

# Chapter 1 – Introduction

The use<sup>a</sup> of legal or illegal substances that are associated with pleasure, solace or relief from pain, but also have the potential of harm to health, is not a new phenomenon. These behaviours have long been accompanied by concerns about the potential impact on the individual and on society.

As discussed in **Chapter 5**, most of these substances have origins as medicines but have been, or are, used for other purposes. There have, historically, been waves of medical enthusiasm for particular psychoactive substances, which have often been adopted for medical use on the premise that they solved the problems of the previous object of enthusiasm. Many then become new objects of illicit use.

Many different types of psychoactive drugs (see **Glossary**) are commonly used; these include alcohol and nicotine, illicit drugs (see **Glossary**)<sup>b</sup> such as cocaine or heroin, prescription drugs such as tranquillisers and over-the-counter (OTC) medications including codeine. The use of these drugs is not always harmful and, in the case of prescription and OTC drugs, they can dramatically improve health when used correctly. All types of drugs can and do cause harm to the health of some individuals, as well as affecting their family, friends and communities. The extent of harm depends on the type of drug, how it is used, and the social context within which it is used.

As this report notes, there is evidence that alcohol is the most harmful psychoactive drug, in terms of both harm to the individual and harm to others, although there has been much debate about how these harms are measured (see **Section 3.4**).<sup>1,2</sup> The damaging effects of nicotine when used in the form of smoked tobacco are also well known (see **Section 3.2**).<sup>1</sup> Their use in the UK is subject to a regulatory framework that covers various aspects of production, supply and consumption. The BMA has a long history of supporting comprehensive tobacco control measures and policies to reduce alcohol-related harm. While this report makes several references to alcohol and tobacco use, its purpose is to consider illicit drugs and the reader is referred to more detailed information about alcohol and tobacco use that can be accessed from the BMA website.

Alcohol, nicotine and other drugs are available in the UK under various forms of legal regulation (see **Glossary**), and are an accepted part of the social norm. By contrast,

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a Given the scientific and legal ambiguity regarding the distinctions between 'use', 'misuse' and 'abuse', only the neutral term 'use' is used in this report (see **Glossary** for further discussion of these different terms).

b An overview of the effects and addictiveness of commonly used illicit drugs is provided in **Appendix 2**.

the use of illicit drugs – those controlled under the Misuse of Drugs Act 1971 (see **Section 1.2**) – is regulated through prohibition (see **Glossary**). Their possession is a criminal offence and users are commonly portrayed as a menacing scourge on society, despite the fact that alcohol has been shown to be at least as harmful as commonly used illicit drugs (see **Section 3.2** and **Figure 3**).<sup>1,2</sup> This demonisation, coupled with the prohibitionist approach to regulation, is argued by many to be counterproductive to reducing the harms caused by illicit drug use (see **Chapter 6**).

The BMA, through its Board of Science, has a long history supporting the development of policies to reduce and prevent the harms associated with drug use and drug control policies.<sup>c</sup> In January 2011, the Board agreed to undertake a review of the role of the medical profession in preventing and reducing these harms, based on an independent and objective review of the evidence. This report aims to encourage debate on this important topic by considering the strengths and weaknesses of current policy and practice for the prevention, control and treatment of illicit drug use. It also considers what the medical profession can do to improve policy and practice. This report is intended for a wide audience, including medical professionals, policy makers, legislators, service providers, the police, the legal profession and academics with a particular interest or expertise in this area.

The initial chapters examine the scale of the problem (**Chapter 2**), the harms associated with drug use, both for the individual user and for society (**Chapter 3**), and the influences on illicit drug use (**Chapter 4**).

Traditionally, the medical profession had a lead role in UK drug policy (see **Glossary**). Over the last few decades, policy has shifted towards a crime-prevention and law-enforcement issue. The development of drug policy in the UK is presented in **Chapter 5**.

It is important to distinguish harms associated with drug use per se from harms to the individual and to society associated with the prohibitionist legal framework surrounding drug use. **Chapter 6** reviews the evidence for the harms associated with the regulatory framework, for both individuals and society. It also presents the options for an alternative legal framework.

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<sup>c</sup> The BMA has published a number of reports on drug use, including: *The misuse of drugs* (1997),<sup>3</sup> which examined the range of policies for improving services for drug users in the UK; *Therapeutic uses of cannabis* (1997),<sup>4</sup> which considered the potential medicinal uses and benefits of cannabis and cannabinoids; *Adolescent health* (2003),<sup>5</sup> which examined the levels of drug use among adolescents in the UK and identified interventions to reduce its prevalence in this age group; *Over-the-counter medication* (2005),<sup>6</sup> which discussed the use of drugs bought over the counter without prescription; *Child and adolescent mental health* (2006),<sup>7</sup> which considered the link between substance use and mental health problems in young people; *Legalising illicit drugs: a signposting resource* (2006),<sup>8</sup> which examined the arguments for and against legalising illicit drugs; and *Driving under the influence of drugs* (2009),<sup>9</sup> which discussed the key issues related to drug-driving and ways to tackle this problem.

Interventions that prevent or delay initiation of drug use will reduce the harms associated with dependent use, and evidence for the effectiveness of such interventions is examined in **Chapter 7**.

The final chapters of this report examine the management of drug dependence as a medical issue. **Chapter 8** looks at the doctor's role in managing heroin addiction, while **Chapter 9** reviews the role of medical practitioners in the prevention and reduction of drug-related harm. Finally, **Chapter 10** looks at the management of illicit drug use in the context of criminal justice. By the time they come for treatment, many dependent drug users are socially marginalised, or in prison, and specific issues arise relating to coercion and consent to treatment in this vulnerable population. There may also be a blurring of the distinction between punishment and treatment. These issues are also considered in **Chapter 10**.

The medical profession has a vested interest in drug policy, because of the direct and indirect health and social harms caused by illicit drug use. It has a key role in supporting and treating the physical and mental health needs of drug users. Medical professionals are ideally placed to encourage a refocusing of debate on these important issues and to influence national and global drug policy. Their role in relation to illicit drug use, both as individuals and as a profession, is examined in the closing chapter of this report (**Chapter 11**).

## **1.1 Substance use as a medical disorder**

The use of psychoactive substances is well recognised across UK society. Such use is associated with a range of harms for some people, while for others there are few negative consequences. As discussed in **Section 3.3.7**, some psychoactive drugs, such as heroin, crack cocaine and methamphetamine, as well as alcohol and tobacco, are highly addictive, while others, such as cannabis and ecstasy are less so. The addictiveness (dependence potential – see **Glossary**) of different psychoactive drugs is presented in **Appendix 2**. Attitudes towards the acceptability of substance use vary widely, with particular debate regarding the concept of pathological substance use and a disease model for addiction. This section examines the evidence for considering harmful/dependent substance use as a medical disorder.

### **1.1.1 Background**

The historical response to harmful/dependent substance use is of interest. Internationally, different countries have either accepted a disease model and treated harmful/dependent users as patients, and/or used the judicial system as a means to define substance use primarily as a criminal activity. Often, particularly nowadays, national systems combine both disease and crime models.

The concept of addiction (see **Glossary**) as a disease was first widely discussed in the 19th century, in the context of alcohol use, and was later applied to the use of other psychoactive substances that have since been classified as illicit drugs. In 1924, against the background of international opiate prohibition developing since 1912 (see **Chapter 5**), the UK made a pioneering decision to support a disease model of addiction. Sir Humphrey Rolleston, then President of the Royal College of Physicians, chaired the Departmental Commission on Morphine and Heroin Addiction (commonly known as the Rolleston Committee), whose recommendations were accepted as Government policy. This committee described addiction as a disease and that those suffering with addiction should receive medical treatment rather than legal sanction.<sup>10</sup> The development of drug policy in the UK is discussed in more detail in **Chapter 5**.

### 1.1.2 Categories of use

One of the complications in understanding substance use is describing the way in which a particular substance is used. Broadly, use can be considered in terms of recreational use and pathological use.

#### Recreational use

Many people are able to use psychoactive substances in a recreational manner (see **Glossary**) that causes no problems to the individual or those around them. This pattern of use is usually characterised by moderate levels of consumption and periods when the person stops using the substance without difficulty.

#### Harmful, dependent and hazardous use

There are clear, internationally agreed frameworks for describing harmful and dependent patterns of substance use. These frameworks define a hierarchy of physical, psychological and social harm to the individual.

The World Health Organization (WHO) *International Classification of Diseases*, currently in its 10th edition (ICD-10),<sup>11</sup> is a diagnostic description of all diseases. Within the chapter on mental and behavioural disorders, a subchapter defines mental and behavioural disorders due to psychoactive substance use. It defines a number of categories including acute intoxication (see **Glossary**), harmful use, dependence and withdrawal. The level of harm caused by a particular pattern of substance use is defined by the categories 'harmful' and 'dependent'.

- **Harmful use:** a pattern of psychoactive substance use that is causing damage to health. The damage may be physical or psychological.

- **Dependent user:** dependence has both psychological and physiological elements. Psychological dependence involves a need (craving – see **Glossary**) for repeated doses of the drug to feel good, or avoid feeling bad. Physiological (physical) dependence is associated with tolerance (see **Glossary**), where increased doses of the drug are required to produce the effects originally produced by lower doses, and development of withdrawal syndrome (see **Glossary**) when the drug is withdrawn. Withdrawal syndrome is characterised by physiological and psychological symptoms that are specific to a particular drug. The term ‘dependence’ is often used interchangeably with ‘addiction’ (see **Glossary**). The ICD-10 uses the term ‘dependence syndrome’ (see **Glossary**), to describe a cluster of behavioural, cognitive and physiological phenomena in which the use of the substance or a class of substances takes on a much higher priority for a given individual than other behaviours that once had greater value, and the user may develop tolerance and a physical withdrawal reaction when drug use is discontinued. Specific diagnostic criteria for dependence syndrome are presented in **Box 1**.

#### **Box 1 – ICD-10 diagnostic criteria for dependence syndrome<sup>11</sup>**

A definite diagnosis of dependence should usually be made only if three or more of the following have been present together at some time during the previous year:

- a strong desire or sense of compulsion to take the substance
- difficulties in controlling substance-taking behaviour in terms of its onset, termination or levels of use
- a physiological withdrawal state when substance use has ceased or been reduced, as evidenced by the characteristic withdrawal syndrome for the substance, or use of the same (or a closely related) substance with the intention of relieving or avoiding withdrawal symptoms
- evidence of tolerance, such that increased doses of the psychoactive substance(s) are required in order to achieve effects originally produced by lower doses (clear examples of this are found in alcohol- and opioid-dependent individuals who may take daily doses that are sufficient to incapacitate or kill non-tolerant users)
- progressive neglect of alternative pleasures or interests because of psychoactive substance use; increased amount of time necessary to obtain or take the substance or to recover from its effects
- persisting with substance use despite clear evidence of overtly harmful consequences, such as harm to the liver through excessive drinking, depressive mood states consequent to periods of heavy substance use, or drug-related impairment of cognitive functioning; efforts should be made to determine that the user was actually, or could be expected to be, aware of the nature and extent of the harm.

The other major diagnostic framework, the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV) describes a similar disorder, using the terms 'abuse' and 'dependence'.<sup>12</sup>

WHO also uses the term 'hazardous use' to describe a pattern of substance use that increases the risk of harmful consequences for the user. In contrast to harmful use, hazardous use also refers to patterns of use that are of public health significance, despite the absence of any current disorder in the individual user. It is not used as a diagnostic term in the ICD-10.

These terms, and many others that are used throughout the report, are discussed in more detail in the **Glossary**.

### 1.1.3 Dependence as a brain disorder

#### The neurobiology of dependence

While there is compelling evidence to demonstrate a neurobiological underpinning to addictive behaviours,<sup>13</sup> the relationship between the brain elements of addiction and dependence and the characterisation of addiction and dependence at a behavioural level is unclear. Substances have been clearly shown to affect the brain in the short and longer term.<sup>14</sup>

In the short term, substances affect the brain through changing levels of neurotransmitters. Some substances (eg heroin, cannabis) mimic endogenous neurotransmitters, while others (eg cocaine, amphetamine) increase the availability of endogenous neurotransmitter to the brain, by either increasing neurotransmitter release or inhibiting its breakdown.

If a person uses substances over a longer period of time, the brain's structure and function begin to change, prompting behavioural changes in that individual.<sup>14</sup> The psychological effects of classical conditioning, as described in **Section 4.3.2**, are also likely to be involved in reinforcing continued drug use.

The prefrontal cortex area of the brain is particularly vulnerable to the effect of substances. This brain area is crucial for decision making, such as weighing up the pros and cons of a certain activity. Research suggests that the prefrontal cortex is one of the last brain areas to mature.<sup>15</sup> This may make adolescents who use psychoactive substances particularly vulnerable to poor decision making and impulsivity.<sup>16</sup>

### The role of dopamine

Dopamine is one of a number of neurotransmitters associated with addictive processes. It is a naturally occurring, 'feel good' neurotransmitter that is important in rewarding positive behaviours (eg eating, drinking). Some psychoactive substances cause dopamine to be released rapidly and in huge quantities when compared to usual brain levels. Raised levels of dopamine in the mesolimbic system lead to intense feelings of pleasure, known to users as a 'high' (see **Glossary**).

If substance use persists, the brain responds to the dopamine overstimulation by decreasing the amount of dopamine produced and reducing the number of dopamine receptors (see **Glossary**) available. This, in turn, can lead to the user feeling emotionally flat and exhausted once the immediate effect of the drug has subsided. The user will often try to stimulate further additional dopamine release by using larger quantities of the substance. This is one of the mechanisms underpinning the clinical features of 'tolerance'.

The role of dopamine in the effect of psychoactive drugs is considered further in **Section 4.2.3** and **Section 4.3**.

### Genetics

There is strong evidence for a genetic component to dependence, provided by family, twin and adoption studies (see **Chapter 4**).<sup>17</sup> The evidence is particularly compelling for alcohol dependence. Although research suggests many genes may be involved,<sup>18</sup> there is evidence that a single genetic variant in the aldehyde dehydrogenase 2 gene impacts on patterns of drinking and the risk of dependence.<sup>19</sup> Individuals who are heterozygous for this gene are protected from the effects of heavy drinking, while a mutation in this gene, commonly found in individuals of Far-Eastern descent, causes a reduced ability to metabolise alcohol. The genetics of dependence is a rapidly developing area but, apart from the studies on the aldehyde dehydrogenase 2 gene, there is little immediate prospect of a breakthrough in genetics leading to improved patient care.

#### 1.1.4 The role of other factors

No single factor determines whether a person will harmfully or dependently use a particular substance. As described above, dependence can be considered primarily a brain disorder, but one that interacts with a range of predisposing, precipitating, perpetuating and protective factors.

These factors can best be described in a framework in which the biological, psychological and social components are identified. This is discussed in detail in **Chapter 4**.

Examples of biological factors include chronic pain, which can result in a person seeking pain relief through the use of psychoactive substances (eg alcohol, cannabis); or exposure to dependence-forming medications.

Psychological factors include comorbid mental health problems such as depression, psychosis and personality disorder. Traumatic events, such as childhood sexual abuse, may also increase a person's vulnerability to subsequent use of psychoactive substances. Social factors include the availability of a particular substance; the nature of, and support provided by, a person's social network; peer pressure; and environmental factors such as housing and employment.

A range of evidence-based treatments are available to help people with harmful/dependent substance use, and some of these are discussed in **Chapters 8 to 10**. Each individual is unique, and treatment of harmful/dependent use should be planned with a clear understanding of the predisposing and protective factors.

## 1.2 The legal framework for illicit drugs

The development of drug policy in the UK is discussed in detail in **Chapter 5**.

The principal legislation regulating the control and supply of illicit drugs in the UK is the Misuse of Drugs Act 1971. This Act classifies drugs into three groups according to the perceived level of harm; the Act itself does not specify how certain drugs should be classified, but created a review board, the Advisory Council on the Misuse of Drugs (ACMD), with this purpose.<sup>d</sup> The current classification of drugs and associated penalties is shown in **Table 1**.<sup>20</sup> It is important to note that some of these controlled drugs will also have clinical uses. **Appendix 2** gives further details about the nature and addictiveness of these drugs, and **Appendix 3** gives details of health-related harms associated with illicit drug use.

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<sup>d</sup> The ACMD makes recommendations to Government on the control of dangerous or otherwise harmful drugs, including classification and scheduling under the Misuse of Drugs Act 1971. These recommendations are non-binding, and have, on occasion, been ignored or rejected.

Table 1 – Classification of drugs and associated penalties for illicit (non-medical) use

Classification	Examples of drug type	Maximum penalty for possession	Maximum penalty for supply
<b>Class A</b>	Cocaine, crack cocaine, ecstasy (MDMA or 3,4-methylenedioxymethamphetamine), lysergic acid diethylamide (LSD), heroin, methadone, methamphetamine, phencyclidine (PCP), psilocybin (magic mushrooms)	Up to 7 years in prison or an unlimited fine, or both	Up to life in prison or an unlimited fine, or both
<b>Class B</b>	Amphetamines, cannabis, methylphenidate (Ritalin®), codeine, pholcodine	Up to 5 years in prison or an unlimited fine, or both	Up to 14 years in prison or an unlimited fine, or both
<b>Class C</b>	Tranquillisers, some painkillers, gamma-hydroxybutyrate (GHB), ketamine	Up to 2 years in prison or an unlimited fine, or both	Up to 14 years in prison or an unlimited fine, or both

Source: Science and Technology Committee. *Fifth Report of Session 2005-2006. Drug classification: making a hash of it?* HC 1031. London: The Stationery Office, 2006, p8.<sup>20</sup>

The Misuse of Drugs Act states that it is an offence to:

- possess a controlled substance unlawfully
- possess a controlled substance with intent to supply it
- supply or offer to supply a controlled drug (even if it is given away free)
- allow a house, flat or office to be used by people for taking drugs.

In December 2009, the following drugs (commonly known as 'legal highs' or 'novel psychoactive substances') were also brought under control of the Misuse of Drugs Act 1971:

- synthetic cannabinoid receptor (see **Glossary**) agonists (including herbal smoking mixes such as Spice) (Class B)
- gamma-butyrolactone (GBL) (Class C)
- 1-benzylpiperazine (BZP) and related piperazines (Class C)
- oripavine (Class C).

Mephedrone and related cathinone derivatives, as well as naphthylpyrovalerone analogues, were classified as Class B drugs in 2010. The Drugs Act 2005 amended the Misuse of Drugs Act 1971 and the Police and Criminal Evidence Act 1984, to increase the powers of the police and courts in relation to drug control (see **Glossary**). It includes stronger measures to allow police to test drug offenders on arrest rather than at the time of charging, and requires those testing positive to undergo treatment.

In July 2011, the Government announced a ban on the importation of phenazepam – a harmful drug advertised as producing a 'legal high' – as well as its intention to control it as a Class C drug in 2012.<sup>21</sup> In November 2012, following advice from the ACMD, the Home Office announced its intention to classify new synthetic cannabinoids (such as those sold under the name 'Black Mamba'), and methoxetamine (sold as Mexxy/MXE) and its related compounds, under the Misuse of Drugs Act 1971.<sup>22</sup> Methoxetamine has been subject to a Temporary Class Drug Order (TCDO) since March 2012,<sup>23</sup> and will remain under this regulation until its classification under the Misuse of Drugs Act 1971 is approved. It is important to emphasise that the development of new agents will inevitably run ahead of the Government's ability to amend the legislation.

International drug policy is regulated by three United Nations (UN) conventions: the 1961 Single Convention on Narcotic Drugs, as amended by the 1972 Protocol; the 1971 Convention on Psychotropic Substances; and the 1988 Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances (see **Box 2**). As of March 2011, 183 states, including the UK, are parties to all three conventions. It is worth noting that many provisions in national legislation are not required by these international drug control treaties.

## Box 2 – United Nations international drug control treaties

### Single Convention on Narcotic Drugs 1961

The 1961 convention established a single model for international drug control, binding parties to limit the production, manufacture, export, import, distribution of, trade in, use and possession of drugs derived from opium poppies, coca leaves or cannabis exclusively to '*medical and scientific purposes*'. Over 100 illicit substances are placed in four schedules, nominally based on their perceived harmfulness. Limited flexibility is allowed in the interpretation and implementation in many areas of the legislation, which has allowed countries to respond to their specific circumstances. Legalisation (see **Glossary**) of any narcotic drugs listed in the convention is prohibited, and harm-reduction measures to reduce drug-related problems have often been argued against by the International Narcotics Control Board (INCB), which is the independent body established to oversee the UN drug control conventions.

### Convention on Psychotropic Substances 1971

This convention was developed in response to increasing concern about emerging drugs and related behaviours during the 1960s, such as the use of amphetamine-like stimulants, barbiturates and other sedative-hypnotics/depressants, and hallucinogens. As with the 1961 convention, these drugs are classified into four schedules according to perceived harm and therapeutic value, with a corresponding hierarchy of controls to license medical, scientific or other uses. Market and trade controls and national requirements are less onerous than those under the Single Convention.

### Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances 1988

The 1988 convention strengthened the existing powers for prevention of international drug trafficking (including provisions against money laundering and the diversion (see **Glossary**) of precursor chemicals). It also included provisions to make the intentional possession, purchase or cultivation of narcotic drugs or psychotropic (see **Glossary**) substances for personal consumption a criminal offence under domestic law.

Source: [www.unodc.org](http://www.unodc.org) (accessed 1 October 2012).

## Summary

- Substance use describes a wide range of different patterns of use, from harmless recreational use to life-threatening dependence.
- There is evidence of a neurobiological underpinning to dependence, and an association between biological, psychological and social factors. These factors create a framework within which an individual's predisposing, precipitating, perpetuating and protective elements can be used to plan the most effective treatments.
- Drugs of dependence, such as alcohol and tobacco, are at least as harmful as some illicit drugs, and their use in the UK is subject to a regulatory framework that covers various aspects of production, supply and consumption.
- The Misuse of Drugs Act 1971 in the UK and the three international conventions on international drug policy, to which the UK is a party, classify illicit drugs according to their perceived level of harm, and regulate their control and supply. Possession, purchase or cultivation of illicit drugs is illegal and thus a criminal offence in the UK.
- The priority of the medical profession is to support and treat the physical and mental health needs of drug users and those affected by others' drug use.
- Medical professionals are ideally placed to encourage a refocusing of debate on issues relating to dependent drug use and to influence national and global drug policy.