
NEUROETHICS GUIDELINES ANALYSIS

An analysis of existing neuroethics/neurotechnology/neuroscience recommendations from five sources, which were commonly identified as important sources in literature reviews done by Global Neuroethics Summit and OECD members

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Recommendations/instruments analyzed:

1. **European Citizens' Assessment Report** (Meeting of Minds, 2006)
2. **Brain Waves Module 1: Neuroscience, society and policy** (The Royal Society, 2011)
3. **Novel neurotechnologies: intervening in the brain** (Nuffield Council on Bioethics, 2013)
4. **Gray Matters, Vol. I** (Presidential Commission for the Study of Bioethical Issues, 2014)
5. **Gray Matters, Vol. II** (Presidential Commission for the Study of Bioethical Issues, 2015)

Areas of commonality:

General Themes

- Justice and equity: access and control of access to neurotechnology and its benefits
- Privacy
- Cognitive enhancement and neuropsychopharmacology
- Safety and patient protection
- Capacity and consent
- Agency and autonomy
- Legal system: criminal justice
- Dual use
- Neural and brain interfaces
- Transcranial brain stimulation and deep brain stimulation

Recommendations

- Include diverse individuals (e.g., experts, community) in advisory boards, funding review committees, etc.
- Public engagement and education of both neuroscience and neuroethics
- Accurate communication and transparency about ethical and practical implications and applications of neuroscience research results
- Incorporation and funding of ethics research





Unique points of emphasis:

1. *European Citizen's Assessment Report: Complete Results*

(*Meeting of Minds, 2006*)

- Advocates diversity over normalcy, avoiding medicalizing society
- Recognizes pressure from economic interests (pharmaceutical research with low-profit potential)
- Focuses more on social implications for the general public and direct interaction with them for neuroscience recommendations

2. *Brain Waves Module 1*

(*The Royal Society, 2011*)

- Reviews current state of development in neuroscience and neurotechnology
- Addresses neuromarketing and its role in decision making science (consumer behavior) for businesses

3. *Novel neurotechnologies: intervening in the brain*

(*Nuffield Council on Bioethics, 2013*)

- Details possible exploitation of intellectual property rights (e.g., more risky explorations of possible solutions) on marketable neurotechnology to meet expectations of investors
- Notes novel neurotechnologies often enter "valley of death" due to lack of funding during process of translating research into commercial products
- Recommends making existing evidence of neurotechnologies transparent for public understanding and trust
- Includes stem cell tourism as a potential result of natural stem cell therapies
- Compares beneficence vs. uncertainty
- Outlines caution vs. precautionary issues in neurotechnology

4. *Gray Matters: Integrative Approaches for Neuroscience, Ethics and Society, Volume I*

(*Presidential Commission for the Study of Bioethical Issues, 2014*)

- Includes societal and ethical concerns of dementia research: how dementia affects notion of self/selfhood overall, preferences (pre- vs. post-dementia), decision-making capacity
- Emphasizes distinction between treatment and enhancement

5. *Gray Matters: Integrative Approaches for Neuroscience, Ethics and Society, Volume II*

(*Presidential Commission for the Study of Bioethical Issues, 2015*)

- Recommends legal system and affiliated bodies to develop, expand, and promote training resources to understand application of neuroscience for jurors, judges, attorneys, and public (i.e., publish challenges/limitations of neuroscience application, provide leveled interpretation of neuroscientific evidence)
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