

Room, R. (2006) Social policy and psychoactive substances. In: Nutt, D.J., Robbins, T.W., Stimson, G.V., Ince, M. & Jackson, A., eds. *Drugs and the Future: Brain Science, Addiction and Society*, pp. 337-359. London: Academic Press. Earlier version as:

<http://webarchive.nationalarchives.gov.uk/20121212135622/http://www.bis.gov.uk/assets/foresight/docs/brain-science/social-policy.pdf>

Social Policy and Psychoactive Substances

Robin Room
University of Stockholm

Executive summary

There are a number of strategies by which a society may seek to control psychoactive substances. One is control of availability, of which prohibition is the most extreme form. Others include education, public information and persuasion, environmental harm-reduction strategies, deterring behaviours connected with substance use, and the treatment of substance-use problems. It is possible to regulate the product, the provider or seller, the conditions of sale, or the buyer or consumer. There has been a wide diversity of rationales for governments seeking to control the supply and consumption of psychoactive substances.

Rankings of the risk or danger from different substances are reviewed. A ranking based on present levels of health harm puts tobacco and alcohol in the top two positions, but policy should take into account both present patterns of use and also the potential for harm under changed regimes. Alcohol and tobacco are undercontrolled and cannabis is overcontrolled in terms of what the relative ratings for heavy use patterns would support.

Other factors besides the substance itself influence the harm with which it is associated and should be taken into account in policies on substance use. They include the concentration of the substance, the mode of ingestion, and the location and circumstances of use.

The problems of substance use are felt most acutely at the local level, and there is a case for locating decisions on controls at local rather than universal levels. However, the globalisation of the current world puts limits on this approach.

In the context of western Europe, for alcohol, taxes (i.e., pushing up prices) are the most cost-effective strategy for reducing harm, followed by advertising bans, availability limits such as a weekend closing day, brief medical advice, and random traffic breath-tests. For tobacco, taxes (raising prices) are again the most cost-effective strategy, followed by an advertising ban, counteradvertising campaigns, bans on smoking in indoor public space, and nicotine replacement therapy.

Scenarios for the future include rethinking availability in terms of potential for harm. Obstacles to such recalibration include economic interests, international politics, and public attitudes. The coming into force of the Framework Convention on Tobacco Control can be expected to push forward the marginalisation of cigarette smoking. There is an urgent need for thinking and research on policies concerning alternative nicotine products, which offer substantial potential for reducing the harm related to nicotine use. Internationally, the same issues as for tobacco argue for the need for a Framework Convention on Alcohol Control. For cannabis, the long-term trend in Europe is towards a greater acceptance of recreational use.

Despite periodic fads and fashions, demand for psychoactive substances remains surprisingly conservative in terms of dominant substances. But developments can be expected in the area of performance enhancement.

Medications for addiction tend not to succeed, either because of problems of patient compliance or because of their ideological acceptability. Drug vaccines and depot formulations may short-circuit the issue of compliance, but they raise ethical, legal and social questions.

Growth in international transport and travel, and the rise of the Internet, are transforming the availability of psychoactive substances, nullifying national controls. Trade agreements and common markets also limit the scope of national controls on legal substances.

The weakening of market controls points towards a compensating increase in individual-level controls, whether through deterrence and punishment, or treatment. Despite the adverse side effects that accompany the singling-out of individuals, the tendency seems to be to broaden the net of social control with measures – such as the UK's Anti-Social Behaviour Orders (ASBOs) or random drug testing in various environments – applied to individual 'bad apples'.

Options for controlling psychoactive substances

From the beginning of recorded history, societies have sought to regulate psychoactive substances. The code of Hammurabi, from 3,800 years ago, includes regulations on drink-shops (Hammurabi 2000). But humans have been willing to go to extraordinary lengths to get psychoactive substances. The recognition that problems can accompany the pleasures of psychoactive substance use is also ancient. But many societies place a positive valuation on such substances. Regulations governing them have often been designed to guarantee an adequate supply of them for the elite.

A state's options for controlling the availability of psychoactive substances are limited. Modern states rarely opt for free availability in an open market. Instead, all substances taken into the body are controlled in some ways, for instance, for purity and accuracy of labelling. For caffeine, there are few special controls beyond the general rules on ingested substances. At the opposite extreme is total prohibition on production, sales, purchase and use. For a few psychoactive substances – heroin is an example in many countries, though not in the UK – this option is commonly exercised. In between are various options which involve a controlled market in the substance.

One common option is to raise prices by taxation. Another is controlling availability, for instance, by specifying the requirements for places of sale, limiting retail opening hours, or forbidding sale to particular classes of customers, for instance, of alcohol to those already drunk or below a certain age.

Other strategies include education, public information and persuasion, environmental harm reduction strategies, deterring specific behaviours connected with substance use, and the treatment of substance-use problems.

Control systems: the existing literature

Most discussions have revolved around two substances: alcohol and marijuana. For alcohol, comparative analysis has been invited by the many control systems that existed in the last century and before. Lemert (1962) put forward four 'models of social control' for alcohol: prohibitory, educational, regulatory and the substitution of functional equivalents. Commenting on Lemert's analysis, Bruun (1971) proposed a tripartite division of control strategies, according to the aspect of substance use which they aimed to control: the 'phase of choice', i.e. decisions to use them; the 'phase of use', i.e. the amounts consumed; and the 'phase of consequences', i.e. what we now term

harm reduction. The US National Academy of Sciences report on *Alcohol and Public Policy* (Moore and Gerstein 1981) adopted essentially the same tripartite division of strategies – distinguishing between 'regulating the supply of alcoholic beverages', 'shaping drinking practices directly', and 'reducing environmental risk' – reducing harm without necessarily affecting the drinking itself.

The special contribution of the alcohol literature has been the recognition that a full public health control strategy must involve much more than prohibiting or regulating the availability of the substance.

For marijuana, the emphasis has been on prohibition and its alternatives. Kaplan's analysis (1970) discussed four alternatives: the 'vice model' of decriminalising possession and use; the 'medical model' of medical prescriptions for use; the 'licensing model', based on alcohol control; and the 'sugar candy model', where the substance is regulated only as a foodstuff would be.

An Australian tradition of discussion of alternative marijuana policies, initiated by a 1978 Royal Commission (South Australia 1978), uses a similar typology of legislative options (McDonald et al. 1994). The 'medical model' is dropped from consideration, and Kaplan's 'vice model' is divided into 'prohibition with civil penalties for minor offences' -- as exists in South Australia and the Australian Capital Territory -- and 'partial prohibition', legalising possession and cultivation for personal use, but retaining criminal penalties for growing or dealing in cannabis in commercial quantities.

Only recently has systematic discussion begun of alternative control systems for the whole range of psychoactive substances. The analysis by MacCoun, Reuter and Schelling (1996; see also MacCoun and Reuter 2001: 310–317, and Figure 1) places control regimes on a single dimension of restrictiveness, according to 'the extent of justification a user has to provide to obtain the drug'. But the authors recognise that a single-dimension ranking has its limits when, as MacCoun et al. (1996) note, 'drug policy is inherently multi-dimensional.'

Figure 1: The spectrum of drug control regimes, in order of decreasing restrictiveness (according to MacCoun and Reuter 2001: 311)

Proh	Pres	Reg	Model
■			Pure prohibition: Full prohibition, with no allowed use for any purpose whatever (e.g. heroin, marijuana)
■	■		Prohibitory prescription: Prohibited except for narrow therapeutic purposes unrelated to addiction; administered by a doctor or other health professional (e.g. cocaine)
■	■		Maintenance: Prescribed for relief of addiction; otherwise prohibited (e.g. methadone). Administered by an authorised agent or, for some patients, self-administered under tight supervision
	■	■	Regulatory prescription: Self-administered, under prescription, for relief of psychiatric problems (e.g. anxiety, depression). Otherwise prohibited (e.g. current US regime for Valium, Prozac)
	■	■	Positive licence*: Available for any reason to any adult in possession of an appropriate licence, gained by demonstrated capacity for safe use (theoretical regime from Kleiman 1992)
		■	Negative licence*: Available for any reason to any adult who has not forfeited the right by violating conditions of eligibility (theoretical regime from Kleiman 1992)
		■	Adult market: Available to any adult (e.g. alcohol)
		■	Free market: Available to any individual (e.g. caffeine)

Proh = prohibitory; Pres = prescription; Reg = regulatory

*Note added by RR: These regimes have actually existed for alcohol in various jurisdictions.

An alternative way of classifying control regimes is in terms of who or what is being regulated or restricted. The object of control may be the product itself; the provider or seller; the conditions of sale or provision; and the buyer or consumer. National prohibition of alcohol in the United States involved few restrictions on the buyer or consumer, and provided for production and sale for religious and medical purposes. For marijuana in the Netherlands, the possession and sale of small quantities in limited circumstances is not penalised, but production and wholesaling are prohibited. Another example is doping in sports. It may not be illegal to distribute or possess the designated substances, but a sports participant who has the substance in their body is subject to penalties. Such contradictions are usually a sign of countervailing ideologies at work.

Regulation of the product

Modern industrial societies typically regulate a large proportion of all marketed products, in terms of such factors as purity, safety, strength or size, and labelling and claims made for the product. Psychoactive substances tend to be subject to particularly stringent product controls. Controls on labelling, advertising and other promotional activities are also common. Price and other regulations may be used to favour more dilute or less harmful forms of the product.

Typically, regulation of the product is enforced primarily through the manufacturer or importer of the final form of the product. Manufacturing or importing often requires a licence, and the threat of losing it is an efficient and relatively inexpensive means of enforcement. Other parts of the chain of production and distribution may also be licensed.

Regulation of the provider or seller

A primary form of restriction of the market in psychoactive substances is to limit who can provide or sell the product. The state may itself operate all or part of the marketing chain. In eighteen US states, all Canadian provinces, and four Nordic countries, the state operates the wholesale and/or

retail levels of alcohol sales. Until recently, many countries operated tobacco monopolies, primarily to generate state revenue. In Sweden, the state operates the pharmacies for all prescription products.

Alternatively, the state may license producers and sellers. In the UK, licensing for public houses dates back to 1552 (Hunter 2002), with de facto local licensing of sellers of alcoholic beverages existing considerably earlier (Bennett 1996). In the case of internationally controlled psychoactive substances, states are obliged to license producers and sellers under international conventions. Again, the threat of losing the licence to produce, distribute or sell is an effective and inexpensive enforcement mechanism.

A special form of state licensing is the prescription system, in which doctors and chemists are given a licence, which may be removed for misconduct, to prescribe and provide or sell controlled medications. The prescription system is the primary means of regulation for most psychopharmaceuticals. Particularly for psychoactive medications, the licence to prescribe often comes with special restrictions. For instance, the most heavily controlled legally available psychoactive product in the US is methadone. Its provision is limited by prescription and to registered clinics or hospitals. Again, the primary enforcement mechanism is the threat of losing a licence to practise as a professional.

Regulation of the conditions of sale

Limits can also be put on the conditions of sale. In some US states, some alcoholic beverages must be sold in specific, dedicated shops. The number of shops may be limited. Dutch 'coffee shops' selling marijuana are another example of retailers which are heavily restricted by the state, in terms of the number of shops and their specialisation, and a limit on the amount that can be sold to a customer. In Canada, some pharmaceuticals that do not require prescription must nevertheless be sold in a pharmacy. Part of the alcohol control structure in many places is a set of controls on the hours of sale. For alcohol and now for tobacco products, there is a restriction that forbids selling to customers under a minimum age. It is now common to criminalise the attempt to purchase under the legal age. Historically, alcohol sales on credit were also often forbidden.

Other common regulations of the conditions of sale of alcoholic beverages apply, particularly to sale for on-premises consumption. They include specifications concerning design and layout, requirements on the availability of food, the prohibition of particular activities such as dancing, gambling or smoking, and a prohibition on serving someone who is already intoxicated. Again, the primary means of enforcement of conditions of sale has been the threat of cancellation of the licence of the provider or seller. Potential legal liability of the seller for harm resulting from prohibited sales has also become an important support for regulation of the conditions of sale, particularly in the US.

Regulation of the buyer or consumer

The state may prohibit or set limits on purchases by individual customers. Before 1955, Sweden had a rationing system in which civil servants decided the size of the ration of spirits that individuals could purchase each month (Frånberg 1987), and alcohol rationing systems have been in effect elsewhere more recently (e.g. Schechter 1986). In Nordic countries, individual-level controls also took the form of 'buyer surveillance' systems which attempted to reset dosage allowances in response to the individual's purchasing history (Järvinen 1991). In some places, taverns were required to post and respect blacklists of drunkards who could not be served alcohol. Developing notions of privacy rights and of equality in treatment under the law have tended to make these kinds of restrictions on adults untenable in many places.

The primary regulation of the alcohol buyer or consumer these days is in terms of behaviour while or after drinking -- particularly the offences of driving under the influence and of public drunkenness. Prohibitions on drinking at all in public places are also making a comeback in the UK and some other jurisdictions. In addition to these alcohol-specific offences, the intoxicated consumer is usually held responsible, with respect to the general criminal law, for the same standards of behaviour expected of the sober. This principle may conflict both with informal understandings that rules of behaviour are different under the influence of an intoxicant ('time-out', MacAndrew and Edgerton 1969), and with judicial insistence that a guilty mind is necessary for conviction of a crime (Room 1996). Changed attitudes to drink driving show that it is possible to reduce problems from the use of psychoactive substances through deterring the user. But it is inherently easier for the state to regulate the market by licensing those providing the psychoactive substances and thus threatening their commercial and professional interests.

Rationales for controls on psychoactive substances

Governments have had many motives for controlling the supply and consumption of psychoactive substances. They have included:

- **to raise revenue.** Ideal commodities to tax are those with a controllable supply and low price elasticity, which psychoactive substances often are.
- **to ensure purity or palatability.** Modern European regulations on the purity or composition of alcoholic beverages date back in an unbroken tradition to medieval times (1266 in England) (Hunter 2002).
- **as sumptuary or other symbolically discriminatory legislation.** In many societies, access to psychoactive substances has been limited to categories defined by age, gender or social status. Often, use has been a prerogative of the powerful. In many village and tribal societies, the use of alcoholic beverages is forbidden for women. Now sumptuary prohibitions have retained their legitimacy only for children and special categories such as prisoners. Special taxes on luxury commodities, such as the special US federal tax rate for champagne and other sparkling wines, can be seen as a mild form of sumptuary control.
- **to ensure fairness and equal opportunity.** This applies mainly in sport. The World Anti-Doping Code (World Anti-Doping Agency 2003) states its fundamental purpose as being 'to protect the Athletes' fundamental right to participate in doping-free sport and thus promote health, fairness and equality for Athletes worldwide'.
- **to favour or disfavour specific economic interests.** Probably the most common motivation for this sort of regulation has been to favour domestic over foreign producers. But this kind of regulation can cut many ways: e.g. between agricultural and manufactured products; between brand-name and generic pharmaceuticals; between products of a political ally and those of a rival or enemy.
- **to enforce a religious principle or cultural value.** Abstention from alcohol is a marker of an observant Moslem. Many Islamic countries that follow the *sharia* prohibit alcohol sales. In a European or North American context, it can be argued that regulations on psychoactive substances, particularly those seen as intoxicating, reflect a cultural bias against intoxication as a pleasure or recreation.
- **to enforce or encourage work and family discipline.** The earliest English alcohol control laws aimed to get 'sturdy beggars' out of the tavern and into the workforce at a time of labour scarcity. East German regulations in the 1970s forbade serving alcohol in the afternoon to someone in working clothes. The mid-afternoon closing hours for British pubs during most of the twentieth century likewise removed a competitor for work and family time.
- **to protect public order.** Alcohol and other psychoactive drugs have often been associated with political subversion (Rorabaugh 1981: 35), resulting in such measures as the repression of taverns in 1870s France (Barrows 1991). The fact that coffee-houses and tobacco shops have also been seen as threats suggests that the perceived problem has been as much from

congregating and sociability as from drug use. Alcohol has long been seen, with good reason (Room and Rossow 2001), as a cause of violence both on the streets and in the family, and this view has played a major role in efforts at alcohol control (for present-day Britain, see Chatterton and Hollands 2003; Hobbs et al. 2003). For other drugs, an illegal status brings violence and public disorder (Fischer et al. 1997), and there is sometimes a cultural association between some drugs and violence, but there is little evidence of a direct psychopharmacological effect on violence.

- **to improve public health.** This motive for regulation has come to the fore in recent years.

The diversity of aims and targets within public health and order

Many users of psychoactive substances argue that they are beneficial. They are used as anaesthetics and anodynes, and therapeutically for mental disorders. There can also be beneficial effects for physical health, for instance, alcohol's protective effect for heart disease, and the anti-nausea effects of cannabis. There is renewed discussion of potential beneficial effects of nicotine. Beneficial effects will undoubtedly continue to complicate the health message about psychoactive substances.

But many psychoactive substances have severe and immediate adverse effects on the user (Fischer et al. 1997). Often the risk of such consequences can be ameliorated by favouring dilute forms or safer modes of administration. Thus, death from overdose of alcohol is much less likely with beer than with spirits, and drinking coca tea is less likely to result in overdose than injecting cocaine.

Chronic consequences for the user are also an issue with many psychoactive substances. For some substances, such as alcohol, most of the chronic health risks are inherent in the main psychoactive ingredient. For others, such as tobacco and marijuana, this is not the case, and so regulations that affect the form and mode of administration are potentially important tools. There may also be chronic health consequences for those in the environment of the user. Smoke from cigarettes may harm those around the smoker, or a sexually transmitted disease may spread to the partner of an intravenous drug user who contracted the illness from sharing needles.

A third aspect of the consequences of substance use is in terms of effects on the user's thinking, judgement and behaviour. Some of these effects are immediate. Alcohol or benzodiazepines, for instance, impair performance in complex tasks such as driving, causing risks both for the user and for others. At least in some cultures, drinking also seems to raise the risk of violent behaviour (Room and Rossow 2001). Again, there is an extended range of potential interventions, and harm can be reduced by changing the physical or social environment of use, or by changing the response of others to the user, as well as by changing the user's behaviour.

Longer-lasting social consequences are usually related to a pattern of use over time. Particularly where there is repeated substance use to the point of intoxication, the result may be impairments of major social roles such as work performance or family participation. These consequences, too, are defined by the interaction of the user's behaviour with the reaction of others, and their occurrence and severity can be affected by changes in the reactions of others.

Addiction or dependence per se

Addiction is a protean concept in the context of consequences of psychoactive substance use. Its core meaning in English-speaking cultures relates to the social consequences, and secondarily the health consequences, of recurrent use. The addict is the person who continues to use, despite having experienced the consequences (Room 1973). More recently, definitions of addiction have diverged from this core meaning (Room 1989) in two directions. One is a biologised concept focusing on the biological effects of drugs, particularly tolerance and withdrawal, which reinforce the continued use of the drug. The other direction has been towards a cognition- and feeling-oriented

concept, focusing on the experiences of craving and impairment of control, often termed 'psychic' or 'psychological dependence'. In the 1961 Single Convention on Narcotic Drugs (United Nations Office of Drug Control 2004), 'addiction' as a 'serious evil for the individual' serves as a main rationale for international controls. But, while invoking addiction may serve as a policy rationale, it plays little role in actual control policies (MacCoun, 2004).

Criteria for the extent of control of psychoactive substances

Some psychoactive substances are covered by international conventions controlling their production, distribution and use, while others are not. Alcohol is prominent among the substances not controlled internationally, and the controls on tobacco, through the Framework Convention of Tobacco Control, are emergent and will initially be weak. At the other extreme, the regime with the tightest market controls (the Single Convention of 1961) is applied to substances derived from three plants – the opium poppy, the coca bush and the cannabis plant. A generally less restrictive set of controls, the Convention on Psychotropic Substances of 1971, applies to synthesised substances such as LSD, amphetamines and diazepam.

Under the 1971 Convention, a 'psychotropic substance' may be brought under international control if the World Health Organisation (WHO) finds that it has the capacity to produce a state of dependence and central-nervous-system stimulation or depression, resulting in hallucinations or disturbance in motor function or thinking or behaviour or perception or mood, and if there is sufficient evidence that the substance is likely to be abused so as to constitute a public health and social problem warranting the placing of the substance under international control (based on Article 2, Paragraph 4).

The official Commentary on the 1971 Convention (United Nations 1976) notes that 'alcohol appears to be covered by' its wording but adds that the 'public health and social problem' that alcohol presents is not of such a nature as to warrant it being placed under 'international control'. Alcohol does not 'warrant' that type of control because it is not 'suitable' for the régime of the 1971 Convention. The Commentary then goes on to provide similar reasoning for why tobacco 'is not covered' by the paragraph.

Present levels of social and health harm

The WHO's estimates for the Global Burden of Disease in 2000 suggest that tobacco accounts for 4.1% of the total burden in Disability-Adjusted Life Years (DALYs) globally, alcohol for 4.0%, and illicit drugs for 0.8%. For developed societies such as the UK, the respective figures are 12.2%, 9.2% and 1.8% (Ezzati et al. 2002). Another way of estimating harm is economic. One such estimate is for Canada for 1992: CAD \$9.6 billion for tobacco, \$7.5 billion for alcohol, and \$1.4 billion for illicit drugs (Single et al. 1998).

Potential for harm

The most obvious objection to basing policy decisions on such estimates is that the present levels of social and health harm would alter if policies changed. One approach to estimating harm, adopted by a research team of which I was a member (Hall et al. 1999), was to compare the severity of effects for heavy users of different substances in their most harmful common form (see Table 1).

Table 1: A summary of adverse effects on health for heavy users of the most harmful common form of each of four drugs (according to Hall et al. 1999)

	Marijuana	Tobacco	Heroin	Alcohol
Traffic and other accidents	*		*	**
Violence and suicide				**
Overdose death			**	*
HIV and liver infections			**	*
Liver cirrhosis				**
Heart disease		**		*
Respiratory diseases	*	**		
Cancers	*	**		*
Mental illness	*			**
Dependence/addiction	**	**	**	**
Lasting effects on the foetus	*	*	*	**

* = less common or less well-established effect

** = important effect

A limited measure of potential harm is the likelihood of an overdose from a substance. This is of significance for overdoses and for poison control, e.g. for labelling and childproofing containers of the substance. The first column of figures in Table 2 shows partial results of a recent review of the literature by Gable (2004). The 'safety ratio' shown is the ratio between 'the usual effective dose for non-medical purposes' and the usual lethal dose, for the mode of administration specified.

Another dimension of danger is the level of intoxication produced by the substance, which 'increases the personal and social damage a substance may do' (Hilts 1994). Obviously the level of intoxication produced by taking a substance is highly influenced by the dose taken, and the setting of the consumption. The second column of Table 2 shows rankings made by Jack Henningfield and Neal Benowitz on this (Hilts 1994).

A more global approach to the problem was taken by a French committee chaired by Bernard Roques (Roques 1999). The final two columns of Table 2 show the Roques committee's rankings on 'general toxicity' and 'social dangerousness'. As used in the report, 'toxicity' includes long-term health effects such as cancer and liver disease, and infections and other consequences of mode of use, as well as acute effects.

Table 2: Ratings on dimensions of 'dangerousness' Safety ratio

	Safety ratio (Gable 2004)	Intoxicating effect (Hilts 1994)	General toxicity (Roques 1999)	Social dangerousness (Roques 1999)
Marijuana	>1000 sm	4th highest	Very weak	Weak
Benzodiazepines (Valium)	nr	nr	Very weak	Weak (except when driving)
MDMA/Ecstasy	16 or	nr	Possibly very strong	Weak(?)
Stimulants	10 or	nr	Strong	Weak (possible exceptions)
Tobacco	nr	5th highest	Very strong	None
Alcohol	10 or	Highest	Strong	Strong
Cocaine	15 in	3rd highest	Strong	Very strong
Heroin	6 iv	2nd highest	Strong (except therapeutic use of opiates)	Very strong

nr = not rated; sm = smoked; or = oral; in = intranasal; iv = intravenous
safety ratio = (usual effective dose for non-medical purposes)/(usual lethal dose)

The concept of 'social dangerousness' focuses on 'states of comportment which can generate very aggressive and uncontrolled conduct ... induced by the product or varied disorders (fights, robberies, crimes ...) in order to obtain it and risks for the user or others, for example in the case of driving a vehicle' (Roques 1999: 296 (original in French)).

Dependence dimensions

Ratings are also available of the dependence potential or addictiveness of different substances. For instance, Henningfield and Benowitz (Hilts 1994) give comparative ratings of the different substances on withdrawal, tolerance, reinforcement and dependence, while the Roques committee report rates the substances on physical dependence and psychic dependence. On dependence, both Henningfield and Benowitz rank the drugs in the following descending order: tobacco; heroin; cocaine; alcohol; caffeine; marijuana. The order implied by the ratings of the Roques committee on psychic dependence is: alcohol, heroin and tobacco; benzodiazepines and cocaine; stimulants; marijuana.

The overall message is that the present international system of classification and control of psychoactive substances can no longer be justified. Alcohol and tobacco are undercontrolled and cannabis is overcontrolled, in terms of relative harm. But there are substantial vested interests – material and ideological – at stake in maintaining the status quo. In particular, any comparison that looks across the licit–illicit boundary attracts controversy (Anonymous 1998). ("Illicit" as used here means substances which are subject to international control when used nonmedically.)

The relative danger or harmfulness of psychoactive substances cannot be escaped in any policy consideration with the overall aim of minimising health and social harm. But it should be recognised that the chemical substance itself, in its pure form, is only one among many factors in whether, and how much, harm occurs. Policies on substance use can considerably influence rates of harm by affecting such other factors. Here are some examples.

Concentration

Dilute forms of a substance often have less potential for harm than concentrated forms. It is not easy to die of an overdose of weak beer. But this is not always the case: low-nicotine, high-tar

cigarettes are likely to cause more health harm than high-nicotine cigarettes. For licit substances, availability often varies substantially by concentration. In Sweden, beer under 2.2% alcohol is not counted as an alcoholic beverage, and is legally available to all ages. Beer up to 3.5% is available in corner grocery stores (with beer below 2.8% having a price advantage from not being taxed for alcohol content). Stronger beer, along with other alcoholic beverages, is only available in a limited number of state-run stores (Hibell 1984; Ramstedt 2002).

There is mostly only anecdotal evidence of the effects of concentration for illicit substances. Less harm is presumed to result from chewing coca leaves or brewing coca tea than from snorting or injecting cocaine. On the other side of the debate, there is an argument that cannabis is much more potent now than it was previously and that, as a consequence, more harm will result (Manski et al. 2001: 86), but in fact systematic information is not available on the implications of variations in potency for harm.

Mode of ingestion

This is a dimension on which considerable information is available for some illicit substances. Health damage is less from smoking heroin than from injecting it, and probably less from eating marijuana than from smoking it. However, for some substances there is relatively little systematic knowledge of the effects on a population of measures designed to favour one mode of ingestion over another. Often policies are made in the absence of systematic knowledge. For instance, the Swedish form of snuff known as *snus* is banned for sale in the European Union, except in Sweden, on the grounds that it is a health hazard. There are good public health arguments for promoting the use of *snus* as a less harmful alternative to smoking cigarettes (Gilljam and Rosaria Galanti 2003), although there have also been counterarguments. But at present the European legal system considers that it must make decisions on whether *snus* should remain banned on the basis of suppositions (Geelhoed 2004).

Location of use

Whether the substance is licit or illicit, policies can influence whether it is consumed in private or in public spaces. This can influence the harm from use. Again, there is a need to base such policy directions on careful studies. For instance, in the 1970s, Finnish alcohol policy was based on the presumption that drinking in a bar or restaurant would be more restrained than drinking at home. In fact, Partanen (1975) found that the empirical results in Helsinki were the opposite: 'people do not drink any more at home than in a restaurant, but they do it in a more leisurely manner, which seems to lead to a lower degree of intoxication.'

Universal or local controls?

Local regulation of psychoactive substance regulation entails abandoning a universal standard which applies the same level of control in all jurisdictions. This happened for alcohol control in the US and Canada after national prohibition. Local decision-making is consistent with the fact that the problems related to substance use are often most acutely felt at the local level (Room 1990, 2003b). Such harm reduction strategies as needle exchanges and safe injection rooms (SIRs) for illicit substances have also most often been local initiatives. For drugs under international control, the local level can often act more flexibly, while national governments are more tightly bound by the rigidity of the international control system (van de Mheen and Gruter 2004). But maintaining local controls on the marketing of legal substances is difficult in a globalised world. Consumer sovereignty also argues against rules which vary from place to place.

Instruments and means of governance and change

Table 3 lists major strategies, other than market controls, for reducing substance use problems.

Table 3: Policy and prevention strategies, and institutions and professions involved
Institutions involved Professions involved

Strategy	Institutions involved	Professions involved
Education	Schools, universities	Teachers
Persuasion	Media	Media professionals
Deterrence	Criminal justice	Police
Insulating use from harm	Pubs, nightclubs, public health agencies, others	Publicans, event promoters, health workers, others
Providing alternatives	(various)	(various)
Treatment and reintegration	Clinics, welfare offices, voluntary agencies	Doctors, nurses, social workers, experience counsellors

Even for licit substances, the police are potentially involved in setting the boundaries of behaviour, for instance, enforcing laws that forbid drinking in a park or ban smoking in public buildings. At least for illicit drugs and alcohol, treatment and counselling are also a part of most governments' response to substance-use problems. So is providing alternative activities – sports, leisure activities, etc. – which it is hoped will substitute for substance use. Reducing harm forms part of the treatment strategy for many illicit drugs. Particularly in the case of alcohol, such an approach – providing transportation after a party, providing water at raves, discouraging violence by the provision of trained bouncers, etc. -- is widely recognised as a commonsense approach to 'living with drinking' or other drug use.

Effective planning in this area is inherently 'multisectoral', reaching across jurisdictional, professional and bureaucratic lines. For instance, Jha et al. (2000: 455) list between three and six agencies or ministries involved in each of eight typical activities of tobacco control programmes. The suppressed report of the Central Policy Review Staff on alcohol (Bruun 1982) counted sixteen government departments involved in alcohol policy in the UK in the late 1970s. The US National Drug Control Strategy for 1994 listed expenditures by thirteen cabinet departments and a number of other government agencies (Office of National Drug Control Policy 1994: 84–85). A review of US illicit-drug monitoring data identified sixteen federal agencies involved in the collection of such data (Manski et al. 2001: 308–317)

Policy impact studies

Alcohol policy impact studies

There is a very substantial literature on the effects of alcohol-control policy changes on drinking amounts, patterns and problems (Babor et al. 2003). It generally excludes both the developing world (Room et al. 2002) and southern-European wine-based cultures. There is also an imperfect fit between what those involved in liquor licensing decisions may want to know and what is available in the literature on alcohol controls (Wagenaar and Toomey 2000). The studies are sometimes done because a change was controversial in a particular jurisdiction, and funding an evaluation was a way of defusing the controversy. Other studies have been opportunistic, where a researcher seizes the chance to do a 'natural experiment' on some policy change but does not have a voice in the circumstances of the change. Often studies have made use of available data, such as per capita consumption data or mortality registers. Since research is usually a national government responsibility, its topical focus is not necessarily attuned to the concerns of local jurisdictions.

A new step forward, as part of the WHO-CHOICE programme (**CHO**osing Interventions which are **Cost-Effective** (<http://www3.who.int/whosis/menu.cfm?path=evidence,ceaandlanguage=english>)) has been the comparison of the cost-effectiveness of different strategies and combinations of strategies to prevent alcohol-related problems (Chisholm et al. 2004) in terms of dollars per DALY

(Disability-Adjusted Life Year) saved. Table 4 shows some of the results from these analyses for the 'Europe-A' WHO subregion, roughly equal to the 25-member European Union. Since evidence was lacking for any effectiveness of mass media persuasion or school-based education (Foxcroft et al. 2003, Babor et al. 2003), these strategies were excluded from the analysis as having no apparent cost-effectiveness. In terms of cost-effectiveness per DALY saved, the most cost-effective strategy was raising taxes (and thus prices; this is even without counting the government revenue from taxes). In descending order, the other cost-effective strategies were a ban on advertising, limiting availability (the example used was Saturday closing for off-sales); random traffic breath-testing, and screening and brief medical advice.

Tobacco policy impact studies

There are several synthetic reviews of the literature (e.g. Jha and Chaloupka 1999; Jha et al. 2000; Rabin and Sugarman 2001).

Table 4. Comparative cost-effectiveness of alcohol interventions in 'Europe-A' (Chisholm et al. 2004)

	DALYs saved/million population	Average Cost-Effectiveness Ratio
Tax: current	1,365	333
Tax: current + 25%	1,576	289
Tax: current + 50%	1,764	258
Random traffic breathtests	247	2,467
Saturday closing for off-sales	251	1,087
Advertising ban	459	594
Brief medical advice	1,889	2,351

The literature is often aimed at assessing the impact of anti-smoking policy packages as a whole (e.g. Siegel and Biener, 1997, Pierce et al. 1998). There is a clear difference in emphasis between the literatures on alcohol and tobacco control. Raising the price through increased taxes looms even larger as a strategy for tobacco than it does for alcohol (see Chaloupka et al. 2001), followed by an advertising ban, counteradvertising campaigns, bans on smoking in indoor public places, and nicotine replacement therapy. Although a much greater proportion of the total harms from alcohol than from tobacco are to others, reducing harm from second-hand smoke has proved politically potent for tobacco control in a way that has not been true in alcohol policy except for drink driving. A strong emphasis in the tobacco literature has been put on contextual prohibitions – bans on smoking at work and in public places – which are largely taken for granted for alcohol.

The two policy impact literatures have also reached substantially different conclusions about the effects of counteradvertising campaigns. Anti-smoking campaigns which have proved effective (Pechman and Reibling 2000; Sly et al. 2001, 2002; Wakefield et al. 2003) have often involved frontal attacks financed by government agencies on the bona fides of the tobacco industry. This is an unusual enough occurrence in a capitalist society to have impressed teenagers, at least in the short run – although the campaigns have often proved politically unsustainable in the longer term (Givel and Glantz 2000). Also more available in the nicotine field, though underutilised, has been the option of harm reduction through changing the mode of use of the psychoactive substance (Shiffman et al. 1997).

As for alcohol, the WHO-CHOICE programme has estimated cost-effectiveness ratios for specific interventions, and for combinations of interventions (Shibuya et al. 2003). Results for 'Europe-A' are shown in Table 5. Again, the costeffectiveness calculations exclude the government revenue gained from the tax from the calculations.

Table 5: Comparative cost-effectiveness of tobacco interventions in 'Europe-A' (Shibuya et al. 2003)

	Total DALYs saved (millions/year)	Average cost- effectiveness ratio (\$/DALY)
Global average tax rate (44%)	2.0	44
Highest regional tax rate (75%)	4.8	18
Doubling the highest tax	6.9	13
Enforced bans on smoking in indoor public space	0.8	358
Comprehensive advertising ban	0.6	189
Counteradvertising campaigns	0.7	337
Nicotine replacement	0.7	2,164

Medication and drug policy impact studies

Compared to the considerable literatures in the alcohol and tobacco fields, the policy impact study literature is relatively undeveloped with respect both to illicit drug use and to medical use of prescription or over-the-counter psychoactive substances. The sustained effort by MacCoun and Reuter (2001) to assemble the evidence on the likely results of illicit drug legalisation in the US showed how weak the evidence base is in this area. A recent review (MacDonald 2004) found agreement that there was some responsiveness to the price of illicit drugs, but that 'there is not yet a consensus on the possible range of price elasticities for certain drugs.' An authoritative US review of research on 'supply-reduction policy' noted that 'the required evidence is largely nonexistent. The problem is not just that the relevant studies have not been done. Systems for acquiring the needed data are inadequate or nonexistent.' The report's conclusion was stated in ringing terms: 'It is unconscionable for this country to continue to carry out a public policy of this magnitude and cost without any way of knowing whether and to what extent it is having the desired effect' (Manski et al. 2001: 143, 279).

The literature on the impact of changes in regulatory regimes for prescription psychoactive substances has primarily focused on the effects of shifts in prescription control systems on physicians' prescribing practices in the US (often referred to as 'triplicate prescription' requirements). A general finding was that the systems did reduce prescribing of the medications covered, but resulted in some substitution of more problematic medications which were not covered, and also some non-prescribing when it would have been appropriate (Weintraub et al. 1991; Hoffman et al. 1991; VanHaaren et al. 2001; Wagner et al. 2003; Ross-Degnan et al. 2004; Simoni-Wastila et al. 2004).

Scenarios for the future

Recalibration of availability in terms of potential for harm

The Transform Drug Policy Foundation (2004) has recently put forward a discussion of 'options for control', to be used 'after the war on drugs'. The Foundation's 'time line for reform' anticipates that 'cannabis production and supply [will be] legalised and regulated' in the UK in the period 2007–2012, and that a group of 'coalition states' including Europe, Australia, Canada and South American states will opt out of the international treaties in the period 2013–2018. Political systems have responded slowly to the over-regulation of cannabis and the under-regulation of alcohol and tobacco. For alcohol and tobacco, there are large economic interests at stake, which have fought against any increase in control, in the case of alcohol, quite successfully. For cannabis, as a drug included in the

international drug-control system, any substantial change in status is politically very difficult, at least until there is a change of position by the US, as the prime mover of the international control system (Bullington 2004, Bewley-Taylor 1997). And for both alcohol and cannabis, a shift in control status requires pushing against the general weight of public opinion.

A process of change, extending over forty years and not yet ended, has altered the cultural–political position of cigarettes and other smoked forms of tobacco. Cigarette smoking is now associated with poverty and marginality. In most developed countries and some developing ones, cigarette smoking is in the process of being banned from public places. This has happened in Ireland, and Scotland will follow shortly. The arrangements proposed for England are not far short of a ban.

The Framework Convention on Tobacco Control (Taylor and Bettcher 2000) commits its national parties to both internal and international policies. It can be expected to push forward the marginalisation of cigarette smoking in future years. Calls for outright prohibition (Ferrence 2003) have so far been rare, but can be expected to increase. There is a need for thinking and research on alternatives for more restricted availability. Should cigarettes become a behind-the-counter item at the chemist's shop or in specific-purpose alcohol and tobacco shops? There is also an urgent need for thinking and research on policies concerning alternative nicotine products. The effects of allowing or encouraging other nicotine products, and other harm reduction strategies, need to be modelled and studied (Ferrence et al. 2000; K. Warner, 2002).

For alcohol, substantial progress has been made in the specific area of drink driving, which is less publicly acceptable in many countries and is subject to effective countermeasures. In recent years, the UK has lagged behind in this area. The UK blood alcohol limit of 0.08% is one of the highest in Europe, and the UK has not moved to match Australia, for instance, in terms of the highly effective strategy of random breath-testing. In the coming twenty years, it is probable that the UK will catch up with progress internationally in this area.

The UK's public policy signals for alcohol more generally are mixed. Legislation reforming the alcohol licensing laws is pushing towards increasing availability, for instance in opening hours for pubs. On the other hand, it is increasingly apparent that problems from alcohol have been rising, and, across the political and prestige spectra, the media have been raising the alarm (e.g. Bowditch 2004; Levy and Scott-Clark 2004; Anonymous 2004a; Alleyne 2004). The media unanimity probably portends a change in political direction in coming years.

At the international level, increasing calls can be expected for a Framework Convention on Alcohol Control, on the model of the tobacco convention, as many of the same issues arise. In the European Union, it can be expected that the strong tendency to view alcohol as an ordinary trade commodity will be tempered by the adoption and eventually the strengthening of an alcohol strategy.

Cannabis

The international drug conventions are a considerable impediment to reforming the status of cannabis. The UK has already been scolded by the International Narcotics Control Board for the relatively minor step, in full accord with the treaties, of moving cannabis to classification 'C', though the British Government did not accept these criticisms unchallenged (Travis 2003). There are some signs of a more conservative European trend over cannabis. Switzerland has put on ice indefinitely the plans for a legal internal market there (Anonymous 2004c), and the Swedish minister for justice returned from an EU meeting which adopted a common drug policy proclaiming that he 'would not be astonished' if all coffee shops in the Netherlands were closed by 2010. (Bøe 2004; Anonymous 2004b). But there is a clear longer-term trend in most parts of Europe towards greater acceptance of recreational cannabis use. In this context, there is a need for research to develop more specific tests,

analogous to the blood-alcohol level for alcohol, of levels of current intoxication which affect driving behaviour. Consideration should also be given to means of discouraging types of cannabis use with greater health harm, in particular the combined smoking of tobacco and cannabis.

Substances of the future?

Despite the pharmacological innovation of recent decades, traditional plant-derived substances dominate the legal and illegal psychoactive substance markets. Ecstasy (MDMA) is the single example of a substance which has come into wide use only since the 1960s. Periodic fads and fashions from new or revived substances can be expected, but the experience of recent decades suggests that markets for psychoactive substances are surprisingly conservative.

A common pattern in the history of psychoactive substances is the introduction of one substance as a 'cure' for another, followed by the discovery that the new substance also has substantial 'abuse potential'. Drug regulatory systems are aware of this history, so there is probably less likelihood of the pattern repeating itself today, at least with respect to substances which can be used for recreational highs.

There is more likelihood of new substances establishing themselves in performance enhancement. In sport, the increase in testing for sports doping and the establishment of the World Anti-Doping Agency has resulted in a kind of 'arms race' in which those seeking to evade the system try out novel substances and approaches beyond the reach of the existing testing protocols (Carstairs 2000). The success of Viagra and its competitors demonstrates that the demand for performance-enhancing substances reaches well beyond the remedying of disabilities. For other aspects of performance, too, notably wakefulness and intellectual performance, there is a substantial latent demand.

New medications and other treatments

Enormous resources have been devoted, particularly in the US, to developing new pharmacotherapies and other biomedical treatments for psychoactive substance-use problems (Midanik 2004). But the experience of the past is that most of these medications will not be widely used (Room 2004b). Stumbling blocks include 'patient compliance' – whether the medications will actually be welcomed and used by those being treated – and the ideological boundaries of what is considered acceptable as aims and means of care. The most successful pharmacotherapies have been maintenance medications such as methadone, buprenorphine and nicorette. For these, too, political acceptance has not been easy, since it involves accepting continued addiction.

The emphasis in new medications is shifting towards approaches that do not require continuing compliance by the 'patient', such as the development of drug vaccines and of depot forms of opioid antagonists using slow-release deposits in the patient's body. These medications lend themselves to compulsory regimes, whether imposed by the state or by worried parents seeking to protect their child from dangerous attractions. These raise substantial ethical, legal and social questions (Center for Cognitive Liberty and Ethics 2004; Harwood and Myers 2004; WHO 2004: Ch. 7).

Erasing borders

Improvements in communication and transport have made contacts between different cultures and jurisdictions routine. Governments find it increasingly difficult to control what crosses their national or regional borders. Internet shopping is increasingly transforming the availability of psychoactive medications, removing physician oversight as well as nullifying national controls (Spain et al. 2001; Lineberry and Bostwick 2004; St. George et al. 2004). Trade and common market agreements have placed limits on the extent to which governments can control a national or local market, and the trend is for controls to weaken further. Thus, in the context of the European Union, in 2004 the European Commission filed a court case attacking Sweden's right to forbid crossborder Internet

purchasing of alcoholic beverages (EUBusiness 2004), and another attacking UK customs enforcement actions against those importing alcohol and tobacco products in excess of the guidelines on amounts for personal use (Gow 2004). In the wider arena of the World Trade Organisation, the proposed agreements under the General Agreement on Trade in Services (GATS) threaten further restrictions on the ability of nations to control their domestic market in legal psychoactive substances (Grieshaber-Otto and Schacter 2002). While the Framework Convention on Tobacco Control seeks to counter these trends specifically for tobacco products, the question of whether its provisions will supersede or be subordinated to the requirements of trade agreements remains unsettled (Parmentier 2003).

Social and personal control

Broadening the net of individualised social control has been facilitated by technological innovations in wholesale drug-screening methods. Costs have come down but are still not trivial. The argument for drug testing in sports – that fairness requires that everyone compete with their 'natural body' – also potentially applies to competitive situations such as scholarship and professional examinations, bridge or chess tournaments, or even scientific discovery or warfare. Future years may see developments in this direction. In the US, particularly, random drug testing has been widely extended, with the intention of deterring drug use by denying those with positive tests access to such valued activities as employment or university student loans. But this strategy has encountered substantial resistance as an intrusion on civil liberties and privacy (Comer 1994; Marx 1998; Brunet 2002; White 2003; Center for Cognitive Liberty and Ethics 2004).

The tendency in the present era seems to be for states to broaden the net of social control with individually applied measures. Anti-Social Behaviour Orders (ASBOs) in the UK are a manifestation of this trend. Finding the 'bad apples' and banning them from the premises has proved a politically more attractive alternative to maintaining controls on alcohol sales and marketing (Room 2004a, Home Office 2004).

An opportunity for research – and for evidence-based policies

We may expect to see substantial changes in psychoactive substance policies in the coming years, and we may expect to be surprised at times by their direction and speed. An important step for the UK would be to make the commitment that these changes will be evidence-based. Experience suggests that forging a link between the policy process and the research community, so that a tradition of good policy impact studies and policy-oriented research is built up, requires careful attention and specific funding. Such an investment would allow the United Kingdom to move into a new era of evidence-based policy making, and would also make a contribution to the international knowledge base for action.

Acknowledgements

This report draws in part on Room (2000). My thanks to Neil Hunt and Robert MacCoun for useful comments.

References

Alleyne, R. 2004. Violence Will Rise if Pubs are Open All Day, says Met chief. *Telegraph* 29 December. <http://www.telegraph.co.uk/news/main.jhtml?xml=/news/2004/12/29/ndrink29.xml>

Anonymous 1998. High Anxieties: What the WHO Doesn't Want You to Know About Cannabis. *New Scientist* 21 February.

Anonymous 2004a. Alcohol Abuse: The Facts about Binge Drinking. *Daily Mail* 12 May. http://www.dailymail.co.uk/pages/live/articles/health/thehealthnews.html?in_article_id=302531&in_page_id=1797

Anonymous 2004b. Clampdown Could Spell Trouble for 'Coffee Shops'. Associated Press 20 November. <http://www.cannabisnews.com/news/thread19851.shtml>

Anonymous 2004c. Parliament Rejects Decriminalisation of Cannabis. Swissinfo, Swiss Radio International. 15 June. <http://www.mapinc.org/drugnews/v04/n866/a01.html>

Babor, T., Caetano, R., Casswell, S., Edwards, G., Giesbrecht, N., Graham, K., Grube, J., Gruenewald, P., Hill, L., Holder, H., Homel, R., Österberg, E., Rehm, J., Room, R. and Rossow, I. 2003. *Alcohol: No Ordinary Commodity – Research and Public Policy*. Oxford: Oxford University Press.

Barrows, S. 1991. 'Parliaments of the People': The Political Culture of Cafés in the Early Third Republic. In: Barrows, S. and Room, R. (eds) *Drinking: Behavior and Belief in Modern History*. pp. 87–97. Berkeley: University of California Press.

Bennett, J.M. 1996. *Ale, Beer and Brewsters in England: Women's Work in a Changing World, 1300–1600*. Oxford: Oxford University Press.

Bewley-Taylor, D.R. 1997. *The US and International Drug Control 1909–1997*. London and New York: Pinter.

Blackman, L. 2001. Statement in House of Commons debate on Licensed Premises. *House of Commons Hansard Debates for 13 Feb 2001 (pt 6)*. <http://www.publications.parliament.uk/pa/cm200001/cmhansrd/vo010213/halltext/10213h06.htm>

Bøe, S. 2004. Ett steg mot knarkstopp (A Step towards Stopping Drugs). *Dagens nyheter* 20 November (1st section): 12.

Bowditch, G. 2004. How Alcohol has Slipped Past the Health Regulators. *The Scotsman* 20 November.

Brunet, J.R. 2002. Employee Drug Testing as Social Control: A Typology of Normative Justifications. *Review of Public Personnel Administration* 22:193–215.

Bruun, K. 1971. Implications of Legislation Relating to Alcoholism and Drug Dependence. In: Kiloh, L.G. and Bell, D.S. (eds) *Proceedings, 19th International Congress on Alcoholism and Drug Dependence*. pp. 173–181 Australia [sic]: Butterworths.

Bruun, K., (ed.) 1982. *Alcohol Policies in United Kingdom*. Stockholm: Stockholm University, Sociology Department, Studier i svensk alkoholpolitik (Studies in Swedish alcohol policy).

Bullington, B. 2004. Drug Policy Reform and its Detractors: The United States as the Elephant in the Closet. *Journal of Drug Issues* 34: 687–721.

Carstairs, C. 2003. The Wide World of Doping: Drug Scandals, Natural Bodies, and the Business of Sports Entertainment. *Addiction Research and Theory* 11: 263–281.

Center for Cognitive Liberty and Ethics 2004. *Threats to Cognitive Liberty: Pharmacotherapy and the Future of the Drug War*. Davis, CA: Center for Cognitive Liberty and Ethics. 11 May version.
<http://www.cognitiveliberty.org/pdf/Pharmacotherapy%202004.pdf>

Chaloupka, F.J., Wakefield, M. and Czar, C. 2001. Taxing Tobacco: The Impact of Tobacco Taxes on Cigarette Smoking and Other Tobacco Use. In: Rabin, R.L. and Sugarman, S.D. (eds) *Regulating Tobacco*. pp. 39-71. Oxford: Oxford University Press.

Chatterton, P. and Hollands, R. 2003. *Urban Nightscapes: Youth Cultures, Pleasure Spaces and Corporate Power*. London: Routledge.

Chisholm, D., Rehm, J., van Ommeren, M., Monteiro, M. and Frick, U. 2004. The Comparative Cost Effectiveness of Interventions for Reducing the Burden of Heavy Alcohol Use. *Journal of Studies on Alcohol* 65: 782–793.

Comer, D. 1994. The Case Against Workplace Drug Testing. *Organization Science* 5: 259–267.

EUBusiness 2004. EU to Take Sweden to Court over Booze Import Laws: Report. *EUBusiness* 13 July.
<http://www.eubusiness.com/afp/040713102232.7nuldmyo>

Ezzati, M., Lopez, A.D., Rodgers, A., Vander Horn, S., Murray, C.J.L. and the Comparative Risk Assessment Collaborating Group 2002. Selected Major Risk Factors and Global and Regional Burden of Disease. *Lancet* 360: 1347–1360.

Ferrence, R. 2003. Learning from Tobacco: Bans on Commercial Availability Are Not Unthinkable. *Addiction* 98: 720–721.

Ferrence, R., Slade, J., Room, R. and Pope, M. (eds) 2000. *Nicotine and Public Health*. Washington: American Public Health Association.

Fischer, B., Kendall, P., Rehm, J. and Room, R. 1997. Charting WHO Goals for Licit and Illicit Drugs for the Year 2000: Are We On Track? *Public Health* 111: 271–276.

Foxcroft, D.R., Ireland, D., Lister-Sharp, D.J., Lowe, G. and Breen, R. 2003. Longer-Term Primary Prevention for Alcohol Misuse in Young People: A Systematic Review. *Addiction* 98: 397–411.

Frånberg, P. 1987 The Swedish Snaps: A History of Booze, Bratt, and Bureaucracy -- A Summary. *Contemporary Drug Problems* 14: 557–611.

Gable, R.S. 2004. Comparison of Acute Lethal Toxicity of Commonly Used Psychoactive Substances. *Addiction* 99: 686–696.

Geelhoed, M.L.A. 2004. *Conclusions de l'avocat générale M.L.A. Geelhoed* [on cases C-434/02 and C-210/03]. Luxembourg: Court of Justice of the European Communities. 7 September.
<http://curia.eu.int/jurisp/cgi-bin/form.pl?lang=enandSubmit=Submitanddocrequire=alldocsandnumaff=C-210%2F03anddatefs=anddatefe=andnomusuel=anddomaine=andmots=andresmax=100>

Gilljam, H. and Rosaria Galanti, M. 2003. Role of *Snus* (Oral Moist Snuff) in Smoking Cessation and Smoking Reduction in Sweden. With other papers and commentaries. *Addiction* 98: 1183–1207.

Givel, M.S. and Glantz, S.A. 2000. Failure to Defend a Successful State Tobacco Control Program: Policy Lessons from Florida. *American Journal of Public Health* 90: 762–767.

Gow, D. 2004. UK Taken to Court over Booze Cruises. *Guardian* 20 October.
<http://www.guardian.co.uk/print/0,3858,5043260-103685,00.html>

Grieshaber-Otto, J. and Schacter, N. 2002. GATS: Impacts of the International 'Services' Treaty on Health-Based Alcohol Regulation. *Nordisk Alkohol- and Narkotikatidskrift* (Nordic Studies on Alcohol and Drugs), 19 (English supplement): 50–68. <http://www.stakes.fi/nat/pdf/02/natsup-02.pdf>

Hall, W., Room, R. and Bondy, S. 1999. Comparing the Health and Psychological Effects of Alcohol, Cannabis, Nicotine and Opiate Use. In: Kalant, H., Corrigall, W., Hall, W. and Smart, R. (eds) *The Health Effects of Cannabis*. pp. 475–506. Toronto: Centre for Addiction and Mental Health.

Hammurabi 2000. *Code of Hammurabi*, translated by L.W. King. Web address:
<http://www.fordham.edu/halsall/ancient/hamcode.html>

Harwood, R. and Myers, T.G. (eds) 2004. *New Treatments for Addiction: Behavioral, Ethical, Legal and Social Questions*. Washington, DC: National Academy Press.
<http://www.nap.edu/books/0309091284/html/>

Hibell, B. 1984. Ölkets betydelse för alkoholkonsumtionen bland unga och gamla (The Importance of Medium-Strength Beer for Alcohol Consumption among Young and Old). In: Nilsson, T. (ed.) *När mellanölet försvann* (When Medium-Strength Beer Disappeared). pp. 94–107. Linköping: Linköpings universitet.

Hilts, P.J. 1994. Is Nicotine Addictive? It Depends on whose Criteria You Use. *New York Times*. 2 August. <http://www.ukcia.org/research/addictive.htm>

Hobbs, D., Hadfield, P., Lister, S. and Winlow, S. 2003. *Bouncers: Violence and Governance in the Night-time Economy*. Oxford: Oxford University Press.

Hoffman, R.S., Wipfler, M.G., Maddaloni, M.A. and Weisman, R.S. 1991. Has the New York State Triplicate Benzodiazepine Prescription Regulation Influenced Sedative-Hypnotic Overdoses? *New York State Journal of Medicine* 91: 436–439.

Home Office 2004. Anti-Social Behaviour Orders; Penalty Notices for Disorder.
<http://www.homeoffice.gov.uk/crime/antisocialbehaviour/orders/index.html>;
<http://www.homeoffice.gov.uk/crime/alcoholrelatedcrime/penaltynotices.html>

Hunter, J. 2002. English Inns, Taverns, Alehouses and Brandy Shops: The Legislative Framework, 1495–1797. In: Kümin, B. and Tlustý, B.A., (eds) *The World of the Tavern: Public Houses in Early Modern Europe*. pp. 65–82. Aldershot: Ashgate.

Järvinen, M. 1991. The Controlled Controllers: Women, Men and Alcohol. *Contemporary Drug Problems* 18: 389–406.

Jha, P. and Chaloupka, F.J. 1999. *Curbing the Epidemic: Governments and the Economics of Tobacco Control*. Washington, DC: World Bank. <http://www1.worldbank.org/tobacco/reports.asp>

Jha, P., Paccaud, F. and Nguyen, S. 2000. Strategic Priorities in Tobacco Control for Governments and International Agencies. In: Jha, P. and Chaloupka, F. (eds) *Tobacco Control in Developing Countries*. pp. 449–464. Oxford: Oxford University Press.

Kaplan, J. 1970. *Marijuana:- The New Prohibition*. New York and Cleveland: World Publishing Co.

Kleiman, M.A.R. 1992. *Against Excess: Drug Policy for Results*. New York: Basic Books.

Lemert, E.M. 1962. Alcohol, Values and Social Control. In: Pittman, D.J. and Snyder, C.R. (eds) *Society, Culture, and Drinking Patterns*. pp. 553–571. New York and London: Wiley.

Levy, A. and Scott-Clark, C. 2004. Under the Influence. *Guardian* 20 November.
<http://www.guardian.co.uk/weekend/story/0,,1354076,00.html>

Lineberry, T.W. and Bostwick, J.M. 2004. Taking the Physician Out of 'Physician Shopping': A Case Series of Clinical Problems Associated with Internet Purchases of Medication. *Mayo Clinic Proceedings* 79: 979–982.

MacAndrew, C. and Edgerton, R. 1969. *Drunken Comportment*. Chicago: Aldine.

MacCoun, R. 2004. Is the Addiction Concept Useful for Drug Policy? In: Vuchinich, R. and Heather, N. (eds) *Choice, Behavioral Economics, and Addiction*. pp. 355–373. Oxford: Elsevier Science. http://ist-socrates.berkeley.edu/~maccoun/MacCoun_The_Addiction_Concept.pdf

MacCoun, R. and Reuter, P. 2001. *Drug War Heresies: Learning from Other Vices, Times and Places*. Cambridge: Cambridge University Press.

MacCoun, R., Reuter, R. and Schelling, T. 1996. Assessing Alternative Drug Control Regimes. *Journal of Policy Analysis and Management* 15: 330–352.

MacDonald, Z. 2004. What Price Drug Use? The Contribution of Economics to an Evidence-Based Drugs Policy. *Journal of Economic Surveys* 18: 113–152.

Manski, C., Pepper, J. and Petrie, C. (eds) 2001. *Informing America's Policy on Illegal Drugs: What We Don't Know Keeps Hurting Us*. Washington, DC: National Academy of Sciences.

Marx, G. 1998. An Ethics for the New Surveillance. *The Information Society* 14: 171–185.

McDonald, D., Moore, R., Norberry, J., Wardlaw, G. and Ballenden, N. 1994. *Legislative Options for Cannabis in Australia*. National Drug Strategy Monograph 26. Canberra: Australian Government Publishing Service.

Midanik, L. 2004. Biomedicalization and Alcohol Studies: Implications for Policy. *Journal of Public Health Policy* 25: 211–228.

Moore, M.H. and Gerstein, D.R. (eds) 1981. *Alcohol and Public Policy: Beyond the Shadow of Prohibition*. Washington: National Academy Press.

Office of National Drug Control Policy 1994. *National Drug Control Strategy: Reclaiming Our Communities from Drugs and Violence*. Washington, DC: Executive Office of the President.

Parmentier, R. 2003. Tobacco Control: Don't Trade Away Public Health. London: Action on Smoking and Health, 8 March. <http://www.ictsd.org/pubs/external/tobacco.pdf>

Partanen, J. 1975. On the Role of Situational Factors in Alcohol Research: Drinking in Restaurants vs. Drinking at Home. *Drinking and Drug Practices Surveyor* 10: 14–16.

Pechman, C. and Reibling, E.T. 2000. Anti-Smoking Advertising Campaigns Targeting Youth: Case Studies from USA and Canada. *Tobacco Control* 9 (Supplement II): 18–31.

Pierce, J.P., Gilpin, E.A., Emery, S.L., White, M.M., Rosbrook, B. and Berry, C.C. 1998. Has the California Tobacco Control Program Reduced Smoking? *Journal of the American Medical Association* 280: 893–899.

Rabin, R.L. and Sugarman, S.D. (eds) 2001. *Regulating Tobacco*. Oxford: Oxford University Press.

Ramstedt, M. 2002. The Repeal of Medium-Strength Beer in Grocery Stores in Sweden: The Impact on Alcohol-Related Hospitalizations in Different Age Groups. In: Room, R. (ed.) *The Effects of Nordic Alcohol Policies: What Happens to Drinking and Harm When Alcohol Controls Change?* pp. 117–131. NAD Publication 42. Helsinki: Nordic Council for Alcohol and Drug Research.

Room, R. 1973. The Social Psychology of Drug Dependence. In: Hawks, D. (ed.) *The Epidemiology of Drug Dependence: Report on a Conference*. pp. 69–75. Copenhagen: WHO Regional Office for Europe.

Room, R. 1989. Drugs, Consciousness and Self-Control: Popular and Medical Conceptions. *International Review Journal of Psychiatry* 1: 63–70.

Room, R. 1990. Alcohol Problems and the City. *British Journal of Addiction* 85: 1395–1402.

Room, R. 1996. Drinking, Violence, Gender and Causal Attribution: A Canadian Case Study in Science, Law and Policy. *Contemporary Drug Problems* 23: 649–686.

Room, R. 2000. Control Systems for Psychoactive Substances. In: Ferrence, R., Slade, J., Room, R. and Pope, M. (eds) *Nicotine and Public Health*. pp. 37–61. Washington: American Public Health Association.

Room, R. (ed.) 2002. *The Effects of Nordic Alcohol Policies: What Happens to Drinking When Alcohol Controls Change?* NAD Publication 42. Helsinki: Nordic Council for Alcohol and Drug Research.

Room, R. 2004a. The Impotence of Reason in the Face of Greed, Selfish Ambition and Moral Cowardice. *Addiction* 99: 1092–1093.

Room, R. 2004b. 'What If We Found the Magic Bullet?' Ideological and Ethical Constraints on Biological Alcohol Research and its Application. In: Müller R, Klingemann H. (eds) *From Science to Action? 100 Years Later: Alcohol Policies Revisited*. pp. 153–162. Dordrecht: Kluwer.

Room, R. and Rossow, I. 2001. The Share of Violence Attributable to Drinking. *Journal of Substance Use* 6: 218–228.

Room, R., Jernigan, D., Carlini-Marlatt, B., Gureje, O., Mäkelä, K., Marshall, M., Medina-Mora, M.E., Monteiro, M., Parry, C., Partanen, J., Riley, L. and Saxena, S. 2002. *Alcohol and Developing Societies:*

A Public Health Approach. Helsinki: Finnish Foundation for Alcohol Studies and Geneva: World Health Organisation.

Roques, B. (chair) 1999. *La dangerosité de drogues: rapport au secrétariat d'État à la santé* (The Dangerousness of Drugs: Report to the State Secretariat for Health). Paris: La documentation française – Odile Jacob.

Rorabaugh, W.J. 1981. *The Alcoholic Republic: An American Tradition*. New York: Oxford University Press.

Ross-Degnan, D., Simoni-Wastila, L., Brown, J.S., Gao, X., Mah, C., Cosler, L.E., Fanning, T., Gallagher, P., Salzman, C., Shader, R.I., Inui, T.S. and Soumerai, S.B. 2004. A Controlled Study of the Effects of State Surveillance on Indicators of Problematic and Non-Problematic Benzodiazepine Use in a Medicaid Population. *International Journal of Psychiatry in Medicine* 34: 103–123.

Schechter, E.J. 1986. Alcohol Rationing and Control Systems in Greenland. *Contemporary Drug Problems* 15: 587–620.

Shibuya, K., Ciercielski, C., Guindon, E., Bettcher, D.W., Evans, D.B. and Murray, C.J.L. 2003. WHO Framework Convention on Tobacco Control: Development of an Evidence-Based Global Public Health Treaty. *British Medical Journal* 327: 154–157.

Shiffman, S., Gitchell, J., Pinney, J.M., Burton, S.L., Kemper, K.E. and Lara, E.A. 1997. Public Health Benefit of Over-The-Counter Nicotine Medications. *Tobacco Control* 6: 306–310.

Siegel, M. and Biener, L. 1997. Evaluating the Impact of Statewide Anti-Tobacco Campaigns: the Massachusetts and California Tobacco Control Programs. *Journal of Social Issues* 53: 147–168.

Simoni-Wastila, L., Ross-Degnan, D., Mah, C., Gao, X., Brown, J., Cosler, L.E., Fanning, T., Gallagher, P., Salzman, C. and Soumerai, S.B. 2004. A Retrospective Data Analysis of the Impact of the New York Triplicate Prescription Program on Benzodiazepine Use in Medicaid Patients with Chronic Psychiatric and Neurological Disorders. *Clinical Therapeutics* 26: 322–336.

Single, E., Robson, L., Xie, X. and Rehm, J. 1998. Economic costs of alcohol, tobacco and illicit drugs in Canada, 1992. *Addiction* 93: 991 – 1066.

Sly, D.F., Hopkins, R.S., Trapido, E. and Ray, S. 2001. Influence of a Counteradvertising Media Campaign on Initiation of Smoking: The Florida 'Truth' Campaign. *American Journal of Public Health* 91: 233–238.

Sly, D.F., Trapido, E. and Ray, S. 2002. Evidence of the Dose Effects of an Antitobacco Counteradvertising Campaign. *Preventive Medicine* 35: 511–518.

South Australia 1978. Royal Commission into the Non-Medical Use of Drugs. *Cannabis: A Discussion Paper*. Adelaide: Government Printer.

Spain, J.W., Siegel, C.F. and Ramsey, R.P. 2001. Selling Drugs Online: Distribution-Related Legal/Regulatory Issues. *International Marketing Review* 18: 432–449.

St. George, B.N., Emmanuel, J.R. and Middleton, K.L. 2004. Overseas-Based Online Pharmacies: A Source of Supply for Illicit Drug Users? *Medical Journal of Australia* 180: 118–199.

Taylor, A.L. and Bettcher, D.L. 2000. WHO Framework Convention on Tobacco Control: A Global 'Good' for Public Health. *Bulletin of the World Health Organisation* 78: 920–929.
[http://whqlibdoc.who.int/bulletin/2000/Number%207/78\(7\)920-929.pdf](http://whqlibdoc.who.int/bulletin/2000/Number%207/78(7)920-929.pdf)

Transform Drug Policy Foundation 2004. *After the War on Drugs: Options for Control*. Bristol: Transform Drug Policy Foundation.
http://www.tdpf.org.uk/Policy_General_AftertheWaronDrugsReport.htm

Travis, A. 2003. High Stakes. *Guardian* 16 April.
<http://society.guardian.co.uk/societyguardian/story/0,7843,937205,00.html>

United Nations 1976. *Commentary on the Convention on Psychotropic Substances, Vienna 21 February 1971*. New York: United Nations. The Convention's text is at
<http://www.incb.org/e/conv/1971/>

United Nations Office of Drug Control (UNODC) 2004. *Single Convention on Narcotic Drugs, 1961*. Vienna: United Nations Office of Drug Control. http://www.unodc.org/pdf/convention_1961_en.pdf

Van de Mheen, D. and Gruter, P. 2004. Interventions in the Supply Side of the Local Hard Drug Market: Towards a Regulated Hard Drug Trade? The Case of Rotterdam. *Journal of Drug Issues* 34: 145–161.

VanHaaren, A.M., Lapane, K.L. and Hughes, C.M. 2001. Effect of Triplicate Prescription Policy on Benzodiazepine Administration in Nursing Home Residents. *Pharmacotherapy* 21: 1159–1166.

World Anti-Doping Agency (WADA) 2003. *World Anti-Doping Code*. Montreal: World Anti-Doping Agency. http://www.wadaama.org/docs/web/standards_harmonization/code/code_v3.pdf

Wagenaar, A.C. and Toomey, T.L. 2000. Alcohol Policy: Gap between Legislative Action and Current Research. *Contemporary Drug Problems* 27: 681–733.

Wagner, A.K., Soumerai, S.B., Zhang, F., Mah, C., Simoni-Wastilia, L., Cosler, L., Fanning, T., Gallagher, R. and Ross-Degnan, D. 2003. Effects of State Surveillance on New Post-Hospitalization Benzodiazepine Use. *International Journal for Quality in Health Care* 15: 423–431.

Wakefield, M., Flay, B., Nichter, M. and Giovino, G. 2003. Effects of Anti-Smoking Advertising on Youth Smoking: A Review. *Journal of Health Communication* 8: 229–247.

Warner, K. 2002. Tobacco Harm Reduction: Promise and Peril. *Nicotine and Tobacco Research* 4: 61–71.

Weintraub, M., Singh, S., Byrne, L., Maharaj, K. and Guttmacher, L. 1991. Consequences of the 1989 New York State Triplicate Benzodiazepine Prescription Regulations. *Journal of the American Medical Association* 266: 2392–2397.

White, T. 2003. Drug Testing at Work: Issues and Perspectives. *Substance Use and Misuse* 38: 1891–1902.

World Health Organisation 2004. *Neuroscience of Psychoactive Substance Use and Dependence*. Geneva: World Health Organisation.