. In terms of what works for young people, the Strategy finds that whilst young people are a significant proportion of treatment service users, there is insufficient evidence available to draw conclusions about what is effective for this segment of the population.

The Strategy addresses two areas of drug treatment: general drug treatment and treatment specific to young people. The evidence is mainly peer-reviewed medical articles, several of which are systematic literature reviews. There are references to general drug treatment and youth drug treatment, addressing prevention and treatment effectiveness in young people.

#### **Robustness of evidence**

The quality of evidence on treatment is relatively strong, and includes some systematic reviews (Mattick et al., 2007; Simoens et al., 2002; Connock et al., 2007; Amato et al., 2004; Perry et al., 2006). It is a strength of this section that it focuses on meta-analyses, four of which are Cochrane Databases of Systematic Reviews (a well regarded system of reviewing evidence), and others are from NICE.

However, the use of grey literature consisting of guidebooks and reviews by drug centres as evidence is more ambiguous as these do not seem to provide empirical research-based evidence. If these sources are based on literature reviews or draw on expert opinion and are

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<sup>26</sup> Such as residential stability, distress, arrest records, et cetera

used in the absence of other evidence, this can nonetheless be worth including, but for those attempting to draw upon such research it is informative to have the different levels of robustness and level of confidence in the evidence indicated. Further, in one instance a single study is cited that may have methodological limitations relevant to its use as evidence. Zarkin et al. (2002) is cited to support the argument that employment probability increases for those completing treatment. However, the analysis is based on observational data, not a randomised controlled trial or natural experiment. Thus, authors cannot rule out that their findings are subject to selection bias - those who are more motivated to complete treatment are also more likely to get a job.

As for those studies drawn upon in *Appendix 5* that include primary analysis, two of the articles include regression analysis. One performed conditional logit and multiple regression models to estimate the effect of treatment completion and length of stay on employment and crime controlling for drug use severity, previous treatment history, and other patient demographics (Zarkin et al., 2002). By including programme-level indicator variables (fixed effects), they account for differences across programmes and therefore adjust for factors that may have influenced results. In the second study, authors recognise the potential for multi-collinearity in their multiple regressions and include only the first measure to avoid multi-collinearity (Hser et al., 1999). The sample size is very small and particular (171 clients who participated in community-based drug treatment programs at either a community resource centre or research project at University of California, Los Angeles); however, the authors point out that their study is descriptive and designed to improve understanding of the natural history of drug use patterns.

### **Use of evidence**

The samples used in the evidence-base are not necessarily generalisable to other populations, as generalising from specific populations can be problematic for those attempting to draw conclusions for implementation. Specifically, demographics should be highlighted in this section because when the demographics of a sample do not reflect the demographics of the population as a whole, the outcomes found in the sample may not be the same as for the population as a whole. For example, the Strategy states “[i]n terms of specific treatments, methadone maintenance is effective in reducing illicit opiate use, criminal behaviour, injecting and sharing behaviours, HIV infection rates, and mortality” (p. 52). The three citations to support this are almost entirely based on treatments of males (Mattick et al., 2007; Simoens et al., 2002; Connock et al., 2007).

It is important to be clear about sample populations and to differentiate between males and females, because evidence shows women’s alcohol and drug use differs from men’s in important ways (initiation of use, psychosocial correlates of use, etc), and also influences women’s access to, and outcomes from, drug treatment (Grella, et al, 2000). Research has shown, for example, that retention and post-treatment abstinence are much higher among women in treatment programmes that address the specific service needs of women users, and which are either single-sex or have a high concentration of women, than among women in mixed-sex programmes or those which do not address their specific service needs (Grella et al, 2000; Grella, 1999; Stevens and Arbiter, 1995). This evidence on treatment for men and women is useful to provide a better understanding of what could work best in addressing the treatment needs of each group.

Another issue in this section is that the case for transferability between populations in some cited studies is at best untested and appears relatively weak. For example, the Strategy states “meeting the housing needs of drug users significantly reduces drug use” (p. 52). However, to support this statement *Appendix 5* cites a study evaluating the outcomes of homeless drug addicts in Los Angeles who use Veterans Affairs hospitals. There are potential problems with this evidence on two levels – one is the sample demographics, the other is the institutional context. The sample of homeless, drug addicted veterans in Los Angeles is not necessarily representative of the whole population of drug addicts, or of homeless drug addicts in the UK. In addition, the institutional context of the housing benefits system in the US is not directly comparable to that in the UK. As a result of these differences, applying the intervention to homeless drug addicts in the UK may not produce similar outcomes. There is some research from the UK which suggests that for UK homeless populations with drug problems a range of interventions may be required including shelter, but also drug treatment, practical assistance, health care, financial or legal advice, social and emotional support, and access to education, training and employment (Neale and Kennedy, 2002; Neale, 2001). Robust research from the UK on the effectiveness of housing provision in reducing drug use is, however, extremely limited. While using international data is not in itself a problem (and can in fact be a strength, especially if it is best available evidence and can expand options for programme funders and policy makers), consideration and possible qualification of the transferability of findings is useful for those attempting to draw conclusions about design and delivery of services.

The Strategy notes that “[d]rug treatment is often most effective when combined with additional support to tackle the underlying contributory factors for drug use - such as homelessness, long-term unemployment or mental health problems” (p. 52). This is supported by citing a guidebook (Randall and DrugScope, 2002). This guidebook contains a well referenced background information section drawing on an extensive list including many government department and agency working papers, as well as a few journal publications. While these papers supporting the guidelines may contain robust research on the point being made, the nature and structure of the publication as a guideline reduces transparency about the robustness of and confidence in the evidence. Those seeking to implement interventions for homeless drug users may find it more helpful to have supporting research cited directly, and to have some indication of recommended support to tackle the underlying contributory factors mentioned.

Finally, there is potential confusion arising from the use of the terms ‘intervention’ and ‘brief intervention’ in particular. In the substance abuse literature, brief interventions are often intended to help users identify problem use and enhance their motivation to change this behaviour (Bien, Miller, and Tonigan, 1993; WHO, 2008). In *Appendix 5*, it is correctly noted that “[b]rief interventions can help to divert young people with less severe substance misuse problems away from developing more severe problems and there is some evidence of effectiveness of brief interventions, such as short session of motivational interviewing, in producing short-term reduction in frequency of cannabis and stimulant use among young people” (pp. 52-53). However, earlier in the section the term ‘brief intervention’ is used to characterise a broader group of interventions: “A recent review of the psychosocial interventions for those with problems related to a number of drugs of

misuse has found positive evidence for the impact of brief interventions including self-help, contingency management and behavioural couples therapy for drug specific problems.” (p. 52). Those interventions would not normally be considered a ‘brief intervention’, nor is it evident that any of those interventions would only be conducted over a short period of time.

### **Gaps in evidence**

A methodological strength in the ‘What Works’ section of the Strategy is the reliance on systematic reviews of the literature, particularly references to the Cochrane reviews. However, for those using the evidence base to inform further action, the Strategy is unclear about what is meant by ‘effective’ or ‘successful’ – words that can have many meanings when applied to drug interventions. For example, the Strategy states “psychosocial approaches can also be successful” (p. 52). The statement preceding this statement about success refers to a range of possible areas including criminal behaviour, drug use behaviour and mortality. However, it is not clear to readers if the Strategy defines success as permanent abstinence, short-term reduction in use, an increase in pro-social behaviours (e.g. decrease in self-reported criminality), improved health outcomes, or all of the above. It would be useful for those attempting to implement interventions to specify possible outcomes described in the Cochrane Review.

While some of this evidence would not have been available at the time the Strategy was written, it is worth noting that there is a growing UK literature on effective interventions that does not feature in the discussion in this section, including the English NTORS study (Godfrey et al., 2004; Gossop et al., 2000a; Gossop et al., 2000b; Gossop et al., 2002a; Gossop et al., 2003a; Gossop et al., 2003b; Gossop et al., 2002b; Gossop et al., 2005), the Scottish DORIS study (Morris and Gannon, 2008; McIntosh et al., 2008; McKeganey et al., 2004; McKeganey et al., 2006), and the Irish ROSIE study (Cox and Comiskey, 2007; Comiskey et al 2009). These are cohort studies which attempt to track clients through treatment. These studies aim to provide quantifiable insights into the experience and impact of drug treatment in the UK and Irish contexts.

Given that the Strategy refers to a plethora of treatments, including pharmacological interventions, wrap-around care, therapy/counselling, brief interventions, and purely education programmes, it is surprising not to mention residential or inpatient programmes, or indeed treatment provided by prison units. Whilst the term inpatient treatment can include many types of services in many clinical settings in the UK (Day et al., 2005), it merits discussion since the National Treatment Agency for Substance Abuse includes it as one of the four tiers of treatment care<sup>27, 28</sup>.

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<sup>27</sup> [http://www.nta.nhs.uk/about\\_treatment/the\\_tier\\_system.aspx](http://www.nta.nhs.uk/about_treatment/the_tier_system.aspx); Accessed on 06/05/09.

<sup>28</sup> While there is some discussion of housing needs and homelessness, this should not be conflated with a discussion of residential or inpatient treatment- many people requiring residential treatment do not have housing problems. Conversely, some of those best able to benefit from wrap-around services only need outpatient drug treatment.

### 3.3.6 Drug-related crime and interventions to reduce offending

The Strategy appropriately notes that there are links between crime and use of certain drugs, particularly economic compulsive crimes, and that evidence regarding the nature and direction of the relationship between drugs and crime is inconclusive. The evidence-base in the Strategy for drug-related crime includes Home Office reports (Hough et al. 2003; Wilson, Sharp, and Patterson, 2006; Ramsay, 2003), a book (Bennett and Holloway, 2007), and one drug centre report (Stevens, Trace, and Bewley-Taylor, 2005).

For interventions to reduce offending, the Strategy finds addressing drug dependency of offenders is a key means of reducing offending. The evidence-base in this section includes Home Office reports (Holloway, Bennett, and Farrington, 2005; Gossop et al., 2006; Skodbo et al., 2007); academic journal articles (Prendergast et al., 2004; Dolan et al., 2003; Stallwitz and Stover, 2007; Dolan et al., 2005; Bellin et al., 1999); and drug centre reports or guidelines (Gossop, Marsden, and Stewart, 2001; NICE, 2007b).

#### Robustness

The evidence base for this section appears robust, drawing on studies and meta-analyses across a range of illicit drugs. Many of the studies look at both crime and drug use reduction, covering a wide range of studies conforming to Level 3 of the Maryland Scale of robustness, with experimental and control groups in pre-test and post-test conditions, and studies that randomly allocate subjects to experimental and control conditions.

Holloway et al. (2005) note potential limitations with studies in this area at present and manage these limitations with strict inclusion criteria. The issues they acknowledge are: (1) lack of UK studies and corresponding overreliance on US studies; (2) weak methodology in some studies (especially omission of any kind of comparison group); and (3) few studies consider the causal mechanisms by which a programme might or might not be effective.

In the relatively few British studies, some of these suffer additionally from small sizes. For example, numbers in two of the UK studies are 157 people (McSweeney et al., 2007) and 799 people with one conviction over a 40 year period (Gossop et al., 2006).

#### Use of evidence

Statements in this section are consistently supported with references. The complexity of the relationship between drugs and crime is also acknowledged in this section, and conclusions are not drawn on the nature or causal direction of this link. This is understandable given the complexity of the issues and that in many areas evidence is not conclusive. However, for those attempting to tackle drug use and reduce harms such as crime associated with drug use, research that highlights possible relationships between these, such as sequencing studies and statistical analyses (for example as reviewed in Otero-Lopez et al, 1994), as well as research on outcomes of different treatments for drug use (at least in relation to the key ‘problem drugs’) and for re-offending could be drawn out further (as in Hough, 1996). Further examples of research that could be informative are discussed below, in the section on ‘gaps’.

As in some previous sections, *Appendix 5* occasionally generalises from findings from within specific populations. In this section, for example, the Strategy states “aftercare and wraparound provision are associated with better outcomes for prisoners” (p. 53), using evidence to support this claim from a randomised control trial of individuals in California,

which, as noted above, may have differing support systems in place. While the use of this research as evidence is not in itself problematic, it would be more useful to readers considering service delivery to also have made explicit some of the possible qualifications regarding the transferability of findings.

### **Gaps in the evidence**

While drawing on a range of solid evidence, in some places this evidence does not capture important caveats or detail, while in others there is academic evidence which is not drawn out that could be useful for those designing or implementing services.

For example, in the subsection on 'Drug use and crime', a clearer picture of what kinds of drug treatments impact on drug use and on reoffending would be useful to assist in choosing from amongst the range of options. The impact of treatment on different outcomes such as subsequent drug use and on reoffending are both captured in the literature, both in research cited in the *Appendix* and in wider research. Holloway et al. (2005) is one citation in this section that could be drawn upon to provide more detail differentiating between services that are most effective for either reducing drug use or re-offending or both. There are other studies that are not included in this section, such as a meta-analysis by Mitchell et al (2007, p. 353) which reports that it:

*consistently found support for the effectiveness of TC (therapeutic community) programs on both outcome measures (effective drug treatment and reduced re-offending), and this finding was robust to variations in method, sample, and program features. We also found support for the effectiveness of RSAT (residential substance abuse treatment) and group counseling programs in reducing re-offending, but these programs' effects on drug use were ambiguous. A limited number of evaluations assessed narcotic maintenance or boot camp programs; however, the existing evaluations found mixed support for maintenance programs and no support for boot camps.*

It is interesting that although offending tends to pre-date onset of drug use (Hough and Mitchell 2003), several treatment programmes in the meta-analyses discussed appear to indicate that some treatment may have more significant effects on reducing criminal behaviour than on drug use, and that some of the effects on criminal behaviour seem to persist at the two, three and five year follow-ups in the studies undertaken (Gossop et al. 2002, specifically looking at outcomes for crack cocaine). This finding suggests that the policy interventions intended to reduce offending could differ from those intended to reduce drug use, and it would be useful for delivery organisations to intervene appropriately were these relationships more explicitly understood.

Although this is still a nascent field in the UK, there is also some research drawing out the cost-benefits of different interventions, such as Marsh and Fox (2008), that could inform decision-making and prioritisation of funds which otherwise may be difficult with the information currently provided in *Appendix 5*.

Another example where clarification would be useful for service delivery is where the Strategy discusses the impact of drug testing. *Appendix 5* correctly notes that there is little evidence on the effectiveness of routine drug testing as a treatment itself in the US evidence cited by Holloway et al., (2005, p. v), and even less information on its effectiveness when used in conjunction with other treatment interventions, as in England



and Wales (Holloway et al., 2005, p. vi). However, it is worth noting there is evidence that testing with swift, certain, and small sanctions for breaches can reduce drug use and ‘failures to appear’ in drug treatment settings (Harrell et al., 1999).<sup>29 30</sup>

A final detail worth raising here that is not discussed in the evidence review of the Strategy is that the use of illicit drugs is itself a crime (see for example the statement on page 53, paragraph 3: “not all drug users commit crime”). This is worth clarifying because in measuring and understanding levels of crime related to drug use, and in attempting to assess progress to reduce drug use and offending or re-offending, it is useful to distinguish the crime of illicit drug use from other crimes. The first of these would be highly sensitive to changes in legal classifications and changing law enforcement practices around drugs, whilst the second may not. Without drawing out this distinction, it is difficult to get traction on the drivers of any observed changes in levels of drug use and crime, and it is also difficult to use this information to inform the design and delivery of interventions.

### 3.3.7 Drug supply and enforcement

The drug supply and enforcement section of the Strategy presents empirical evidence on the level of activity and costs of the illicit drug trade, as well as qualitative findings on how operational-level strategies affect drug supply and use. The Strategy notes that a multi-agency approach is more effective than law enforcement in isolation to address specific problems in the community.

The evidence in this section of the Strategy is broken down into three general areas, the market, price and purity, and enforcement. The types of evidence include self-reported data of drug users and dealers (Matrix, 2007; Eaton et al., 2007; Pudney et al., 2006; Boreham et al., 2007; Caulkins et al., 2002); intelligence from law enforcement (SOCA, 2007; Mazerolle, Soole, and Rombouts, 2007); and government sources (Peters and Walker, 2005; Burnett and Skodbo, 2006).

#### Robustness of evidence

Some of the evidence in this section is based on intelligence reporting and is dependent on the rigour with which law enforcement practitioners gather, record and report.

Other evidence may require caveats, and these are mentioned in the reports themselves, such as those by Matrix Knowledge Group (2007) and Mazerolle et al. (2007). The Matrix report had a stringent validation process to overcome potential biases arising from three issues the authors cited as potential problems - small sample size, gaps in data, and interviewee misreporting. The validation process included a lengthy programme of stakeholder/knowledge holder interviews (law enforcement, customs, asset recovery staff and expert academics), and a review of case materials with discussions. The authors noted

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<sup>29</sup> Although the Strategy could not have drawn on forthcoming findings, it may be of interest to note pilot programmes and RCTs are currently being conducted to further assess the impact of drug testing on treatment outcomes (for the research brief see Hawken and Kleiman, 2008).

<sup>30</sup> Another example of where more detail could be useful for those designing or delivering services is where the Strategy states “aftercare and wraparound provision are associated with better outcomes for prisoners” (p. 53). The Strategy does not cite age as an important predictor of delayed time to re-incarceration, yet the finding in this citation is that age and post-release treatment are significant predictors of delayed time to re-incarceration.

one limitation in the attempted validation of interviewees' accounts: the research team was not able to access law enforcement debriefs or Crown Prosecution Service summary case files. However, where possible, the team used discussions with prison staff and internet searches as alternative means of validation.

Mazerolle et al. (2007) is a Campbell Collaboration meta-analysis assessing the relative effectiveness of police-led drug law enforcement interventions. The criteria were relatively stringent, requiring all studies to have, at a minimum, pre-test/post-test, comparison group design. Authors note, however, that the review included quasi-experimental designs given the lack of methodologically sound experimental evaluations in this area.

### **Use of evidence**

Data used in this section support the points made in *Appendix 5* and take account of any data issues. It is especially helpful that this section draws on a range of data, including law enforcement, surveys, and meta-analysis. Triangulating evidence in this way is useful for improving confidence in the robustness of findings where findings are similar across types of research, and in overcoming the limitations of any one type of data source on its own, where necessary. In drawing on these different data sources, the Strategy is often transparent about the nature of the evidence and the extent to which lessons can be applied to the broader population of drug users and suppliers. For example, the Strategy states “drug dealers interviewed in prison claimed a reduction in drug prices over time, particularly wholesale prices” (p. 55).

A strength in this section of the Strategy is its reporting on the ranges for highly uncertain numbers (i.e. values of the drug markets in different countries, the tonnes of drugs entering the countries).

### **Gaps in evidence**

*Appendix 5* notes that, according to drug dealers interviewed in prison, law enforcement can influence price. This is a useful point, and is supported by strong evidence. However, although not included in the discussion in *Appendix 5*, there is also wider evidence on factors contributing to changes in drug prices other than supply reduction activities, such as quality of drugs and changes in demand (i.e. consumer tastes). It would be useful for local delivery bodies to understand if, and if so by how much, these factors may have influenced the falling prices noted in *Appendix 5*.

The Strategy notes “...there is evidence that increases in drug prices can reduce adverse outcomes of drug use” (p.59). However, while *Appendix 5* also notes that price fluctuations may affect dealers at different levels of the market differently, the range of adverse outcomes that may be reduced by increases in drug prices are not discussed, nor is how the observed drop in prices may have exacerbated some outcomes. Short and long term effects for the outcomes that may be under consideration are also not discussed. For example, if low prices encourage new people into the market, and a proportion of these people develop expensive and sustained habits, this seems likely to increase criminal activity in the long run, but with little measurable change in the short-term (see for example, Saffer and Chaloupka, 1999). A study of Australian young people by van Ours and Williams (2007) found that low cannabis prices lead to early use of cannabis, and was associated with a low quit rate and longer duration of use. Further, if low prices are associated with higher

volumes traded overall, the revenues associated with drug trafficking – and levels of ‘supply-side’ violent crime aimed at controlling lucrative markets – may also increase.

*Appendix 5* comments on changes in raw prices. However, when providing information on prices, it is more informative to report on trends in purity-adjusted prices than raw prices (Caulkins, 2007), as there is growing evidence that constant prices may mask adjustments in purity by dealers seeking to maintain profits in the face of falling supply. The importance of purity adjustments in looking at drug pricing has been demonstrated in an examination of the Australian heroin drought (Caulkins et al., 2006).<sup>31</sup>

Some of the information provided in this section of *Appendix 5* could be useful for informing law enforcement professionals interested in targeting their efforts, and in prioritising their work with particular partner agencies or particular countries. However, clarity and precision are important if the information is to be put to such use. For example, in the statement that “[c]annabis is imported to the UK from Europe” (p. 54) it is ambiguous whether Europe is being considered a transition or source country for cannabis. Evidence suggests Morocco has become the world’s largest producer and exporter of resin, supplying over 80 per cent of the resin consumed in Europe and half of the world’s resin production (United Nations Office on Drugs and Crime (UNODC), 2004). This is relevant for two reasons: first, domestic supplies may expand in response to interdiction and source country control success. Second, source country and other supply-side controls and anti-transshipment strategies may need to be differently targeted for drugs originating outside the European Union law enforcement context.

This section in particular is limited in detail and on implications for those attempting to implement law enforcement and treatment interventions. For example, the Strategy notes that drug dealers claim “that the risk of having their assets seized is a greater deterrent than is the risk of imprisonment” (p. 56, paragraph 2). This statement raises important questions for law enforcement and sentencing, the answers to which could inform those seeking to deliver on the Strategy’s aims: is this information provided to encourage law enforcement to focus on asset seizure? If so, is this the case for all levels of dealers? Additionally, on p.55 *Appendix 5* cites progress in certain areas, such as crack house closures, but notes that there has been some displacement of the problem to other geographic locations. The section ends by saying that partnerships with local agencies providing support for drug users and the local community were “key”. However, this statement raises several questions - was the support needed for communities experiencing the emergence of crack houses as part of the displacement effects following closures in other communities? Or was it needed to sustain the positive outcomes and avoid the return of crack houses to those communities where the closures had occurred? Information on why, how or for what outcomes the multi-agency working was key would be informative, as would detail about the length of time of the support and the types of agencies other than treatment providers (if any) that were involved in the partnerships. For those attempting to

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<sup>31</sup> The increase in price per raw gram of heroin in Victoria during the heroin drought moved from \$300 per gram in 2000 to an average price of \$450 per raw gram in 2001, suggesting a 50 per cent increase in the price of the drug.

tackle the problems discussed in *Appendix 5*, it would have been useful to understand more about these questions, including what activities the agencies performed.

The Sources drawn upon in the Home Office Drug Strategy's *Appendix 5* cover a wide range of services aimed at tackling problem drug use and the harms associated with drug use. The sources cited discuss the relationship between services such as treatment and wraparound care (p.52), pharmacological interventions and social and familial interventions. In general, *Appendix 5* notes that services are more effective in combination (p52) than in isolation. *Appendix 5* does not provide detail on the degree to which this is the case, on the extent of the gains accrued by combining different services, on the costs of providing different combinations, or on the gains or otherwise in the sustainability of outcomes when providing services in various combinations. This is not surprising given the relative paucity of studies that attempt to rigorously provide comparable sample populations with differing combinations of services, or to cost out or provide long term follow-ups of such comparisons.

Research in the US suggests that rigorously assessing the combinations, and the effect of different combinations on outcomes and costs is important. For example, such research suggests that post release programmes for offenders play an important role in the overall cost-effectiveness of providing treatment to offenders in prison. The Substance Abuse Policy Research Program reviewed this literature with respect to prison based treatment and provision of aftercare and other services and found that:

*'One year and 5 year CEAs (cost-effectiveness analyses) of a prison-based TC and aftercare program in California found that offenders who completed both programs had the lowest number of days reincarcerated and were relatively more cost-effective in terms of "cost per avoided incarceration day" than the group of offenders that received in-prison treatment only and the group of untreated offenders (cited from McCollister et al 2003a, 2004).'*

For those attempting to make decisions about the allocation of funds and provision of services it would be useful to know what research from elsewhere could be informative in their decisions. It would also be useful to point out that further research is needed, to help providers make a case for evaluating the services they are providing, and for providing those services in different combinations systematically to test the relative benefits of doing so.

This chapter has assessed the evidence base provided in *Appendix 5* of the Strategy. In doing so it highlights the range of evidence used, the strength of the evidence drawn upon as well as how it has been used, and gaps that remain for those seeking to understand and address problem drug use. The concluding chapter draws together some of the findings from the two work streams of this project and raises questions for further research.

The NAO's wider value-for-money question focuses on local delivery authorities' capacity and capability to effectively tackle problem drug use (PDU) through delivery of local services. The two workstreams that comprise the present study aim to inform the NAO's enquiry by shedding light on the use of PDU in the Strategy, and by examining the robustness of the evidence base for the Strategy.

The first workstream in this study indicated that definitions of PDU beyond the Strategy document vary, and that the explicit definition of PDUs in the Strategy is very particular. For the most part the focus on heroin and crack cocaine is narrower than definitions used elsewhere, and yet the idea of PDU within the Strategy and supporting documents itself appears to go beyond this narrow definition.

While the narrower formulation of PDU in the Strategy appears to encompass many of the most evident harms and significant costs of drug use so far identified and measured, there is a risk of circularity. That is, the narrower focus, while understandable and in some ways useful in a resource-constrained environment, may risk diverting attention of delivery bodies and others from other potentially problematic drugs and harms, as well as from new and emergent problem drugs.

While the clear focus of the Strategy is on opiates and crack cocaine, the document also specifically notes that local communities will need the flexibility to respond to and address the particular problem drugs in their areas, including cannabis and even licit substances such as alcohol. If this flexibility is protected and instantiated in the provision of resources that are not overly tied to the narrower range of drugs, then there is no reason why the Strategy document should impede the ability of local bodies to respond to local needs. However, given the overarching emphasis on the narrower range of particular drugs, and given that the majority of the interventions discussed pertain to the Strategy's definition of problem drug users, this aim of preserving flexibility and responsiveness to local needs requires highlighting and protecting to be sustained.

It is beyond the scope of this work to empirically assess local authorities' capacity to deliver on the aims of the Strategy with respect to PDU. However, as we have noted throughout the discussion above, there are a range of ways in which the evidence base for the Strategy provides useful and robust research on which those agencies and bodies may draw.

However, as also noted above, there are some aspects of the evidence base that provide less clarity or detail than may be optimal for doing so.<sup>32</sup>

The specific aspects of the evidence base on which those seeking to base service delivery may benefit from further information include:

- discussion of the *transferability of findings* from one population or context to another, or a note of where there is as yet insufficient evidence and a need for further research;
- more detailed delineation of *which drugs are included* in the various assessments of drugs problems cited (and thus whether certain findings are relevant for the Strategy's focus on opiates and crack cocaine);
- greater clarity about the *relative effectiveness* of different interventions (ideally including cost-effectiveness), based on a clearer understanding of *what is meant by effectiveness and success* (and for which outcomes), and an assessment of the *relationship between different kinds of treatment* and how they may affect each other in seeking to achieve different outcomes (e.g. follow-on care's contribution to sustaining effects of interventions, and interventions that help address the 'underlying contributory factors for drug use' when providing interventions for homeless drug users).

Taken together, these findings raise questions to be considered for further research:

- Given the particular definition of PDU used in the Strategy, do local delivery authorities have enough information, resource and flexibility to define and tackle the specific drugs and specific problems that they come across in their domains (e.g. if amphetamines or cannabis rather than opiates and crack cocaine are the most significant problems in a particular area)?
- What evidence do local delivery bodies, commissioners of services and others draw on, and how do they use an evidence base such as the one provided in *Appendix 5*? Individual Government Strategy documents are hampered in the attempt to provide evidence by the absence of centralised information sources that gather, assess and collate findings from existing research and evaluations, and identify gaps requiring further research. In the absence of such centralised information, it is difficult for those seeking to assemble evidence for specific tasks (such as a drug strategy, or specific aims within such a strategy) to take account of a broad-ranging, multi-disciplinary, constantly changing evidence base in a way that usefully informs policy and practice.

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<sup>32</sup> A search of relevant departments' and agencies' websites was performed to ascertain whether and how the actions and implementation plans described on the websites may shed light on the implementability of the Strategy. This search highlighted that it is not possible to attribute implementation programmes to the Strategy or to say whether they would have been in place without the Strategy. Instead, this aspect of the work primarily raised questions for further research in the context of the wider study (see questions below).

- Will the approaches to tackling PDU outlined in the Strategy work equally well (or can they be adapted) in addressing other types of drug use, either in their own right or as possible 'gateways' to PDU?
- How can existing gaps in the evidence base on problem drug use and interventions to tackle problem drug use be addressed? What programmes and interventions are currently in progress and in need of evaluation? And are there apparently effective interventions that remain untested in the UK?





## REFERENCES

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## Reference List

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- ACMD – see Advisory Council on the Misuse of Drugs
- Advisory Council on the Misuse of Drugs (ACMD), *Hidden Harm*, London: Advisory Council on the Misuse of Drugs, 2003.
- Adolfo, Amy B., Christopher G. AhnAllen, and Jennifer W. Tidey, “Effects of Smoking Cues on Caffeine Urges in Heavy Smokers and Caffeine Consumers with and without Schizophrenia,” *Schizophrenia Research*, Vol. 107, Issue 2, 2009, pp. 192–197.
- Aidala, A. A., G. Lee, D. M. Abramson, P. Messeri, and A. Siegler, “Housing Need, Housing Assistance, and Connection to HIV Medical Care,” *AIDS Behaviour*, Vol. 11, No. 6, 2007, pp. 101–115.
- Amato, L., S. Minozzi, M. Davoli, S. Vecchi, M. Ferri, and S. Mayet, “Psychosocial and Pharmacological Treatments Versus Pharmacological Treatments for Opioid Detoxification,” *Cochrane Database of Systematic Reviews*, Issue 3, 2008, p. 4.
- Amato, L., S. Minozzi, M. Davoli, S. Vecchi, M. Ferri, and S. Mayet, “Psychosocial and Pharmacological Treatments Versus Pharmacological Treatments for Opioid Detoxification,” *Cochrane Database of Systematic Reviews*, Issue 4, 2004
- American Psychiatric Association, *DSM-IV-TR: The Current Manual*, Last accessed September 2009:  
<http://www.psych.org/mainmenu/research/dsmiv/dsmivtr.aspx>
- Arnall, Elaine, Susannah Eagle, Shilpa L. Patel, and Alex Gammampila, *An Evaluation of the Crack Treatment Delivery Model*, London: National Treatment Agency, 2007.
- Backett-Milburn, Kathryn, Sarah Wilson, Angus Bancroft, and Sarah Cunningham-Burley, “Challenging Childhoods: Young People’s Accounts of ‘Getting By’ in Families With Substance Use Problems,” *Childhood*, Vol. 15, No. 4, 2008, pp. 461–479.
- Banta-Green, C. J., J. O. Merrill, S. R. Doyle, D. M. Boudreau and D. A. Calsyn, “Measurement of Opioid Problems Among Chronic Pain Patients in a General Medical Population,” *Drug and Alcohol Dependence*, Vol. 104, Issues 1-2, 2009, pp. 43-49.
- Barnard, M., and N. McKeganey, “The Impact of Parental Problem Drug Use on Children: What is the Problem and What Can be Done to Help?,” *Addiction*, Vol. 99, No. 5, 2004, pp. 552–559.

- Barnard, Marina, "Discomforting Research: Colliding Moralities and Looking for 'Truth' in a Study of Parental Drug Problems," *Sociology of Health and Illness*, Vol. 27, No. 1, 2005, pp. 1–19.
- Barnett, P. G., and S. S. Hui, "The Cost-effectiveness of Methadone Maintenance," *Mount Sinai Journal of Medicine*, Vol. 67, Nos. 5–6, 2000, pp. 365–374.
- Becker, J., and S. Roe, *Drug Use Among Vulnerable Groups of Young People: Findings from the 2003 Crime and Justice Survey*, Home Office Research Findings 254, London: Home Office, 2005.
- Beckett, Helen, Jeremy Heap, Paul McArdle, Eilish Gilvarry, Jane Christian, Roger Bloor, Ilana Crome, and Martin Frischer, *Understanding Problem Drug Use Among Young People Accessing Drug Services: A Multivariate Approach Using Statistical Modelling Techniques*, London: Home Office, 2004.
- Belenko, S., N. Patapis, and M. T. French, *Economic Benefits of Drug Treatment: A Critical Review of the Evidence for Policy Makers*, Philadelphia, PA: University of Pennsylvania, Treatment Research Institute, 2005.
- Bellin, E., J. Wesson, V. Tomasino, J. Nolan, A. J. Glic, and S. Oquendo, "High Dose Methadone Reduces Criminal Recidivism in Opiate Addicts," *Addiction Research*, Vol. 7, No. 1, 1999, pp. 19–29.
- Bennett, T., and K. Holloway, *Drug-crime Connections*, Cambridge: Cambridge University Press, 2007.
- Benyon, C., M. A. Bellis, T. Millar, P. Meier, R. Thomson, and K. Mackway Jones, "Hidden Need for Drug Treatment Services: Measuring Levels of Problematic Drug Use in the Northwest of England," *Journal of Public Health*, Vol. 23, No. 4, 2001, pp. 286–291.
- Bessant, J., H. Coupland, T. Dalton, L. Maher, H. Rowe, and R. Watts, *Heroin Users, Housing and Social Participation: Attacking Social Exclusion Through Better Housing*, Melbourne: Australian Housing and Urban Research Institute, 2003.
- Bien, T., W. R. Miller, and J. S. Tonigan, "Brief Interventions for Alcohol Problems: A Review," *Addiction*, Vol. 88, No. 3, 1993, pp. 315–336.
- Blakey, David, *Disrupting the Supply of Illicit Drugs Into Prisons: A Report for The Director General of National Offender Management Service*, London: National Offender Management Service, 2008.
- Bloor, M., M. Gannon, G. Hay, G. Jackson, A. H. Leyland, and N. McKeganey, "Contribution of Problem Drug Users' Deaths to Excess Mortality in Scotland: Secondary Analysis of Cohort Study," *British Medical Journal*, Vol. 339, 2008, p. 478.
- Bogart, Laura M., Rebecca L. Collins, Phylliss L. Ellickson, David J. Klein, Adolescent Predictors of Generalized Health Risk in Young Adulthood: A 10-Year Longitudinal Assessment, *Journal of Drug Issues*, Vol. 36, No. 3, 2006, pp. 571-596

- Bonell, C., and A. Fletcher, "Addressing the Wider Determinants of Problematic Drug Use: Advantages of Whole-Population Over Targeted Interventions," *International Journal of Drug Policy*, Vol. 19, Issue 4, 2008, pp. 267–269.
- Boreham, R., A. Cronberg, A. Dollin, and S. Pudney, *The Arrestee Survey 2003–2006*, 2nd ed., London: Home Office, 2007.
- British Psychological Society and Royal College of Psychiatrists, *Drug Misuse: Opioid Detoxification – The NICE Guidelines*, London: NICE, 2008a.
- British Psychological Society and Royal College of Psychiatrists, *Drug Misuse: Psychosocial Interventions – the NICE Guidelines*, London: NICE, 2008b.
- Buchmueller, Thomas C., and Samuel H. Zuvekas, "Drug Use, Drug Abuse, and Labour Market Outcomes," *Health Economics*, Vol. 7, No. 3, 1998, pp. 229–245.
- Budd T, C. Sharp, G. Weir, D. Wilson and N. Owen, *Young People and Crime: findings from the 2004 Offending, Crime and Justice Survey*. Home Office Statistical Bulletin 20/05. London: Home Office, 2005
- Burnett, R., and S. Skodbo, *Setting Up 'Middle Market' Drug Units: Lessons Learned from Three Initiatives*, Special Series Interest Paper No. 18, London: Home Office, 2006.
- Burrows, J., A. Clarke, T. Davison, R. Tarling, and S. Webb., *Research into the Nature and Effectiveness of Drugs Throughcare*, Occasional Paper 68, London: Home Office, 2001.
- Caulkins, J., "Price and Purity Analysis for Illicit Drug: Data and Conceptual Issues," *Drug and Alcohol Dependence*, Vol. 90, No. 1, 2007, pp. S61–S68.
- Caulkins, J. P., "Drug Prices and Emergency Department Mentions for Cocaine and Heroin," *American Journal of Public Health*, Vol. 91, No. 9, 2001, pp. 1446–1448.
- Caulkins, J. P., R. L. Pacula, S. M. Paddock, and J. Chiesa, *School-based Drug Prevention: What Kind of Drug Use does it Prevent?* Santa Monica, CA: RAND, 2002.
- Caulkins, Jonathan P., Caroline Godkin, Stuart Gilmour, and Paul Dietze, *Heroin and Methamphetamine Seizures in Victoria, Australia: Purity Changes Associated with the Heroin "Drought"*, Pittsburgh, PA: Carnegie Mellon Heinz College, 2006.
- Caulkins, Jonathan P., Susan S. Everingham, C. Peter Rydell, James Chiesa, and Shawn Bushway, *An Ounce of Prevention, a Pound of Uncertainty: The Cost-Effectiveness of School-Based Drug Prevention Programs*, Santa Monica, CA: RAND, 1999.
- Center on Addiction and Substance Abuse, *Cigarettes, Alcohol, Marijuana: Gateways to Illicit Drug Use*, White Paper, New York: Columbia University, 1994.
- Cochrane Collaboration, last accessed September 2009:  
<http://www.cochrane.org/index.htm>
- Comiskey, C.M., P. Kelly, Y. Leckey, L. McCulloch, B. O'Duill, R. D. Stapleton, and E. White, *The ROSIE Study Drug Treatment Outcomes in Ireland*, National Advisory Committee on Drugs, London: The Stationary Office, 2009

Compton, W.M., Grant B.F., Coliver, J.D., Glantz, M.D., Stinson, F.S., 2004. Prevalence of Marijuana Use Disorders in the United States: 1991-1992 and 2001-2002. *Journal of the American Medical Association* 291, 2114--2121.

Connock, M., A. Juarez-Garcia, S. Jowett, E. Frew, Z. Liu, R. J. Taylor, A. Fry-Smith, E. Day, N. Lintzeris, T. Roberts, A. Burls, and R. S. Taylor, "Methadone and Buprenorphine for the Management of Opioid Dependence: A Systematic Review and Economic Evaluation," *Health Technology Assessment*, Vol. 11, No. 9, 2007, pp. 1-171.

Corliss, Heather L., Christine E. Grella, Vickie M. Mays, and Susan D. Cochran, "Drug Use, Drug Severity, and Help-Seeking Behaviors of Lesbian and Bisexual Women," *Journal of Women's Health*, Vol. 15, No. 5, 2006, pp. 556-568.

Cowan, David, Jenifer Wilson-Barnett, Peter Griffiths, David J. A. Vaughan, Anjalee Gondhia, and Laurie G. Allan, "A Randomized, Double-Blind, Placebo-Controlled, Cross-over Pilot Study to Assess the Effects of Long-Term Opioid Drug Consumption and Subsequent Abstinence in Chronic Noncancer Pain Patients Receiving Controlled-Release Morphine," *Pain Medicine*, Vol. 6, No. 2, 2005, pp. 113-121.

Cowan, David T., Laurie Allana, and Peter Griffiths, "A Pilot Study into the Problematic Use of Opioid Analgesics in Chronic Non-Cancer Pain Patients," *International Journal of Nursing Studies*, Vol. 39, No. 1, 2002, pp. 59-69.

Cox, G. and C. Comiskey, "Characteristics of Opiate Users Presenting for a New Treatment Episode: Baseline Data from the National Drug Treatment Outcome Study in Ireland (ROSIE)," *Drugs-Education Prevention and Policy*, Vol. 14, 2007, pp. 217-230.

Cunningham, J.K., Liu, L.M., Impacts of federal ephedrine and pseudoephedrine regulations on methamphetamine-related hospital admissions. *Addiction* 98, 1229-1237, 2003.

Cusick, Linda, Anthea Martin, and Tiggey May, Vulnerability and Involvement in Drug Use and Sex Work, Home Office Research Study No. 268, London: Home Office, 2003.

Dave D. "The Effects of Cocaine and Heroin Price on Drug-related Emergency Department Visits" *Journal of Health Economics* 25(2): 311-33, 2006..

Day, E., Julie Ison, Francis Keaney, Neena Buntwal, and John Strang, *A National Survey of Inpatient Drug Services in England*, Research Briefing 12, London: National Treatment Agency, 2005.

Department of Health (England) and the devolved administrations, *Drug Misuse and Dependence: UK Guidelines on Clinical Management*. London: Department of Health (England), the Scottish Government, Welsh Assembly Government and Northern Ireland Executive, 2007

Dobkins K and N Nicosia."The War on Drugs: Methamphetamine, Public Health, and Crime "American Economic Review 99: 324-349, 2009..

Dolan, K. A., J. Shearer, M. MacDonald, R. P. Mattick, W. Hall and A. Wodak, "Four-year Follow-up of Imprisoned Male Heroin Users and Methadone Treatment: Mortality, Re-incarceration and Hepatitis C Infection," *Addiction*, Vol. 100, No. 6, 2005, pp. 820-828.

- Dolan, K. A., J. Shearer, M. MacDonald, R. P. Mattick, W. Hall and A. D. Wodak, "A Randomised Controlled Trial of Methadone Maintenance Treatment Versus Wait List Control in an Australian Prison System," *Journal of Drug and Alcohol Dependence*, Vol. 72, 2003, pp. 59–65.
- Drugscope, *Vulnerable Young People and Drugs: Opportunities to Tackle Inequalities*, London: Drugscope in association with the Department of Health, 2000.
- Eaton, G. et al. (eds.), United Kingdom: New Developments, Trends and In-depth Information on Selected Issues, *National Report (2006 data) to the EMCDDA*, Reitox National Focal Point, 2007.
- Edlund, M. J., M. Sullivan, D. Steffick, K. M. Harris, and K. B. Wells, "Do Users of Regularly Prescribed Opioids Have Higher Rates of Substance Use Problems Than Nonusers?" *Pain Medicine*, Vol. 8, No. 8, 2007, pp. 647–656.
- Edmunds, Mark, Michael Hough, and Norman Urquía, *Tackling Local Drug Markets*, London: Home Office Police Research Group, 1996.
- Edwards, G., A. Arif, and R. Hodgson, "Nomenclature and classification of drug- and alcohol-related problems: a WHO memorandum," *Bulletin of the World Health Organization*, Vol. 59, 1981, pp. 225-242.
- Elliott, C. and D. Ellingworth, "Assessing the Representativeness of the 1992 British Crime Survey: The Impact of Sampling Error and Response Biases," *Sociological Research Online*, Vol. 2, Issue 4, 1997.
- Elliott, Lawrie, Linda Orr, Lynsay Watson, and Andrew Jackson, *Drug Treatment Services for Young People: A Systematic Review of Effectiveness and the Legal Framework*, Edinburgh: Effective Interventions Unit, Scottish Executive Drug Misuse Research Programme, 2002.
- EMCDDA, Table PDU-1. Prevalence of problem drug use at national level: Summary Table, 2002–06, rate per 1000 aged 15–64, Statistical Bulletin 2008. Jan 2009. As of 9 September 2009: <http://www.emcdda.europa.eu/stats08/pdutab1a>
- EMCDDA, PDU drug use population, methods and definitions, Statistical bulletin 2008. Jan 2009. As of 9 September 2009: <http://www.emcdda.europa.eu/stats08/pdu/methods>
- Encrenaz, Gaele, and Antoine Messiah, "Lifetime Psychiatric Comorbidity with Substance Use Disorders: Does Healthcare Use Modify the Strength of Associations?," *Social Psychiatry and Psychiatric Epidemiology*, Vol. 41, No. 5, 2006, pp. 378–385.
- Faggiano, F, F. Vigna-Taglianti, E. Versino, A. Zambon, A. Borraccino, and P. Lemma, "School-based Prevention for Illicit Drugs' Use", *Cochrane Database of Systematic Reviews*, Issue 2, 2005.
- Fendrich, M. and C. Vaughn, "Diminished lifetime substance use over time: an inquiry into differential underreporting", *Public Opinion Quarterly*, Vol. 58, No. 96, 1994.
- Forrell, M and Marsden, J., *Drug-related mortality among newly released offenders 1998 to 2000*. Home Office Online Report 40/05. London: Home Office, 2005
- Fothergill, K. E., M. E. Ensminger, K. M. Green, R. M. Crum, J. Robertson and H. S. Juon, "The Impact of Early School Behavior and Educational Achievement on Adult Drug

Use Disorders: A Prospective Study,” *Drug and Alcohol Dependency*, Vol. 92, Nos. 1–3, 2008, pp. 191–199.

FRANK Review 2004–2006. As of July 28, 2009: <http://drugs.homeoffice.gov.uk/publication-search/frank/FRANKReview2004-2006>.

Frischer, Martin, Heath Heatlie, Mathew Hickman, *Estimating the Prevalence of Problematic and Injecting Drug Use for Drug Action Team Areas in England: A Feasibility Study Using the Multiple Indicator Method*, London: Home Office, 2004.

Frischer, Martin, Mathew Hickman, Ludwig Kraus, Fabio Mariani, and Lucas Wiessing, “A Comparison of Different Methods for Estimating the Prevalence of Problematic Drug Misuse in Great Britain,” *Addiction*, Vol. 96, No. 10, 2001, pp. 1465–1476.

Frischer, Martin, Heath Heatlie and Mathew Hickman, “Prevalence of Problematic and Injecting Drug Use for Drug Action Team Areas in England,” *Journal of Public Health*, Vol. 28, No. 1, 2006, pp. 3–9.

Frischer, Martin, Heath Heatlie and Mathew Hickman, “Validating Estimates of Problematic Drug Use in England,” *BMC Public Health*, Vol. 7, Oct. 10, 2007, p. 286.

Frischer, Martin, Orsolina Martino, Ilana Crome, and Peter Croft, “Trends in Drug Misuse Recorded in Primary Care in the UK from 1998 to 2005,” *Journal of Public Health*, Vol. 31, No. 1, 2008, pp. 69–73.

Fuller, E., ed., *Smoking, Drinking and Drug Use Among Young People in England in 2006*, London: Department of Health, 2007.

Gates, S., J. McCambridge, L. A. Smith, and D. Foxcroft, “Interventions for Prevention of Drug Use by Young People Delivered in Non-school Settings,” *Cochrane Database of Systematic Reviews*, Issue 1, 2006.

Gemmell, I., T. Millar, and G. Hay, “Capture–recapture Estimates of Problem Drug Use and the Use of Simulation Based Confidence Intervals in a Stratified Analysis,” *Journal of Epidemiology and Community Health*, Vol. 58, No. 9, 2004, pp. 758–765.

Gibson, Barry, Sam Acquah, and Peter G. Robinson, “Entangled Identities and Psychotropic Substance Use,” *Sociology of Health & Illness*, Vol. 26, No. 5, 2004, pp. 597–616.

Godfrey, C., D. Stewart and M. Gossop, “Economic Analysis of Costs and Consequences of the Treatment of Drug Misuse: 2-Year Outcome Data from the National Treatment Outcome Research Study (NTORS),” *Addiction*, Vol. 99, 2004, pp. 697–707.

Godfrey, Christine, Gail Eaton, Cynthia McDougall, and Anthony Culyer, *The Economic and Social Costs of Class A Drug Use in England and Wales, 2000*, London: Home Office, 2002.

Goodwin, A., *Measuring the Harm From Illegal Drugs: The Drug Harm Index 2005*, Home Office Online Report 22/07, London: Home Office, 2007.

Goodyear-Smith, F., N. M. Coupe, B. Arroll, C. R. Elley, S. Sullivan, and A. T. McGill, “Case Finding of Lifestyle and Mental Health Disorders in Primary Care: Validation of the



‘CHAT’ Tool,” *The British Journal of General Practice: The Journal of the Royal College of General Practitioners*, Vol. 58, No. 546, 2008, pp. 26–31.

Gossop, M., *Treating drug misuse problems: evidence of effectiveness*. London: National Treatment Agency for Substance Misuse, 2006

Gossop, Michael, John Marsden, and Duncan Stewart, *NTORS After Five Years: The National Treatment Outcome Research Study. Changes in Substance Use, Health and Criminal Behaviour During the Five Years After Intake*, London: National Addiction Centre, 2001.

Gossop, M., J. Marsden and D. Stewart, “Treatment Outcomes of Stimulant Misusers: One Year Follow-up Results from the National Treatment Outcome Research Study (NTORS),” *Addictive Behaviors*, Vol. 25, 2000b. Pp. 509-522.

Gossop, M., J. Marsden, and D. Stewart, “Drug Selling among Drug Misusers before Intake to Treatment and at 1-Year Follow-Up: Results from the National Treatment Outcome Research Study (NTORS),” *Drug and Alcohol Review*, Vol. 19, 2000a, pp. 143-151.

Gossop, M., J. Marsden, D. Stewart and T. Kidd, “Reduction or Cessation of Injecting Risk Behaviours? Treatment Outcomes at 1-Year Follow-Up,” *Addictive Behaviors*, Vol. 28, 2003b, pp. 785-793.

Gossop, M., J. Marsden, D. Stewart, and T. Kidd, “The National Treatment Outcome Research Study (NTORS): 4-5 Year Follow-up Results,” *Addiction*, Vol. 98, 2003a, pp. 291-303. Gossop, M., J. Marsden, D. Stewart, and T. Kidd, “Changes in Use of Crack Cocaine after Drug Misuse Treatment: 4-5 Year Follow-up Results from the National Treatment Outcome Research Study (NTORS),” *Drug and Alcohol Dependence*, Vol. 66, 2002a, pp. 21-28.

Gossop, Michael, John Marsden, and Duncan Stewart and Tara Kidd, “Changes in use of crack cocaine after drug misuse treatment: 4–5 year follow-up results from the National Treatment Outcome Research Study (NTORS),” in *Drug and Alcohol Dependence*, Vol. 66, 2002, pp. 21–28.

Gossop, Michael, John Marsden, and Duncan Stewart and Tara Kidd,, *NTORS At One Year: The National Treatment Outcome Research Study. Changes in Substance Use, Health and Criminal Behaviour One Year after Intake*, London: National Addiction Centre, 1998.

Gossop, M., J. Marsden, D. Stewart, and S. Treacy, “Change and Stability of Change after Treatment of Drug Misuse 2-Year Outcomes from the National Treatment Outcome Research Study (UK),” *Addictive Behaviors*, Vol. 27, 2002, pp. 155-166.

Gossop, M., K. Trakada, D. Stewart, and J. Witton, *Levels of Conviction Following Drug Treatment – Linking Data from the National Treatment Outcomes Research Study and the Offenders Index*, Home Office Research Findings 275, London: Home Office, 2006. Grella, C. E., “Women in Residential Drug Treatment: Differences by Program Type and Pregnancy,” *Journal of Health Care for the Poor and Underserved*, Vol. 10, No. 2, pp. 216–29.

Grella, Christine E., Vandana Joshi, and Yih-Ing Hser, "Program Variation in Treatment Outcomes Among Women in Residential Drug Treatment," *Evaluation Review*, Vol. 24, No. 4, 2000, pp. 364–383.

Hall, Wayne and Rosalie Liccardo Pacula, *Cannabis Use and Dependence: Public Health and Public Policy*, Cambridge: Cambridge University Press, 2003  
Harrell, Adele, Shannon Cavanagh, and John Roman, *Findings from the Evaluation of the D.C. Superior Court Drug Intervention Program*, Washington DC: Urban Institute, 1999.

Hawken, A., and M. Kleiman, "Evaluation of HOPE Probation: A Summary", Research Brief, Washington, DC: Pew Center on the States, 2008. As of July 28, 2009: [http://www.pewcenteronthestates.org/uploadedFiles/HOPE\\_Research\\_Brief.pdf](http://www.pewcenteronthestates.org/uploadedFiles/HOPE_Research_Brief.pdf).

Hay, Gordon, and Linda Bauld, *Population Estimates of Problematic Drug Users in England Who Access DWP Benefits: A Feasibility Study*, London: Department for Work and Pensions, 2008.

Hay, Gordon, Maria Gannon, Jane MacDougall, Tim Millar, Catherine Eastwood, and Neil McKeganey,, *National and Regional Estimates of the Prevalence of Opiate Use and/or Crack Cocaine Use 2005/06: A Summary of Key Findings*, London: Home Office, 2007.

Hay, Gordon, Maria Gannon, Jane MacDougall, Tim Millar, Catherine Eastwood, and Neil McKeganey, "Local and National Estimates of the Prevalence of Opiates and/or Crack Cocaine Use (2004/5)," in N. Singleton, R. Murray, and L. Tinsley, eds., *Measuring Different Aspects of Problem Drug Use: Methodological Developments*, 2nd ed., Home Office Online Report 16/06, London: Home Office, 2006.

Hickman, M., S. Cox, J. Harvey, S. Howes, M. Farrell, M. Frischer, G. Stimson, C. Taylor, and K. Tilling, "Estimating the Prevalence of Problem Drug Use in Inner London: A Discussion of Three Capture–Recapture Studies," *Addiction*, Vol. 94, No. 11, 1999, pp. 1653–1662.

Hickman, M., H. Sutcliffe, A. Sondhi, and G. V. Stimson, "Surveillance of Problem Drug Use in the UK: A Review of a Regional Drug Misuse Database," *Journal of Public Health Medicine*, Vol. 21, No. 3, 1999, pp. 271–277.

Hickman, Matthew, Vanessa Higgins, Vivian D. Hope, and Mark A. Belli, *Estimating Prevalence of Problem Drug Use: Multiple Methods in Brighton, Liverpool and London*, London: Home Office, 2004.

HM Government, *Drugs: Protecting Families and Communities – the 2008 Drugs Strategy*, 2008. As of April 18, 2009: <http://drugs.homeoffice.gov.uk/publication-search/drug-strategy/drug-strategy-2008?view=Binary>.

HM Government, *Updated Drug Strategy 2002*, London: Crown Copyright, 2002. As of September 3, 2009: [http://image.guardian.co.uk/sysfiles/Guardian/documents/2002/12/03/Updated\\_Drug\\_Strategy\\_2002.pdf](http://image.guardian.co.uk/sysfiles/Guardian/documents/2002/12/03/Updated_Drug_Strategy_2002.pdf)

HM Government, *Tackling Drugs to Build a Better Britain: the Government's Ten-Year Strategy for Tackling Drugs Misuse*. London: The Stationery Office, April 1998.

As of September 3, 2009: <http://www.archive.official-documents.co.uk/document/cm39/3945/3945.htm>

Holland, R., R. Vivancos, V. Maskrey, J. Sadler, D. Rumball, I. Harvey, and L. Swift, "The Prevalence of Problem Drug Misuse in a Rural County of England," *Journal of Public Health* (Oxford), Vol. 28, No. 2, 2006, pp. 88–95.

Holloway, K., T. Bennett, and D. Farrington, *The Effectiveness of Criminal Justice and Treatment Programmes in Reducing Drug-related Crime: A Systematic Review*, Home Office Online Report 26/05, London: Home Office, 2005.

Home Office, *Drug Misuse Declared: Findings from the 2008/09 British Crime Survey England and Wales*, Home Office Statistical Bulletin 1209, London: Home Office, July 2009

Home Office, *Drug Strategy*, London: Home Office, 2008.

Home Office, *Drugs Law: Class A, B and C Drugs*.

Last Accessed May 2009: <http://www.homeoffice.gov.uk/drugs/drugs-law/Class-a-b-c/>

Home Office, *The Economic and Social Costs of Crime Against Individuals and Households 2003/04*, Home Office Online Report 30/05. London: Home Office, 2005  
Last accessed September 2009 :

<http://www.homeoffice.gov.uk/rds/pdfs05/rdsolr3005.pdf>Hough, M., *Drugs Misuse and the Criminal Justice System: A Review of the Literature*, London: Home Office, 1996.

Hough, M., A. Clancy, T. McSweeney, and P. J. Turnbull, *The Impact of Drug Treatment and Testing Orders on Offending: Two-year Reconviction Results*, Home Office Findings 181, London: Home Office, 2003.

Health Protection Agency (HPA), *Shooting Up – Infections Among Injecting Drug Users in the United Kingdom 2006, An Update: October 2007*, London: Health Protection Agency, 2007.

Health Protection Agency, *Shooting Up – Infections Among Injecting Drug Users in the United Kingdom 2004, An Update: October 2005*, London: Health Protection Agency, 2005.

Health Protection Agency, *Shooting Up – Infections Among Injecting Drug Users in the United Kingdom 2002, An Update: December 2003*, London: Health Protection Agency, 2003.

HPA – see Health Protection Agency

Hser, Y., M. L. Polinsky, M. Maglione, and M. D. Anglin, "Matching Clients' Needs with Drug Treatment Services," *Journal of Substance Abuse Treatment*, Vol. 16, Issue 4, 1999, pp. 299-305.

Interpol, *Drugs*. Last accessed September 2009: <http://www.interpol.int/Public/Drugs/Default.asp>

Jacobson, M. 2004. Baby Booms and Drug Busts: Trends in Youth Drug Use in the United States, 1975-2000. *Quarterly Journal of Economics* 119(4): 1481-1512.

- Johnston, L. D., O'Malley, P. M., Bachman, J. G., & Schulenberg, J. E. (2008). *Monitoring the Future national survey results on drug use, 1975-2007*. Volume I: Secondary school students (NIH Publication No. 08-6418A). Bethesda, MD: National Institute on Drug Abuse, 707
- Jones, A., S. Weston, A. Moody, T. Millar, L. Dollin, T. Anderson, and M. Donmall, *The Drug Treatment Outcomes Research Study (DTORS) Baseline Report*, Home Office Research Report 3, London: Home Office, 2007.
- Kraus, Ludwig, Rita Augustin, Martin Frischer, Petra Kümmler, Alfred Uhl, and Lucas Wiessing, "Estimating Prevalence of Problem Drug Use at National Level in Countries of the European Union and Norway," *Addiction*, Vol. 98, 2003, pp. 471–485.
- Lennings, Christopher John, Dianna T. Kenny, and Paul Nelson, "Substance Use and Treatment Seeking in Young Offenders on Community Orders," *Journal of Substance Abuse Treatment*, Vol. 31, Issue 4, 2006, pp. 425–432.
- Lind, Bronwyn, Shuling Chen, Don Weatherburn, and Richard Mattick, "The Effectiveness of Methadone Maintenance Treatment in Controlling Crime: An Australian Aggregate-level Analysis," *British Journal of Criminology*, Vol. 45, No. 2, 2005, pp. 201–211.
- Lynn, P., "The British Crime Survey Sample: A response to Elliott and Ellingworth," *Sociological Research Online*, Vol. 3, Issue 1, 1998.
- Lynn, P. and D. Elliot, *The British Crime Survey: A Review of Methodology*, National Centre for Social Research, London: Home Office, 2000.
- MacDonald, David, *Afghanistan's Hidden Drug Problem: The Misuse of Psychotropics*, Afghanistan Research and Evaluation Unit, Briefing Paper Series, 2008. Last accessed September 2009:  
[http://www.humansecuritygateway.info/documents/AREU\\_AfghanDrugUse.pdf](http://www.humansecuritygateway.info/documents/AREU_AfghanDrugUse.pdf)
- MacDonald, Ziggy, Louise Tinsley, James Collingwood, Pip Jamieson, and Stephen Pudney, *Measuring the Harm From Illegal Drugs Using the Drug Harm Index*, Home Office Online Report 24/05, London: Home Office 2005. Last accessed 2009:  
<http://www.homeoffice.gov.uk/rds/pdfs05/rdsolr2405.pdf>
- Magura, S. and S. Y. Kang, "Validity of self-reported drug use in high-risk populations: a meta-analytical review", *Substance Use and Misuse*, Vol. 31, No. 9, 1996.
- Marsh, Kevin and Chris Fox, "The benefit and cost of prison in the UK. The results of a model of lifetime re-offending," *Journal of Experimental Criminology*, Vol. 4, No. 4, 2008
- Matrix Knowledge Group, *The Illicit Drug Trade in the United Kingdom*, Home Office Online Report 20/07. London: Home Office, 2007.
- Matthews, A., R. Bruno, J. Johnson, E. Black, L. Degenhardt, and M. Dunn, "Factors Associated With Driving Under the Influence of Alcohol and Drugs Among an Australian Sample of Regular Ecstasy Users," *Drug and Alcohol Dependency*, Vol. 100, Nos. 1–2, 2009, pp. 24–31.

- Mattick, R., C. Breen, J. Kimber, and M. Davoli, "Methadone maintenance therapy versus no opioid replacement therapy for opioid dependence," *Cochrane Database of Systematic Reviews* Vol. 3, 2009
- Mazerolle, L. A., D. W. Soole, and S. Rombouts, "Street-level Drug Law Enforcement: A Meta Analytic Review," *Journal of Experimental Criminology*, Vol. 2, No. 4, 2007, pp. 409–435.
- McCrystal, Patrick, Andrew Percy, and Kathryn Higgins, "Exclusion and Marginalisation in Adolescence: The Experience of School Exclusion on Drug Use and Antisocial Behaviour," *Journal of Youth Studies*, Vol. 10, No. 1, 2007, pp. 35–54.
- McCrystal, Patrick, Kathryn Higgins, and Andrew Percy, "Substance Abuse Among 12 and 13-year-old Young People in Belfast at High Risk of Developing Problem Drug Use," *Child Care in Practice*, Vol. 11, No. 3, 2005, pp. 313–321.
- Mcintosh, J., M. Bloor, and M. Robertson, "Drug Treatment and the Achievement of Paid Employment," *Addiction Research & Theory*, Vol. 16, 2008, pp. 37-45.
- Mckeganey, N., M. Bloor, M. Robertson, J. Neale and J. Macdougall, "Abstinence and Drug Abuse Treatment: Results from the Drug Outcome Research in Scotland Study," *Drugs-Education Prevention and Policy*, Vol. 13, 2006, pp. 537-550.
- Mckeganey, N., Z. Morris, J. Neale, M. Robertson, "What Are Drug Users Looking for When They Contact Drug Services: Abstinence or Harm Reduction?" *Drugs-Education Prevention and Policy*, Vol. 11, 2004, pp. 423-435.
- McSweeney, T., A. Stevens, N. Hunt, and P. J. Turnbull, "Twisting arms or a helping hand?: Assessing the impact of "coerced" and comparable "voluntary" drug treatment options," *British Journal of Criminology*, Vol. 47, No. 3, 2007, pp. 470–490.
- McSweeney, T., P. Turnbull, and M. Hough, *The treatment and supervision of drug-dependent offenders: A review of the literature*, London: UK Drug Policy Commission, 2008.
- Mitchell, Ojmarrh, David B. Wilson and Doris L. MacKenzie, "Does incarceration-based drug treatment reduce recidivism? A meta-analytic synthesis of the Research," *Journal of Experimental Criminology*, Vol. 3, No. 4, 2007
- Meier, P. S., M. C. Donmall, and P. McElduff, "Characteristics of Drug Users Who Do or Do Not Have Care of Their Children," *Addiction*, Vol. 99, No. 8, 2004, pp. 955–961.
- Monitoring the Future Survey, Homepage: Last accessed September 2009:  
<http://monitoringthefuture.org/>
- Moos, R., J. Schaefer, J. Andrassy, B. Moos, "Outpatient Mental Health Care, Self-help Groups, and Patients' One-year Treatment Outcomes," *Journal of Clinical Psychology*, Vol. 57, 2001, pp. 273–287.
- Morris, Z. S. and M Gannon, "Drug Misuse Treatment Services in Scotland: Predicting Outcomes," *International Journal for Quality in Health Care*, Vol. 20, 2008, pp. 271-276.
- Morrall, A., D. McCaffrey, and S. Paddock, "Reassessing the Marijuana Gateway Effect," *Addiction*, Vol. 97, 2002, pp. 1493–1502.

- Murphy, R., and S. Roe, *Drug Misuse Declared: Findings from 2006/07 British Crime Survey, England and Wales*, Home Office Report 18/07, London: Home Office, 2007.
- National Collaborating Centre for Drug Prevention, *Annual Review of Drug Prevention*, Liverpool: National Collaborating Centre for Drug Prevention, 2006.
- NCCDP – see National Collaborating Centre for Drug Prevention
- Neale, J., “Homelessness amongst drug users: a double jeopardy explored,” *International Journal of Drug Policy*, Vol. 12, No. 4, 2001, pp. 353-369.
- Nicosia, Nancy, Rosalie Liccardo Pacula, Beau Kilmer, Russell Lundberg, James Chiesa, *The Economic Cost of Methamphetamine Use in the United States, 2005 - MG*, Santa Monica CA: RAND, 2009.
- NICE, *Community-based Interventions to Reduce Substance Misuse Among Vulnerable and Disadvantaged Children and Young People*, London: National Institute for Health and Clinical Excellence, 2007a.
- NICE, *Drug Misuse: Psychosocial Interventions*, Clinical Guideline 51, London: National Institute for Health and Clinical Excellence, 2007b.
- NICE, *Methadone and Buprenorphine for the Management of Opioid Dependence*, NICE Technology Appraisal Guidance 114, London: National Institute for Health and Clinical Excellence, 2007c.
- National Survey of Drug Use and Health, Homepage: Last accessed September 2009: <https://nsduhweb.rti.org/>
- National Treatment Agency (NTA), Explaining the Tier System  
As of 07 September 2009: [http://www.nta.nhs.uk/about\\_treatment/the\\_tier\\_system.aspx](http://www.nta.nhs.uk/about_treatment/the_tier_system.aspx)
- National Treatment Agency, *Drug Misuse and Dependence: UK Guidelines on Clinical Management*, London: National Treatment Agency, 2007.
- National Treatment Agency, *Models of Care for Treatment of Adult Drug Misusers: Update 2006*, London: National Treatment Agency, 2006.
- NTA – see National Treatment Agency
- Office of National Drug Control Policy, *What America's Users Spend on Illicit Drugs 1988–2000*, Washington, DC: Executive Office of the President, 2001.
- Okulicz-Kozaryn, Katarzyna, and Janusz Sierosławskia, “Validation of the ‘Problematic use of Narcotics’ (PUN) Screening Test for Drug Using Adolescents,” *Addictive Behaviors*, Vol. 32, No. 3, 2007, pp. 640–646.
- Office of National Statistics and Department of Health, *Statistics from the Regional Drug Misuse Databases for Six Months ending March 2000*, London: Office for National Statistics and Department of Health, 2002.
- Otero-Lopez, J.M., A. Luengo-Martin, L. Miron-Redondo, M. T. Carillo-de-la-Pena, E. Romero-Trinanes, “An empirical study of the relations between drug abuse and delinquency among adolescents,” in *British Journal of Criminology*, Vol. 34, No. 4, Autumn 1994.

- Pacula, R. L., *Adolescent Alcohol and Marijuana Consumption: Is There Really a Gateway Effect?* Working Paper 6348, Cambridge, MA: National Bureau of Economic Research, Inc., 1998.
- Pacula, R. L., M. Grossman, F. Chaloupka, P. O'Malley, L. Johnston, and M. Farrelly, *Marijuana and Youth*, NBER Working Paper No. W7703, Cambridge, MA: National Bureau of Economic Research, Inc., 2000.
- Pacula, R. Liccardo, S. Hoorens, B. Kilmer, P. Reuter, J. Burgdorf, and P. Hunt, *Issues in Estimating the Economic Cost of Drug Abuse in Consuming Nations: Report 3*, TR-709-EC, Santa Monica, CA: RAND Corporation, 2009.
- Patton G, C. Coffey, L. Degenhardt, M. Lynskey and W. Hall, "Cannabis use and mental health in young people: cohort study," *British Medical Journal* Vol. 325, 2002, pp. 1195–1198.
- Payne, J., "Women Drug Users in North Cumbria: What Influences Initiation Into Heroin in this Non-Urban Setting?" *Sociology of Health and Illness*, Vol. 29, No. 5, 2007, pp. 633–655.
- Percy, Andrew, Maeve Thornton, Patrick McCrystal, "The Extent and Nature of Family Alcohol and Drug Use: Findings from the Belfast Youth Development Study," *Child Abuse Review*, Vol. 17, 2008, pp. 371-386
- Perry, A., S. Coulton, J. Glanville, C. Godfrey, J. Lunn, C. McDougall, and Z. Neale, "Interventions for Drug-using Offenders in the Courts, Secure Establishments and the Community," *Cochrane Database of Systematic Reviews*, Vol. 3, 2006.
- Peters, L., and R. Walker, *Rapid Assessment of Powers to Close Crack Houses*, Home Office Development and Practice Report No. 42, London: Home Office, 2005.
- Pokhrel, P., Steve Sussman, Louise Ann Rohrbach, and Ping Sun, "Prospective Associations of Social Self-Control With Drug Use Among Youth From Regular and Alternative High Schools," *Substance Abuse Treatment, Prevention, and Policy*, Vol. 2, 2007, p. 22.
- Prendergast, M. L., E. A. Hall, H. K. Wexler, G. Melnick, and Y. Cao, "Amity Prison-based Therapeutic Community: Five-year Outcomes," *The Prison Journal*, Vol. 84, No. 1, 2004, pp. 36–60.
- Prime Minister's Strategy Unit, *Drugs Report, Phase 1 Report: Understanding the Issues*, London: Cabinet Office, 2003a.
- Prime Minister's Strategy Unit, *Drugs Report, Phase 2 Report: Diagnosis and Recommendations*, London: Cabinet Office, 2003b.
- Pudney, Stephen, Celia Badillo, Mark Bryan, Jon Burton, Gabriella Conti, and Maria Iacovou, "Estimating the Size of the UK Illicit Drug Market," in Nicola Singleton, Rosemary Murray, and Louise Tinsley, eds., *Measuring Different Aspects of Problem Drug Use: Methodological Developments*, 2nd ed., London: Home Office, 2006.
- Pudney, S. *Drug Policy- What should we do about cannabis?* Economic Policy, Forty-Ninth Panel Meeting, Brussels, 2009.

- PwC Government and Public Sector Consulting, *Report to the Department of Health and Ministry of Justice Review of Prison-Based Drug Treatment Funding*, London: PricewaterhouseCoopers, 2007.
- Ramsay, M., *Prisoners' Drug Use and Treatment: Seven Research Studies*, Home Office Research Study 267, London: Home Office, 2003.
- Randall, G., and Drugscope, *Drug Services for Homeless People: A Good Practice Guide*, London: Office of the Deputy Prime Minister, 2002.
- Rehm, J., R. Room, W. van den Brink and L. Kraus, "Problematic Drug Use and Drug Use Disorders in EU Countries and Norway: An Overview of the Epidemiology," *European Neuropsychopharmacology*, Vol. 15, No. 4, 2005, pp. 389–397.
- Reuter, P., F. Trautmann, R. L. Pacula, B. Kilmer, A. Gageldonk, and D. van der Gouwe, *Assessing Changes in Global Drug Problems, 1998–2007*, Santa Monica, CA: RAND and Utrecht: Trimbos Institute Report for the European Commission, 1998–2007.
- Reuter, Peter and Harold Pollack, "How Much Can Treatment Reduce National Drug Problems?," *Addiction*, Vol. 101, No. 3, 2006, pp. 341–347.
- Roxburgh, Amanda, Louisa Degenhardt, Jan Copeland, and Briony Larance, "Drug Dependence and Associated Risks Among Female Street-Based Sex Workers in the Greater Sydney Area, Australia," *Substance Use & Misuse*, Vol. 43, Nos. 8–9, 2008, pp. 1202–1217.
- Rubin, J., L. Rabinovich, M. Hallsworth, E. Nason, *Interventions to Reduce Anti-social Behaviour and Crime: a Review of Effectiveness and Costs*, TR-448-NAO, Santa Monica, CA: RAND Corporation, 2006
- Saffer, H. and F. Chaloupka, "The Demand for Illicit Drugs," *Economic Inquiry*, Vol. 37, 1999
- Seddon, Toby, "Drugs, Crime and Social Exclusion: Social Context and Social Theory in British Drugs-Crime Research," *British Journal of Criminology*, Vol. 46, No. 4, 2006, pp. 680–703.
- Simoens, S., C. Matheson, K. Inkster, A. Ludbrook, and C. Bond, *The Effectiveness of Treatment for Opiate Dependent Drug Users: An International Systematic Review of the Evidence*, Aberdeen: Effective Interventions Unit, Scottish Executive Drug Misuse Research Programme, 2002.
- Singleton, Nicola, Rosemary Murray, and Louise Tinsley, eds., *Measuring Different Aspects of Problem Drug Use: Methodological Developments*, 2nd ed., London: Home Office, 2006.
- Sipe, J. C., J. Waalen, A. Gerber, and E. Beutler, "Overweight and Obesity Associated With a Missense Polymorphism in Fatty Acid Amide Hydrolase (FAAH)," *International Journal of Obesity*, Vol. 29, No. 7, 2005, pp. 755–759.
- Skodbo, S., G. Brown, S. Deacon, A. Cooper, A. Hall, T. Millar, J. Smith, and K. Whitham, *The Drug Interventions Programme (DIP): Addressing Drug Use and Offending Through "Tough Choices"*, Home Office Research Report 2, London: Home Office, 2007.



Serious Organised Crime Agency (SOCA), *UK Threat Assessment 2006/07*, London, Serious and Organised Crime Agency, 2007.

SOCA – see Serious Organised Crime Agency

Stallwitz, F., and H. Stover, “The Impact of Substitution Treatment in Prisons: A Literature Review,” *International Journal of Drug Policy*, Vol. 18, No. 6, 2007, pp. 464–474.

Stead, M., B. Stradling, A. MacKintosh, M. Macneil, S. Minty and D. Eadie, *Delivery of the Blueprint Programme*, Stirling: University of Stirling and the Open University, Institute of Social Marketing, 2007

Stevens, A., M. Trace, and D. Bewley-Taylor D, *Reducing Drug Related Crime: An Overview of the Global Evidence*, Report 5, Oxford: The Beckley Foundation Drug Policy Programme, 2005.

Stevens, S. J., and N. Arbiter, “A Therapeutic Community for Substance-abusing Pregnant Women and Women with Children: Process and Outcome,” *Journal of Psychoactive Drugs*, Vol. 27, No. 1, 1995 pp. 49–56.

Story, A., S. Murad, W. Roberts, M. Verheyen, and A. C. Hayward, “Tuberculosis in London: The Importance of Homelessness, Problem Drug Use and Prison,” *Thorax*, Vol. 62, No. 8, 2007, pp. 667–671.

Stradling, R., M. MacNeil, W. Cheyne, J. Scott and S. Minty, *Delivering drug education in the classroom – lessons from the Blueprint Programme*. Edinburgh: University of Edinburgh, School of Education, 2007 Street, K., G. Whitlingum, P. Gibson, P. Cairns, and M. Ellis, “Is Adequate Parenting Compatible With Maternal Drug Use? A 5-year Follow-up,” *Child: Care, Health and Development*, Vol. 34, No. 2, 2008, pp. 204–206.

Substance Abuse and Mental Health Services Administration, Office of Applied Studies (2008). *Results from the 2007 National Survey on Drug Use and Health: National Findings* (NSDUH Series H-34, DHHS Publication No. SMA 08-4343). Rockville, MD.

Sullivan, M. D., M. J. Edlund, D. Steffick, and J. Unützer, “Regular Use of Prescribed Opioids: Association with Common Psychiatric Disorders,” *Pain*, Vol. 119, Nos. 1–3, 2005, pp. 95–103.

Sullivan, M. D., M. J. Edlund, L. Zhang, J. Unützer, and K. B. Wells, “Association Between Mental Health Disorders, Problem Drug Use, and Regular Prescription Opioid Use,” *Archives of Internal Medicine*, Vol. 166, 2006, pp. 2087–2093.

Sullivan, Terrin, Albert D. Farrell, and Wendy Kilmer, Peer victimization in early adolescence: Association between physical and relational victimization and drug use, aggression, and delinquent behaviors among urban middle school students, *Development and Psychopathology*, Vol. 18, 2006, pp. 119-137

Sumnall, H., L. Jones, K. Burrell, K. Witty, J. McVeigh and M. Bellis, *Annual Review of Drug Prevention*, Liverpool: National Collaborating Centre for Drug Prevention, Centre for Public Health, Liverpool John Moores University, 2006

Swann, R., and P. James, "The Effect of the Prison Environment Upon Inmate Drug Taking Behaviour," *Howard Journal*, Vol. 37, No. 3, 1998, pp. 252–265.

Tilley, Nick, Jonathan Smith, Stephen Finer, Rosie Erol, Corrine Charles, and John Dobby, *Problem-solving Street Crime: Practical Lessons from the Street Crime Initiative*, London: Home Office, 2004.

Tompkins, Charlotte N. E., Nat. M. J. Wright, Laura Sheard, and Victoria L. Allgar, "Associations Between Migrancy, Health and Homelessness: A Cross-Sectional Study," *Health and Social Care in the Community*, Vol. 11, No. 5, 2003, pp. 446–452.

Trujillo, K. A., E. Castañeda, D. Martínez, and G. González, "Biological Research on Drug Abuse and Addiction in Hispanics: Current Status and Future Directions," *Drug and Alcohol Dependency*, Vol. 84, Suppl. 1, 2006, pp. S17–S28.

Tsao, Jennie C. I., Judith A. Stein, and Aram Dobalian, "Pain, Problem Drug Use History, and Aberrant Analgesic Use Behaviors in Persons Living with HIV," *Pain*, Vol. 133, Nos. 1–3, 2007, pp. 128–137.

United Nations Office on Drugs and Crime (UNODC), *World Drug Report*, Vienna: United Nations Office on Drugs and Crime, 2004.

UNODC – see United Nations Office on Drugs and Crime

Vaissade, L., and S. Legleye, "Capture–recapture Estimates of the Local Prevalence of Problem Drug Use in Six French Cities," *European Journal of Public Health*, Vol. 19, No. 1, 2009, pp. 32–37.

Valentine, K., and S. Fraser, "Trauma, Damage and Pleasure: Rethinking Problematic Drug Use," *International Journal of Drug Policy*, Vol. 19, Issue 5, 2008, pp. 410–416.

van Ours, J. and J. Williams, "Cannabis prices and dynamics of cannabis use," Vol. 26, No. 3, 2007, pp. 578–596.

Ward, Jenni, Zoë Henderson, and Geoffrey Pearson, *One Problem Among Many: Drug Use Among Care Leavers in Transition to Independent Living*, London: Home Office, 2003.

Weaver, T., P. Madden, V. Charles, G. Stimson, A. Renton, P. Tyrer, T. Barnes, C. Bench, H. Middleton, N. Wright, S. Paterson, W. Shanahan, N. Seivewright, and C. Ford, "Comorbidity of Substance Misuse and Mental Illness in Community Mental Health and Substance Misuse Services," *British Journal of Psychiatry*, Vol. 183, Oct. 2003, pp. 304–313.

Weaver, T., G.V. Stimson, P. Tyrer, T. Barnes. and A. Renton, "What are the implications for clinical management and service development of prevalent co-morbidity in UK mental health and substance misuse treatment populations?" *Drugs: Education, Prevention and Policy*, Vol. 11, No. 4, 2004, pp. 329–348.

World Health Organisation (WHO), *The Effectiveness of a Brief Intervention for Illicit Drugs Linked to the Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) in Primary Health Care Settings: A Technical Report of Phase III Findings of the WHO ASSIST Randomized Controlled Trial*, Geneva: Department of Mental Health and Substance Abuse, World Health Organization, 2008.

WHO – see World Health Organisation

Willner, P., “A View Through the Gateway: Expectancies as a Possible Pathway from Alcohol to Cannabis,” *Addiction*, Vol. 96, No. 5, 2001, pp. 691–703.

Willner, P., “Further Validation and Development of a Screening Instrument for the Assessment of Substance Misuse in Adolescents,” *Addiction*, Vol. 95, No. 11, 2000, pp. 1691–1698.

Wilson, D., C. Sharp, and A. Patterson, *Young People and Crime: Findings from the 2005 Offending, Crime and Justice Survey*, Home Office Statistical Bulletin 17/06, London: Home Office, 2006.

Wincup, Emma Gemma Buckland, and Rhianon Bayliss, *Youth Homelessness and Substance Use: Report to the Drugs and Alcohol Research Unit*, Home Office Findings Brief, London: Home Office, 2003.

Zabransky, Tomas, Methamphetamine in the Czech Republic, *Journal of Drug Issues*, Vol. 37, No. 1, 2007, pp. 155-180

Zarkin, Gary A., Laura J. Dunlap, Jeremy W. Bray, and Wendee M. Wechsberg, “The Effect of Treatment Completion and Length of Stay on Employment and Crime in Outpatient Drug-free Treatment,” *Journal of Substance Abuse Treatment*, Vol. 23, Issue 4, 2002, pp. 261–271.



## **APPENDIX**

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## Appendix A: Methodology and approach

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This study has two main parts:

1. A review of the literature on “Problem Drug Use”, both in the UK and internationally. This includes both academic publications, and non-peer reviewed documents (Work Stream 1). The purpose of this review was to establish the range of definitions in use and the issues connected with using such a definition.
2. A review of the UK Drugs Strategy 2008 strategy document itself, including an assessment of the evidence outlined in Appendix 5, and the internal consistency of the proposals outlined within it (Work Stream 2). The assessment of the evidence base is intended to establish whether citations (of evidence, findings and qualifications) to the empirical literature and references to publicly-available data broadly agree with the original sources, whether the sample properties, statistical treatment, etc. take due account of differences (if any) between the studied population and that addressed by the Drugs Strategy, and whether the cited sources are broadly representative (in terms of evidence, findings and qualifications) with a broader sample of empirical analyses and data sources covering the areas identified in Annex 5 of the Drugs Strategy document.

In this appendix to the report, we describe the approach taken to research under each stream, outlining sources, key search terms and criteria for study inclusion and exclusion.

### 4.1 Work Stream 1

The first Work Stream involved:

1. A conceptual synthesis<sup>33</sup> of the peer-reviewed literature on “Problem Drug Use” and “Problematic Drug Use” both internationally and in the UK;
2. A review of grey literature on “Problem Drug Use” and “Problematic Drug Use” published in the UK by a range of government departments and organisation’s engaged with drugs policy issues.
3. Focused review of literature selected by the team’s internal drug experts in areas most relevant to the particular concerns of the Drug Strategy, including most

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<sup>33</sup> The term conceptual synthesis is described by Nutley et al (2002) as focused reviews that allow researchers to build an understanding of the use of a term, the “main ideas, models and debates” (p.1).

significant costs and harms associated with prevention, treatment and disruption of illicit drug markets.

### **Reviews of the peer-reviewed literature**

Based on the NAO commissioning team's specification and focus in their work the terms "Problem Drug Use" and "Problematic Drug Use" were the key search terms. The scope was limited to papers published from 1990, with a particular emphasis on more recent papers given the particular interest in understanding current usage of the term problem drug use for research and policy.

We conducted a bibliographic database search that includes the following databases:

- ASSIA: Applied Social Science Index and Abstracts
- Criminal Justice Abstracts
- EconLit
- PubMed
- CSA Worldwide Political Science Abstracts and CSA Sociological Abstract.

To ensure a range of disciplines and interests were covered we supplemented this search with a more detailed review of publications selected for variation. There were:

*Addiction, British Journal of Criminology, Drug and Alcohol Review, European Journal of Crime, Criminal Law and Criminal Justice, European Journal of Criminology, International Journal of Drug Policy, Journal of European Public Policy and Journal of European Social Policy.*

To be selected for the review, paper had to be empirical studies, systematic reviews of empirical studies, or meta-analyses, published after 1990 and written in English. A total of 48 papers from the peer review literature, and 39 from the non-peer review literature have been selected for inclusion in the study.

### **Reviews of the non-peer reviewed literature**

Our search also included non-peer reviewed literature to a range of UK-based sources in the field of drugs research. First on identifying government departments and agencies, as well as independent bodies, most directly involved in drugs policy issues in the UK, and then conducting searches of the publications held on their websites, using "problem drug use" and "problematic drug use" as the key search words.

- Advisory Council on the Misuse of Drugs
- Association of Chief Police Officers
- Audit Commission
- British Psychological Society and Royal College of Psychiatrists
- Cabinet Office Social Exclusion Task Force
- Cabinet Office Strategy Unit
- Department for Children, Schools and Families
- Department for Transport



- Department for Work and Pensions
- Department of Health
- Drugs and International Crime Department (FCO)
- Health Protection Agency (HPA)
- Healthcare Commission
- HM Prison Service
- HM Revenues and Customs
- Home Office
- Ministry of Justice
- National Audit Office
- National Collaborating Centre for Drug Prevention
- National Institute for Health and Clinical Excellence (NICE)
- National Investigation Service
- National Policing Improvement Agency
- National Treatment Agency (NTA)
- Police and Crime Standards Directorate
- Serious and Organised Crime Agency

### **Classifying evidence from the papers**

We used a range of criteria to classify papers as part of the review process. For both the scholarly literature and non-peer reviewed publications, papers are classified and their contents described according to the following criteria, including especially definition of “Problem Drug Use” used (e.g. does the definition depend on the *method* of consumption, or the *frequency* of drug use?) but also sample demographics (e.g. age, education, gender); type of drug described (e.g. any drug, specific drugs, polydrug use or injecting use); harms considered (e.g. individual health, drug treatment, lost productivity and schooling, general crime, general societal effects – including those on children and public safety); measurement of harms, including the sampling frame (e.g. self-reported survey, convenience sample, representative sample, etc.); data source and validation (the principal concern being whether specific biases in the datasets used were identified, and how the study authors corrected for them); details of the study methodology; key assumptions and limitations (e.g. coverage, completeness, length of time series); and main findings.

This categorisation of the reviewed literature provided an overview of the main preoccupations of the various literatures as discussed in Chapter 2 (work stream 1).

### **Limitations**

Our aim was to survey and develop a conceptual synthesis of the way the terms “problem drug use” and “problematic drug use” are used across a range of academic disciplines, within the UK and internationally, and by formal UK-organisations with an interest in drug policy. There are however limitations. Our review was not comprehensive in terms of time, language or databases searched. Given the aim of the search and the tight parameters around the search terms, papers may be excluded that address drugs and harms that might

fit with current usage of the term “problem drug use” but which do not explicitly use that term to describe them.

## 4.2 Work Stream 2

The second Work Stream involved:

1. A review of the robustness of evidence and the use of this evidence in *Appendix 5* of the Strategy;
2. A review of local delivery strategies and plans for the relevant departments.

In order to review the evidence base underpinning the new National Drugs Strategy, this Work Stream examines *Appendix 5* of the Strategy.

### Staged Approach

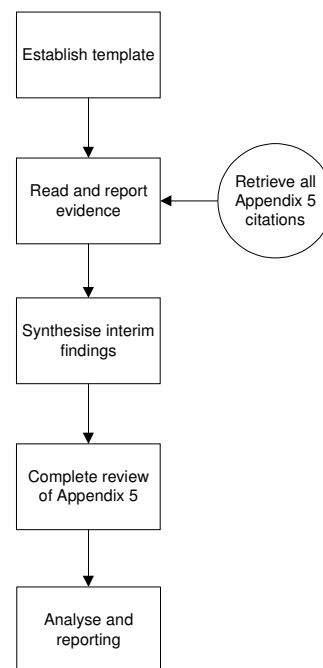
This Work Stream was developed through a series of tasks and constant involvement of experts over five stages:

- Stage 1. Template development; evidence acquisition
- Stage 2. Read evidence and populate template
- Stage 3. Synthesis
- Stage 4. Complete *Appendix 5* review
- Stage 5. Analysis and reporting

The first stage involved establishing a framework to assess the reliability, accuracy and quality of evidence used in *Appendix 5* and to assess the way in which the evidence was used in the Strategy. The framework includes a template based on the following questions:

- Does the cited evidence match the source reference?
- Do findings and citations accurately convey the findings and limitations noted in the source?
- Are the details of cited sources representative of the UK situation (and specified populations)? If not, are the differences likely to be significant?
- Do the cited sources provide a representative sample of data and empirical findings pertaining to the specific issues covered? If not, is the cited sample more aligned with the UK situation than the wider evidence base?

The template was developed by the research team. The evidence was divided into two categories - ‘*Appendix 5*’ and ‘Raw data’ templates - differentiated by the specific meaning of robustness and how the Strategy could be expected to use evidence. During this process, a research assistant located all pieces of evidence cited in *Appendix 5*. Variables included in each template included, but are not limited to:



Robustness of Evidence		Use of Evidence
<b>'Appendix 5' template</b>		
Sample demographics	Data validation	What section of Strategy?
Type of drug	Methodology	What the evidence supports (in the strategy)?
Problem drug use definition	Key assumptions	Can find evidence within the cited document?
Harms considered	Limitations	Apparent gaps in this evidence
Sampling frame	Main finding (in the study)	
Data source		
<b>'Raw Data' template</b>		
Reporting units	Number of observations	What section of Strategy?
Frequency	Sampling method	What the evidence supports (in the strategy)?
Date range (of fieldwork)	Data collection method	Can find evidence within the cited data set?
Countries covered	Availability	Apparent gaps in this evidence
Population covered	Drug-related questions	
Time dimension	Specific PDU questions	

The team then carried out a 'pilot test' by populating the template with a small sample of evidence. In consultation with project leaders, necessary revisions and/or clarifications were identified and implemented. One adjustment was made to the template to indicate whether statements provided in the Strategy (and cited) were found in the cited piece of evidence. The final template was approved for continuation of the assessment.

In the second stage, researchers read the evidence and populated 'Appendix 5' template. In reading the evidence, the team discussed interim findings and their contexts. Key pieces of evidence were then reviewed to identify statistical and analytic issues bearing on the robustness and interpretation of the results.

During the third stage the team prepared and discussed a synthesis of interim findings. In part, this stage was intended to ensure key milestones were being reached.

The interim findings were then prepared for a headlines presentation to the NAO. This meeting confirmed the work met the needs of the NAO and established future tasks in the project. This meeting identified three key questions that still needed to be addressed going forward:

- Is the strategy well informed (draws on solid evidence and drew widely/appropriately in determining its scope)?
- Will it work and usefully inform delivery bodies given what we know about problem drug use and the problems associated with drug use?
- Is it implementable given the delivery partners' understandings, capabilities, capacity, etc?

To address these questions, the next steps were to triangulate findings of WS2 with other literature and with WS1, as well as reviewing the local delivery literature.

The fourth stage involved several tasks related to completing the entire review of *Appendix 5* evidence and its use in the Strategy. The findings from the review of and use of evidence in *Appendix 5* were submitted to project expert advisors<sup>34</sup> to identify gaps in the evidence and questions or concerns regarding findings. Analysts populated the 'Raw data' template

<sup>34</sup> Jonathan Cave, Rosalie Liccardo Pacula, and Beau Kilmer

with information on data sets used in the Strategy and review the use of those data sets in the Strategy.

It was initially envisaged that we would review departmental documents on local delivery but these did not exist in the form expected by the commissioning and research teams. We performed a scan of relevant government department websites (NTA, DCSF, DWP) to see if we could obtain information on local delivery and its relationship to the Strategy document. This brief scan did not return satisfactory results as virtually no publications referred explicitly to the Drug Strategy, making systematic attribution of existing delivery guidelines, plans and other documents to the Strategy impossible. It was concluded that the review of local delivery could therefore take place only at the level of consideration of the usefulness of the evidence base *Appendix 5* for informing those seeking to implement interventions and other aspects of local delivery.

The final stage was to analyse the complete set of findings regarding robustness of evidence, use of evidence and gaps in evidence in the *Appendix*.

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