The Home Affairs Select Committee Inquiry into the Government’s Drugs Policy: Call for written evidence:

Submission from the Medical Research Council

Introduction

1. The Medical Research Council (MRC) is one of the main agencies through which the UK Government supports medical and clinical research. For almost 100 years, the MRC has improved the health of people in the UK and around the world by supporting the highest quality science. It invests in research on behalf of the UK tax payer and works closely with the UK’s Health Departments, the NHS, medical research charities and industry. MRC-funded scientists have made some of the most significant discoveries in medical science — from the link between smoking and cancer to the invention of therapeutic antibodies — benefiting millions of people.

2. The MRC welcomes the opportunity to contribute to this inquiry; this submission represents the independent views of the MRC and responds to the questions from the Home Affairs Select Committee which relate to the role of science in informing the Government’s drug strategy. We highlight the addiction research strategy that we are leading and how working with stakeholders such as the Home Office is starting to bear fruit in bringing novel cutting-edge methodology and world-leading expertise into policy-oriented research that aims to further increase the effectiveness of policy decisions in the longer-term. We also make reference to MRC’s support for population level interventions in the area of alcohol use and present our view for more research into new treatments for addiction and substance misuse.

Response

Addiction and Substance Misuse Research Strategy

3. The MRC is leading a strategic initiative for addiction and substance misuse research. The initiative, which began in 2007, was led by MRC on behalf of members of the Office for Strategic Coordination of Health Research (OSCHR) and involved co-funding with the Economic and Social Research Council (ESRC).

4. While this submission focuses on the addiction strategy which began in 2007, the Select Committee should be aware that MRC has funded significant programmes of discovery science in the neural underpinnings of addictive behaviour as well as contributions through major investments at the MRC and Wellcome Trust Behavioural and Clinical Neuroscience Institute (BCNI), the MRC Social and Public Health Sciences Unit (SPHRU), and the National Prevention Research Initiative (NPRI). BCNI’s objectives are to identify neural systems with defined cognitive or behavioural functions including the transition from impulsive behaviour to compulsion in drug use. SPHRU studies how people's social positions, and their social and physical environments, influence their physical and mental health and capacity to lead healthy lives and has studied drug misuse in this context. NPRI is a national initiative made up of government departments, research councils and major medical charities that are working together to encourage and support research into chronic disease prevention and funds some research aiming to develop and implement successful, cost-effective interventions that reduce people’s risk of developing major diseases though alcohol misuse, by influencing their health behaviours.

5. A workshop with the academic community and a range of stakeholders and international experts held in 2007, alongside various other consultations, underlined...
the need for enhancements in a number of areas. Themes where research opportunity was identified fell into the following broad categories:

**Cause** - Routes into, and relapse from, adolescent drug/substance use (illicit drugs/alcohol/tobacco) and gambling, and the causes of addiction and gambling including identification of risk factors and individual differences in vulnerability.

**Harm** - Understanding the biological and social harms caused by illicit drugs/substance use and gambling and quantitative monitoring of problematic gambling and drug use - costs to health, community and criminal justice systems.

**Treatment** - Developing preventive strategies and new treatments for addiction and relapse (pre-clinical development and proof-of-principle studies) and implementing and evaluating interventions to reduce addiction and relapse, and promote rehabilitation.

**Alcohol** - Considered a special case due to the enormous public health burden. The focus of the research on alcohol will not necessarily be alcoholism, but will also investigate the effects of hazardous drinking and supporting interventions to reduce heavy alcohol consumption. Research priorities identified at the outset of the initiative included estimating the true harm of alcohol misuse and new approaches to reducing alcohol misuse.

6. The Addiction and Substance Misuse Research Strategy, has included three calls for funding to date, supported by a total budget of £6.5 million (£6m of MRC funding and £0.5m of ESRC funding). The first call (February 2009) supported nine pilot studies at a combined value of nearly £2m. The second call (July 2009) provided seed-corn funding to establish eleven interdisciplinary ‘research clusters’ of experts with excellent track records in their own disciplines, not necessarily addiction, brought together to provide the critical mass likely to make a significant impact in this area. These clusters have obtained programmatic support through a third funding call under the initiative (see paragraphs 7 and 8), while also providing a platform for assembling future innovative research proposals suitable for funding through standard funding mechanisms administered by the MRC, ESRC and the National Institute for Health Research, as well as research commissioned by the Home Office.

7. Applications for the third call were considered in March 2010. Four awards, totalling £4.5m, were made which met many of the aims of the initiative and deliver research of strong strategic interest to the MRC and its stakeholders. For example, two studies are likely to directly inform Government policy; one by linking data from Home Office records on addiction and crime (NIQUAD; see paragraph 12) and the other through research into alcohol drinking behaviour and public health interventions (CAPER; see paragraphs 16 and 17). Two further studies are looking to identify molecular mechanisms that may be used as targets for future treatment development. These programmes were adjudged to be at the forefront of international research in this area by an independent award committee, largely constituted of international experts. The studies awarded in all three calls are listed at Annex 1.

8. The progress of the addiction clusters was reviewed by the MRC in October 2011. The independent scientific group established to oversee the initiative was impressed with the output and clear value derived from the cluster concept. A growing increase in skills, collaboration and new researchers in the field was evident, and a healthy indicator of greater future potential. Some clusters had very strong translational/policy impact and had introduced long-term approaches and innovative methodology into policy-oriented research. In short the initiative was considered to be very successful to date, with considerable promise for further development.
9. In order for this strategy to deliver real and relevant public health improvement, the MRC is committed to consulting relevant stakeholders and maintaining a high level of engagement throughout the implementation and further development of the strategy. The themes for this strategy (see paragraph 5) were drawn up in response to views from the academic community and in discussion with stakeholders including the Home Office and ESRC. The MRC is also an active member of the Home Office’s Government Drug Research Strategy Group, whose members include the Ministry of Justice, the Department for Education and the Department for Work and Pensions. The MRC has presented the addiction strategy to this group as well as the technical committee of the Advisory Council on the Misuse of Drugs (ACMD) and the Scottish Government. This dialogue has considered both the long-standing and changing national priorities in this area and embraced the wider public and societal issues that go beyond the immediate health research funding remit of the MRC.

Research to inform policy and practice

10. The MRC considers that research evidence should inform Government at all levels and drive forward decision and policy-making. The starting point for the MRC is that addiction and relapse from abstinence are symptoms of a brain disorder that is not a simple matter of choice for some individuals. MRC funded research in Cambridge has shown how high impulsivity predicts the switch to compulsive drug habit. Research internationally has shown that altered brain pathways and fewer D2 dopamine receptors mean addicts find it harder and harder to feel good, and that anyone, not just those at risk, can become an addict if their environment is stressful. Social and biological factors are extremely important in addiction.

11. We will leave it to others with key responsibilities in turning research evidence into policy and practice to say how well they feel the recommendations from research are implemented. Clearly in this area they are not always popular and MRC has taken the view that public and political debate about drug and alcohol use should be as informed as possible in relation to statistical, scientific and medical evidence. The MRC has recognised a need to increase the evidence available to policy makers about the scale of the issue and the harm that arises from addiction and the impact that new policies might have in reducing harm at both the individual and societal level. This is a challenging task as behavior is often hidden from conventional, survey-based research methods, due to the social stigma associated with using drugs illegally.

12. One example of how the MRC is addressing this together with the ESRC and the Home Office, is through the addiction cluster NIQUAD (Nationally Integrated Quantitative Understanding of Addiction Harms) that has been established at the University of Manchester and is led by Professor Tim Millar. NIQUAD’s objective is to combine and compare treatment records and criminal records to better estimate how many people are involved in serious drug use, how many people get involved in crime, what proportion die, and how helpful treatment has been in reducing death and crime. NIQUAD will initially focus on drug injecting and the use of opiates or crack cocaine, which are policy priorities. Using advanced statistical techniques, NIQUAD will combine and compare different sorts of information to develop more exact estimates. NIQUAD’s findings will provide policy makers with the information they need to make decisions about how to deal with addiction and the effective use of public funds.

13. Researchers involved in the NIQUAD cluster have also been awarded funding from the Home Office to develop a ‘warehouse’ of case-linked datasets on substance misuse and crime and are members of the expert panel appointed by the Home Office to steer the development of this work.

Public health and societal considerations: the case of alcohol

January 2012
14. Alcohol continues to be a major public health problem. In August 2011, the European College of Neuropsychopharmacology reported that alcohol dependence was the most disabling and expensive of all disorders of the brain in Europe, especially in men. In the UK in 2010, hospital admissions for alcohol-related disorders exceeded one million for the first time — up ten-fold since 1995/96. Alcohol was highlighted of concern in the Government White Paper on Public Health. The MRC is considering further steps to strengthen the relevant research evidence and develop new interventions.

15. Drug policy has the potential to contribute more to the public good by focusing on interventions with the largest potential population effect. Research points to the control of alcohol affordability and availability as being amongst the most effective policy options available to governments. Both England and Wales have seen a series of duty rises and local authorities have been given some powers to control availability. Several pricing and availability policy options are likely to be considered in the forthcoming Government alcohol strategy. Minimum pricing is currently supported by the SNP in Scotland who have a majority in the Scottish Parliament but it has hitherto been opposed by Labour and Conservative parties. Such policies are also unpopular with consumers and the alcohol industry continues to challenge them. It is imperative therefore that policy is based on a sound evaluation of evidence, assessment of how evidence applies in a local context and opportunities are taken to exploit sophisticated modeling of predicted outcomes and a longer term evaluation of effects.

16. One major output of the funding provided by the MRC and the ESRC has been the establishment of an addiction research cluster (CAPER) at the University of Sheffield that assesses the effectiveness of alcohol policy. It brings together UK alcohol policy researchers with international alcohol policy experts at the forefront of methodological development, as well as non-addiction experts working in the areas of evidence synthesis, policy modeling, industrial economics, health economics, public health, health inequalities, criminology, sociology and psychology. The £1m MRC/ESRC programme established under this unique cluster is significant in that it provides a breadth and critical mass beyond what an individual government department or funding agency could do on its own.

17. CAPER focuses on national and local implementation of alcohol pricing, availability, marketing, screening and brief intervention policies. The cluster’s work aims to enable stakeholders to answer ‘what-if’ questions and to predict the likely downstream impact of new policy scenarios, taking into consideration for the first time the effects of existing policy frameworks, social contexts and underlying trends in consumption and harm. The current natural experiment conditions (England and Scotland pursuing different alcohol policy changes and local variations in licensing practices and enforcement) provide an ideal ‘testbed’ for such alcohol policy research.

18. The Government's most recent drug strategy puts recovery (and abstinence) at its heart and many addicts do say that they want to come off drugs. This is a challenge however for the reasons set out in paragraph 10. Few addicts ever fully ‘kick the habit’ and interventions (generally based on psychosocial approaches) have some benefit but that is generally short-term. MRC has identified a pressing need to develop novel pharmacotherapies for addictions and an approach derived from knowledge of brain mechanisms of relapse offers a new way forward. To this end, MRC has established the ICCAM cluster which brings together the complementary research strengths of Imperial College London, University of Cambridge and the University of Manchester (hence the name) with the aim of using new experimental medicine research with GlaxoSmithKline. Potential pharmacotherapies will be assessed using novel psychological and functional magnetic resonance imaging (fMRI) paradigms addressing key relapse pathways in human alcohol, heroin and cocaine addicts and in

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parallel preclinical studies. This should also provide a platform for the study of other candidate drugs for addiction.

Summary

19. The Addiction and Substance Misuse Research initiative is seeking to build on existing Research Council investment in addiction research to provide a platform for innovative and interdisciplinary research of direct relevance to a range of stakeholders and policy makers. The MRC has recognised and responded to the need to pay attention to more policy-relevant areas in addiction research in order for society to adopt a more evidence based approach. NIQUAD and CAPER are just two examples of where this is working effectively and where the MRC has led the assembly of world-leading multidisciplinary groups able to tackle complex policy questions using cutting edge methodology and expertise.

20. The MRC continues to work very closely with the Home Office and other Government Departments and stakeholders to engineer, where it is scientifically tractable, the development of a portfolio of funded studies that can help address the major public health burden of drug and alcohol misuse. The current initiative has increased the capability of the UK to undertake innovative research and deliver outcomes relevant to the needs of policy makers, delivering research of very high methodological rigor and international standing. Maximising synergy between stakeholders holds promise for a much more comprehensive public policy approach.

21. High quality social and medical research is essential for providing the evidence base which must be taken into account in policy decisions and to help substantiate, and challenge where necessary, the approach being pursued in the eyes of the wider public.

Medical Research Council
26th January 2012

January 2012
Grants funded under the Addiction and Substance Misuse Research Strategy

1. **First Call for Proposals (February 2009)**

<table>
<thead>
<tr>
<th>Grant Holder – Institution</th>
<th>Title of Research</th>
<th>Award Value (£)</th>
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<tbody>
<tr>
<td>Dr M Hickman – University of Bristol</td>
<td>ALSPAC (Avon Longitudinal Study of Parents and Children) and Adolescent Substance Use Trajectories: Consolidation of a UK research resource</td>
<td>£164,076</td>
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<tr>
<td>Professor T Duka – University of Sussex</td>
<td>Understanding alcohol’s effects on inhibition of behaviour; implications for treatment</td>
<td>£201,416</td>
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<tr>
<td>Dr R Elliott – University of Manchester</td>
<td>Neurobiology of cognition and craving in opiate addiction: implications for relapse</td>
<td>£257,488</td>
</tr>
<tr>
<td>Dr J W Dalley – University of Cambridge</td>
<td>Genetic influences underlying impulsivity and risk for drug addiction</td>
<td>£228,112</td>
</tr>
<tr>
<td>Dr S Kamboj – University College London</td>
<td>Exploring the potential of D-cycloserine and cannabidiol to enhance cue exposure therapies in substance dependence</td>
<td>£220,072</td>
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<tr>
<td>Dr S Husbands – University of Bath</td>
<td>Transdermal delivery of a buprenorphine/naltrexone combination for the treatment of polydrug abuse</td>
<td>£202,480</td>
</tr>
<tr>
<td>Dr S King – University of Sussex</td>
<td>Molecular and physiological mechanism of GABA(A) receptor function in striatal circuits underlying addiction</td>
<td>£246,808</td>
</tr>
<tr>
<td>Dr L Clark – University of Cambridge</td>
<td>Predicting relapse in treatment-seeking pathological gamblers using impulsivity and compulsivity assays</td>
<td>£214,404</td>
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<tr>
<td>Professor A Lingford-Hughes – Imperial College London</td>
<td>Imaging D3 receptors in alcoholism.</td>
<td>£215,592</td>
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2. **Second Call for Proposals (July 2009 - Clusters)**

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<tr>
<th>Grant Holder – Institution</th>
<th>Title of Research</th>
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<tbody>
<tr>
<td>Professor Charles Abraham - University of Sussex</td>
<td>Developing evidence-based behaviour change interventions and policies to reduce alcohol use and misuse among young people</td>
</tr>
<tr>
<td>Professor W. Miles Cox - University of Bangor</td>
<td>Applied Cognitive Neuroscience Cluster: Developing Innovative Cognitive-Motivational and Neuroscientific Interventions for Alcohol Abuse</td>
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### Grant Holder – Institution

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<thead>
<tr>
<th>Grant Holder – Institution</th>
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<tbody>
<tr>
<td>Professor Colin Drummond - Institute of Psychiatry, Kings College London</td>
<td>Experimental and clinical research on treatment of alcohol misuse and dependence cluster (ECTAD)</td>
</tr>
<tr>
<td>Dr Matthew Hickman - University of Bristol</td>
<td>Causes, epidemiology and prevention of substance use (and gambling) among young people.</td>
</tr>
<tr>
<td>Dr Petra Meier - University of Sheffield</td>
<td>Capacity development for Alcohol Policy Effectiveness Research (CAPER)</td>
</tr>
<tr>
<td>Dr Tim Millar - University of Manchester</td>
<td>Nationally Integrated Quantitative Understanding of Addiction Harms (NIQUAD)</td>
</tr>
<tr>
<td>Professors David Nutt and Trevor Robbins - Imperial College London and University of Cambridge</td>
<td>ICCAM — Imperial College and Cambridge Addiction — a two-university cluster for the study of aetiology and translation in addiction with partnerships</td>
</tr>
<tr>
<td>Professor David Stephens - University of Sussex</td>
<td>GABAA receptors in neurobiology of drug and alcohol addictions (Causes of Addiction and Vulnerability Factors)</td>
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### 3. Third Call for Proposals

The third call had a £4.5m ring-fenced fund for competitive proposals from the 11 clusters successful in the second call.

Four awards were made under the third call in the addiction research strategy:

1) **Dr Tim Millar (University of Manchester). Awarded £706,688: Incidence, prevalence, harms and intervention effects for problem and injecting drug use: crime, morbidity & mortality.**

This research will combine and compare treatment records and criminal (Home Office) records to better estimate how many people are involved in serious drug use, how many get involved in crime, what proportion die, and how helpful treatment has been in reducing death and crime. Using advanced statistical techniques, Miller et al will examine all of the available sources of information about drug misuse and bring these together to provide the Home Office with much better estimates to inform the Government’s drug strategy.

2) **Professors David Nutt and Trevor Robbins (Imperial College London and the University of Cambridge). Awarded £1,566,514: New drugs for addiction: focus on attenuating core behavioural components of heroin, cocaine and alcohol addiction and relapse prevention.**

This application brought together two highly successful groups that had previously been competitors, together with an industrial stakeholder, GlaxoSmithKline. An experimental medicine platform will be used to assess candidate brain systems underpinning relapse at a molecular, network and behavioural level by assessing three candidate mechanisms based on dopamine DRD3 receptors (for relapse prevention), μ-opioid receptors (which mediate the reinforcing effects of opioids) and NK1 receptors (implicated in both stress and reward responses). The platform will then be available to study other candidate treatment approaches for addiction that may include for example orexin antagonists and appetite regulating peptides.
3) Dr Petra Meier (University of Sheffield). Awarded £1,002,605: *Interdisciplinary Alcohol policy effectiveness Research Programme*.

The aim for this research programme is to develop a step-change in capabilities for robust scientific appraisal of new and existing alcohol policy interventions. The researchers will also build a model that considers taxation and other available policy options. This research is highly relevant to the current policy debate over alcohol pricing and the dynamic model proposed goes beyond what individual government departments could do on their own.

4) Professor David Stephens (University of Sussex) Awarded £1,000,000: *GABAA receptors in acumens neural circuits underlying drug abuse: novel targets for treatment*.

This project is based on the role for the alpha2-subtype of GABA-A receptor in motivational systems and a genetic association between haplotypes of the gene encoding this subunit and human cocaine addiction. Stephens et al will study non-addicted human volunteers to see if such haplotypes give rise to biomarkers for addiction, and behavioural endophenotypes that may confer risk for development of addictive behaviours, particularly as a consequence of stressors. They have ‘imported’ new expertise in the form of Professor Jeremy Lambert in Dundee, an expert in neuropharamacology who had not previously worked in this field.