

This response was submitted to the consultation held by the Nuffield Council on Bioethics on *Novel neurotechnologies: intervening in the brain* between 1 March 2012 and 23 April 2012. The views expressed are solely those of the respondent(s) and not those of the Council.

Dr Martyn Pickersgill, University of Edinburgh

**Response to Nuffield Council on Bioethics:
'Novel Neurotechnologies' Consultation**

Dr Martyn Pickersgill
Wellcome Trust Senior Research Fellow
University of Edinburgh
martyn.pickersgill@ed.ac.uk

Novel neurotechnologies raise many questions for biomedicine and society, as the Nuffield Council rightly point out. In my response to this consultation, I will restrict my comments to three issues that have been, or will potentially be, framed out of the dominant discussion. Important matters pertaining to criminal justice, consent, and changes to personality are well rehearsed in the literature on neuroethics and in medical journals, and I suspect that these will be covered in-depth by other respondents.

1. Research Ethics and Governance

Neuroscience is a famously broad church, and attempts to regulate it have been difficult and will continue to be so in the future. This is as a consequence of the wide range of professional groups constituting 'neuroscience', and the range of bodies that represent them and seek to govern their practice. As I have documented in a forthcoming article in *Science, Technology & Human Values*, neuroscientists are sometimes overwhelmed by the amount of regulation they need to work with, leading to disengagement with this and confusion as to what governance frameworks apply where and when. At the same time, this regulatory multiplicity sometimes fails to adequately account for the considerable emotional labour involved in working with research subjects: locating and dealing with (for instance) incidental findings or participants under the therapeutic misconception can be hard work and demands much from scientists. Regulation of novel neurotechnologies needs to be sensitive and responsive to these difficulties, and there is a requirement to ensure that formal and softer forms of governance (a) align with each other and (b) are limited in order to prevent confusion. This will require sustained interaction between the national academies, professional associations, and the NHS, and straightforward uptake of these policies by universities and the departments within them.

2. Implications for the Health Professions

Novel neurotechnologies are exciting for scientists, physicians, and patients. However, they have much broader implications for health-services. Re-skilling of certain professional groups will be required, and potentially the creation of new forms of accreditation or even occupational categories in order to deal with,

implement and monitor these. At the same time, the roles and responsibilities of existing groups may increase, decrease, or change in other ways. Resources will need to be available to ensure that skilled staff are available to monitor and work with the technologies and patients, as well as to manage the wider shifts that may occur: introducing new standards, tools or professions in the health-service have well-documented 'ripple effects' that can have far-reaching effects. At the same time, health-services research and evaluation programmes will need to be in place to ensure technology implementation and patient care runs as planned. Increasingly divergent health-systems between the different countries within the UK are likely to be an issue that will require careful monitoring and consideration, especially in case of intra-national medical tourism.

3. Public Understanding and Acceptance

As my earlier research on neuroscience and society has showed (see references below), many people - including health professionals - consider neuroscientific research and concepts to be highly reductionistic and feel negatively towards neuroscience (and neuroscientists) on that basis. Even though the models of 'the human' that researchers work with are often complex, when findings and ideas are translated into other spheres (education policy, the media etc.) much of their sophistication is stripped away and more deterministic narratives are presented. There are, then, issues here around public understanding and acceptance of novel neurotechnologies. Many individuals may be deeply resistant to techniques that they will (rightly or wrongly) consider unsafe, inadequately researched, or overly invasive. Furthermore, the unfortunate history of psychosurgery and continued (and often controversial) use of ECT, along with new concerns over the regulation of devices and implants, will do little to allay public fears. In sum, public trust will be important to garner - and more importantly, it will need to be shown that this trust is appropriately placed. Innovators and regulators will need to engage more closely with social scientists who have analysed trust in-depth. It cannot be assumed that simply because the technologies 'work' they will be rapidly and unproblematically translated into practice, not least because of the implications they hold for what care and therapy mean in the context of mental health.

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