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)

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

   (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)
6. Recommendation of the Council on Responsible Innovation in Neurotechnology

- Provides 9 principles that is embodied by the Recommendation for both governments and innovators alike to anticipate and address the ethical, legal, and social challenges that arise from neurotechnologies
- Aims to guide each step of the innovation process (e.g., research, technology transfer, investment, commercialization, regulation) in order to maximize benefits and minimize risks