The Formulation and Non-Formulation of Security Concerns: Findings in Regard to Neuroscience

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History and Contemporary Policy

1. History as a ‘template for action’;
2. Showing what policy alternatives were considered in the past;
3. Providing a ‘voice’ for alternative or silenced perspectives;
4. Unpicking ‘myths’ or ‘folk histories’;
5. Showing the policy-making process in action;
6. Showing how taken-for-granted ideas or concepts might have been differently interpreted or understood;
7. Showing ‘what happened’ and providing greater general understanding.
UK (BWC/CONF.VII/INF.3/Add.1)

• **New scientific and technological developments relevant to the Convention**

• 120. In this field technologies for the discovery and development of compounds that act on the central nervous system (CNS) are of particular relevance to the BWC. These include advances in molecular and genetic neuroscience, drug discovery technology, bioregulators and drug delivery to the brain.

• **Advances in neuroscience have been misused in the past.**
US National Academies (2014)

- *Emerging and Readily Accessible Technologies and National Security (p2-20)*

  - Acknowledging the importance of this emerging field, both the United States and the European Union have launched large-scale programs in neuroscience. In April 2013, the Obama Administration committed $100 million in the FY2014 budget to the BRAIN (Brain Research through Advancing Innovative Neurotechnologies) Initiative.

  - Major advances in neuroscience are certain, and some of these are likely to be misused if precautions are not taken.
Neuroscientists Have Low Awareness of Dual-Use

Ethical training in neuroscience curricula in Australia, Canada, Germany and the US based on course websites and survey responses
Workshops with Neuroscientists

• Present state of ethics education for neuroscientists
• The ideal state of ethics education for neuroscientists in 2015
• What needs to be done to fill the gaps between the ideal state and the present state of ethics education
• Getting from here to there
• We did not find it easy to engage neuroscientists in developing a course on dual-use.
A Neuroscience Education Module

• Science, Ethics and Responsible Conduct of Research
• Introduction to Biosecurity and Dual-Use
• Novel Neuroweapons
• Chemical Weapons
• Biological Weapons
• The CBW Non-Proliferation Regime

• We are not aware of many other courses on dual-use for neuroscientists.
Challenges and Opportunities

• Ethics and Science have distinct methodologies ('deliberation on process' vs 'emphasis on results')

• It is very difficult to assess the risk of research *a priori*, individually and collectively. There is a need for open discussion best brought about by active learning educational processes like TBL.

• Ethical training of scientists about dual-use is only successful if it creates a continuous dialogue between science and security.
Empowerment of Scientists

• After 2001 the issue of dual-use was created largely within the security community.
• The NSABB recommendation on H5N1 seemed to threaten to reduce scientific autonomy and authority on the production of knowledge. (From 'true' to 'benign' knowledge)
• Scientists need to know how and why the issue of dual-use arose, not just about dual-use.
• Thus education should entail discussions about the BWC as a whole, not only about dual-use but also including current limitations and shortcomings of the Convention - such as confidence in compliance.
• This Science-Security interaction not only helps to mitigate the risks from dual-use but could also strengthen the Convention itself.
Key Points

1. Advances in neuroscience have been used to develop CB weapons in the past.
2. Major investments in neuroscience underway now are likely to lead to advances that could also be misused in the future.
3. Few practising neuroscientists have an understanding of the problem of dual-use and biosecurity as they are not taught about these issues.
4. Our work in attempting to develop a dual-use and biosecurity course for neuroscientists over the last two years suggests that it will not be possible to correct this deficiency in neuroscientists’ education without large-scale, systematic, well-funded, state-led programmes.
5. To be successful, dual-use and biosecurity education for neuroscientists must aim to develop a dialogue between scientists and society in which scientists are not just taught about dual-use but also about the need to strengthen and maintain the Biological and Toxin Weapons Convention as a whole.