The **Academy** *of* **Medical Sciences**

# Press Release

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## Report highlights impact of future brain drugs on society

An increasing number and variety of psychoactive drugs - drugs that act on the brain – will emerge over the next few decades. Some drugs could bring new treatments for addiction and mental ill health, but others could also increase the burden of drug misuse, highlights a report by the Academy of Medical Sciences.

Sir Gabriel Horn FRS FRCP, Chair of the report's working group said, '*Recent and continuing advances in our knowledge of how the brain functions will lead to an increasing number of psychoactive drugs. These drugs could be used as medicines to treat mental illnesses such as depression or bipolar disorder and drug addiction, or used to enhance brain performance.*

*'The use of psychoactive drugs by patients and healthy individuals will become an increasing feature in all our lives. Society must be prepared to respond to these developments. We must act now to harness the opportunities offered by advances in brain science to treat and prevent disease, but also to reduce the harms associated with drug misuse and addiction.'*

Scientists now have a better understanding of addiction, with evidence showing that most addictive drugs, and indeed some behavioural addictions such as gambling, 'hijack' the neural circuits in a particular brain region. But the report expresses concern that this research has not been translated into better treatments for addiction.

Sir Gabriel said, '*The Government spends more than £15 billion annually in meeting the costs of drug-related social and economic harms, yet there are very few new drugs currently in development to treat addiction. Research funders and the pharmaceutical industry must be encouraged to see addiction as a priority area and to develop more innovative treatments*.'

Research into addiction has identified several genetic, psychological and social factors that increase the likelihood that an individual will experiment with illegal drugs and/or increase their risk of subsequent addiction. The report argues that this knowledge must be utilised to develop better preventative strategies and to inform public health interventions.

The need to translate research findings into more effective treatments is even more acute for mental illness. Current drugs to treat mental illness can transform lives for the better, but many are associated with only partial efficacy and unwanted side effects.

Sir Gabriel added, '*Mental ill health has a huge impact on the economy. Depression and anxiety account for 1 in 3 of all days lost from work. We have the tools to improve our basic understanding of what causes mental illness, but we need to take a more innovative approach to developing new medicines. We need to invest in the use of brain imaging techniques to identify and measure changes associated with mental illness, establish a national post-mortem brain bank for mental health research, and investigate the way genetic and environmental factors interact in the development of mental ill health.*

The emergence of a new group of psychoactive drugs, called cognition enhancers, will also challenge the way we view drug use by patients and healthy individuals. Cognition enhancers can potentially enhance brain performance in a variety of ways, for instance to improve short-term memory or speed of thought. These drugs could bring benefits to patients with neurodegenerative diseases, such as Alzheimer's disease, but will also be attractive to healthy people, perhaps to help them pass an exam or to improve their performance at work.

The report calls for an assessment of the long and short-term effects of using cognition enhancers and recommends ongoing monitoring of their use in non-medical contexts. Sir Gabriel added, '*We see similarities in the future use of cognition enhancers with the current use of performance enhancing drugs in sport. It is likely that the use of cognition enhancers will increase, so an assessment of the social and economic impacts now will allow Government and others to consider 'localised' regulation around use in schools, universities and the workplace.'*

Above all, the report emphasises the importance of a health-based approach to reducing the harms of drug misuse, something that was also stressed in the project's public consultation, which was delivered under the auspices of the Government's Sciencewise Programme and funded by the Department for Innovation, Universities and Skills.

Sir Gabriel said, '*The Government's drugs strategy is based on a principle of harm reduction. Much more could be done to improve our understanding of the harms associated with different illegal and legal drugs and our knowledge of the prevalence, duration and type of drug use in the population. Only with this information can we assess the harms of different drugs, develop the most appropriate drug classification system and ultimately target our health, police and social resources most effectively.*

*'Engagement with the public has formed a key component of the Academy's report. Debates about the kind of culture we want around psychoactive drugs must be informed by the science, but also by deliberative and inclusive debate with all sectors of society.'*

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Copies of the full report and summary can be obtained from nick.hillier@acmedsci.ac.uk; robert.frost@acmedsci.ac.uk and at www.acmedsci.ac.uk/publications once the embargo has lifted.

## Notes for Editors

The independent Academy of Medical Sciences promotes advances in medical science and campaigns to ensure these are translated into benefits for patients. The Academy's nine hundred Fellows are the United Kingdom's leading medical scientists from hospitals, academia, industry and the public service. Further details may be obtained from The Academy of Medical Sciences, 10 Carlton House Terrace, London SW1Y 5AH. Tel: 020 7969 5288; Fax: 020 7969 5298; website: http://www.acmedsci.ac.uk

***Project background***
The UK Government asked the Academy of Medical Sciences to undertake an independent review of the issues likely to be raised by future scientific developments in the fields of brain science, addiction and drugs.

An Academy of Medical Sciences working group was convened to consider, in consultation with experts and the public, the societal, health, safety and environmental issues.

The Academy's independent review covers issues around three types of substance: illegal and legal 'recreational' drugs; medicines for mental health; and a category of substances termed 'cognition enhancers'.

***Working Group Membership:***
**Professor Sir Gabriel Horn** FRS FRCP, Sub-Department of Behaviour, University of Cambridge (Chair)

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**Professor Roger Brownsword**, Professor of Law and Director of The Centre for Technology, Ethics and Law in Society, King's College London.
**Professor JF William Deakin** FMedSci, Professor of Psychiatry and Director of the Neuroscience and Psychiatry Unit, University of Manchester.
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