

## TABLE OF CONTENTS

<b>Neuroethics Research .....</b>	<b>2</b>
CIHR – NEW EMERGING TEAMS (NET) .....	2
<i>States of Mind: Emerging Issues in Neuroethics (2006-2011)</i> .....	2
<i>Neuroimaging Ethics: From Theory to Practice (2005-2010)</i> .....	2
OTHER RESEARCH.....	2
<i>Canada Research Chair in Neuroethics (2007-2014)</i> .....	2
<i>Examining the translation of neuroscience to healthcare (2007-2011)</i> .....	2
<i>Identifying practices, challenges and solutions for REB review of advanced neuroimaging research in Canada (2007-2009)</i> .....	2
<i>Therapeutic Hopes and Ethical Concerns (2005-2009)</i> .....	3
TRILATERAL RESEARCH INITIATIVE.....	3
<i>Canadian Applications</i> .....	3
<b>Research Hubs.....</b>	<b>3</b>
CANADIAN NEUROETHICS INTEREST GROUP.....	3
IRCM NEUROETHICS RESEARCH UNIT.....	3
MONTREAL NEUROETHICS NETWORK.....	4
NATIONAL CORE FOR NEUROETHICS.....	4
NEUROETHICS NET.....	4
NOVEL TECH ETHICS – INTELLECTUAL COMMONS.....	4
<b>Invitational Neuroethics Workshops.....</b>	<b>4</b>
IDENTITY: ALTERED COGNITION.....	4
PARKINSON’S DISEASE: WHEN TO INITIATE HUMAN TESTING.....	5
<b>Public Education.....</b>	<b>5</b>
STATES OF MIND: A FILM SERIES ON THE ETHICS OF MENTAL HEALTH.....	5
NEUROETHICS DEBATE.....	5
MOOT COURT.....	5
<b>Conference Planning.....</b>	<b>5</b>
INTERNATIONAL NEUROETHICS CONFERENCE.....	5
INAUGURATION OF THE NATIONAL CORE FOR NEUROETHICS AT UBC.....	5
<b>Publications (Selected) .....</b>	<b>5</b>
2007.....	5
FORTHCOMING.....	6

## ORDER OF CANADA

Congratulations to **Rémi Quirion** on his investiture as an Officer of the Order of Canada in May 2007. The Order of Canada is the centrepiece of Canada’s honours system and recognizes a lifetime of outstanding achievement, dedication to the community and service to the nation. Dr. Quirion is the scientific director of the Institute of Neurosciences, Mental Health and Addiction at the Canadian Institutes of Health Research, and of the Douglas Hospital Research Centre, where he founded and directed the Neuroscience division.

## Neuroethics Research

### *CIHR – New Emerging Teams (NET)*

#### **States of Mind: Emerging Issues in Neuroethics (2006-2011)**

**Investigators** : F. Baylis, M. Bernstein, A. Fine, W. Glannon, J. Kimmelman, E. Racine, L. Reid

**Collaborators**: J. Drake, C. Elliott, D. Healy, S. LeBris, M.P. McAndrews, J.S. Robert, S. Wildeman.

**Funder**: Canadian Institutes of Health Research

The States of Mind NET is a platform for expanding and extending our understanding of what belongs in the emerging field of "Neuroethics." Beyond research ethics, beyond the ethics of clinical care, lie questions about the transformations of human identity and society that may be signaled by current and emerging incursions into the brain.

#### **Neuroimaging Ethics: From Theory to Practice (2005-2010)**

**Investigators** : J. Downie, N. Kenny, B. Magwood, K. Malisza, A. Newman, E. Racine, M. Schmidt, D. Yu

**Funder**: Canadian Institutes of Health Research

This NET focuses on paediatric Magnetic Resonance Imaging (MRI) research because it has been established as one of the safest methods for anatomical imaging. Its place in our hospitals is unlikely to be challenged, and therefore deserves careful analysis. The focus is on children because as one commentator states, "neuroimaging pediatric patients is accompanied by all the ethical dilemmas associated with neuroimaging in adults, magnified exponentially."

### ***Other Research***

#### **Canada Research Chair in Neuroethics (2007-2014)**

Dr. Judy Illes is Professor of Neurology and Canada Research Chair in Neuroethics at the University of British Columbia. Dr. Illes directs the National Core for Neuroethics at UBC and a research team devoted to ethical, legal, social and policy challenges specifically at the intersection of neuroscience and biomedical ethics.

#### **Examining the translation of neuroscience to healthcare (2007-2011)**

**Investigator**: E. Racine

**Funder**: Fonds de recherche en santé du Québec

This combined career award and operating grant supports part of the research activities of the Neuroethics Research Unit, in particular a study examining stakeholder perspectives and public understanding of the ethical and social issues of cognitive enhancement using methylphenidate (Ritalin). There is growing evidence that methylphenidate is being used by university students to improve concentration and academic performance. Our research objectives are to identify and analyze ethical, social, medical and scientific issues from the point of view of various stakeholders regarding this lifestyle use of a specific neuropharmaceutical.

#### **Identifying practices, challenges and solutions for REB review of advanced neuroimaging research in Canada (2007-2009)**

**Investigators**: E. Racine, B. Pike, J. Doyon

**Collaborators**: J. Downie, J. Kimmelman

**Funder**: Canadian Institutes of Health Research

This grant will examine the new and complex ethical landscape for both researchers and Research Ethics Boards (REB) in neuroimaging. Using semi-structured interviews, questionnaires and content analysis of consent documents, Canadian neuroimaging researchers and the chairs of REB will be queried to identify existing practices and proactive strategies for evaluating research protocols.

# Canadian Neuroethics Report 2006-2007

## **Therapeutic Hopes and Ethical Concerns (2005-2009)**

**Investigators:** F. Baylis, M. Bernstein, A. Fine, J. Kimmelman, L. Reid

**Collaborator:** J.S. Robert

**Funder:** Canadian Institutes of Health Research

This grant examines gene transfer for glioblastoma and stem cell transplantation for Parkinson's Disease as case studies in the ethics of novel neurological interventions. Policy recommendations will be examined and formulated in issues relating to the movement from preclinical to clinical research, including the creation of chimeras as intermediate model systems and the ethics of surgical innovation. The nature of personal identity and its disruption through neurological intervention will be considered and conclusions drawn for the formulation of consent forms and consent processes for ethical research in this area.

## ***Trilateral Research Initiative***

This Neuroethics Initiative is a trilateral funding measure by three governmental funding bodies: the Institute of Neuroscience, Mental Health and Addiction of the Canadian Institutes of Health Research (CIHR-INMHA, Canada); the Academy of Finland (AF) and the Federal Ministry of Research and Education, Germany (BMBF) together with the Projektträger in DLR (DLR). It aims to bring together relevant and competitive researchers and research teams from Canada, Finland and Germany to design and carry out jointly organized research projects in the field of neuroethics. The collaborative research projects must involve active communication and cooperation between the participating researchers.

## **Canadian Applications**

Hildt, E., Racine, E., Keranen, T., Gaisser, S. *International Stakeholder Perspectives on Ethics Review of Neuroimaging Research*

Jox, R.J., Raikka, J., Racine, E., Barasio, G.D. *Neuroethics and Chronic Disorders of Consciousness: Investigating New Challenges for Health Care Decision Making in the Context of Neuroscience Innovation.*

Müller, O., Baylis, F., Glannon, W., Louhiala, P., Karlsson, H., Boldt, J., Clausen, J. *The Stimulated Brain: Neuroethical Implications of Stimulating Brain Technology in Humans*

Metzinger, T., Reiner, P.B., Illes, J. *Normality, Normalization and Enhancement in the Neurosciences*

## **Research Hubs**

### ***Canadian Neuroethics Interest Group***

In June 2007, a neuroethics information session, sponsored by the IRCM Neuroethics Research Unit and the Neuroethics Society, was held at the annual meeting of the Canadian Bioethics Society (CBS) to inform members of the CBS of ongoing neuroethics activities. The opportunity to create a Canadian Neuroethics Interest Group was discussed. With the approval of the CBS Executive, interested persons are being surveyed to identify areas and activities of interest.

### ***IRCM Neuroethics Research Unit***

[www.ircm.qc.ca/neuroethics/en/](http://www.ircm.qc.ca/neuroethics/en/)

The Institut de recherches cliniques de Montréal (IRCM) is a non-profit organization devoted to understanding the causes and mechanisms of diseases in order to find diagnostic tools and means of prevention and treatment and, training tomorrow's scientists. The Neuroethics Research Unit is committed to training a new generation of students and researchers in neuroethics through the conduct of collaborative interdisciplinary research within Montreal's unique neuroscience and bioethics environment.

# Canadian Neuroethics Report 2006-2007

## **Montreal Neuroethics Network**

The Montreal Neuroethics Network promotes neuroethics training, education and dialogue by exposing various audiences to neuroethics issues; fostering collaboration and mutual learning to ensure Montreal's leadership in addressing ethical and social issues in neuroscience and healthcare delivery through inter-institutional collaborations. The Network was created in 2007 and its main goal is to facilitate the organization of neuroethics talks, seminars, workshops and symposia in Montreal.

## **National Core for Neuroethics**

[neuroethics.ubc.ca](http://neuroethics.ubc.ca)

With the remarkable pace of advances in the neurosciences, ethical, legal, policy and social issues are garnering significant attention in both the academic community and the eyes of the general public. Historically, consideration of the social implications of such frontier technology lagged the development of the technology itself. The vision for the National Core for Neuroethics at the University of British Columbia is to tackle these challenges head-on, working hand-in-hand with practicing neuroscientists to ensure the close alignment of innovation with societal and individual human values. The National Core for Neuroethics at the University of British Columbia was established in August 2007, with generous support from CIHR, INMHA, CFI, BCKDF and the Canada Research Chairs program.

## **Neuroethics Net**

[www.neuroethics.ca](http://www.neuroethics.ca)

The Neuroethics New Emerging Team (NET) was created in 2003 in response to developing neuroscience technology. The NET is funded by the Canadian Institute of Health Research, Institute of Neurosciences, Mental Health and Addiction.

The NET is led by Dr. Jocelyn Downie at Dalhousie University and is split into three projects, each researching different aspects of the legal and ethical issues raised by the paediatric use of Magnetic Resonance Imaging (MRI).

## **Novel Tech Ethics – Intellectual Commons**

[www.noveltechethics.ca](http://www.noveltechethics.ca)

The brain is regarded as that which makes us unique as individuals and as a species. Recent developments in brain imaging and pharmacology as well as new surgical procedures such as deep brain stimulation and the transplantation of stem cells have transformed our relationship to our brains. The field of neuroethics has emerged in order to address these new possibilities of neuroscience. With several grants currently underway, this is a growing area of expertise for the Novel Tech Ethics Research Team.

## **Invitational Neuroethics Workshops**

### ***Identity: Altered Cognition***

May 29 & 30, 2007, Toronto Canada

Attendees: Françoise Baylis PhD, Dalhousie University  
Mark Bernstein MD MSc FRCS, University of Toronto, University Health Network  
Tod Chambers PhD, Feinberg School of Medicine, Northwestern University  
Carl Elliott MD PhD, University of Minnesota  
Andrew Fenton PhD, Dalhousie University  
Grant Gillett MA MB ChB PhD FRAC, University of Otago  
Walter Glannon PhD, University of Calgary  
Susan Hawthorne MA PhD(c), University of Minnesota  
Laurence Kirmayer MD FRCP, McGill University  
Nir Lipsman MD, University Health Network  
Mary Pat McAndrews PhD C.Psych., University Health Network  
Jason Scott Robert, Arizona State University  
Sheila Wildeman MA LLB, Dalhousie University

# Canadian Neuroethics Report 2006-2007

## ***Parkinson's Disease: When to Initiate Human Testing***

November 9, 2007, Montreal Canada

Attendees: Marina Emborg MD PhD, University of Wisconsin  
Andrew Fenton PhD, Dalhousie University  
Alan Fine PhD, Dalhousie University  
Jonathan Kimmelman PhD, McGill University  
Alex John London PhD, Carnegie Mellon University  
Eric Racine PhD, IRCM  
Bernard Ravina MD MS, University of Rochester  
Lynette Reid PhD, Dalhousie University  
Mary Sunderland PhD(c), Arizona State University

## **Public Education**

### ***States of Mind: A Film Series on the Ethics of Mental Health***

Novel Tech Ethics will host the second annual States of Mind film series in January and February 2008. For four consecutive weeks, an 'entertainment' film featuring an aspect of mental illness will be screened and used as a catalyst for a public discussion of the medical and moral challenges of mental illness. Each discussion will be facilitated by a panel including a neuroethicist, a medical expert and a patient society representative.

### ***Neuroethics Debate***

March 2008 – Sponsored by the Neuroimaging NET grant, the debate will focus on the ethical issues generated by developments in neuroscience and neurotechnology. It will be recorded and made available to the public through the website and appropriate media distribution sites, and profiled as particularly useful as an educational tool for high school and undergraduate courses.

### ***Moot Court***

September 2008 – Sponsored by the Neuroimaging NET grant, the Moot Court will focus on various legal issues raised by developments in neuroscience and neurotechnology (e.g. the admissibility of fMRI results). It will be recorded and made available to the public through the website and appropriate media distribution sites, and profiled as particularly useful as an educational tool for high school and undergraduate courses.

## **Conference Planning**

### ***International Neuroethics Conference***

Spring 2009, Hamilton Canada (CBS Preconference)

### ***Inauguration of the National Core for Neuroethics at UBC***

September 11, 2007, Vancouver, BC

## **Publications (Selected)**

### **2007**

Alpert, S. (2007). Canadian medical device regulations: Ready for prime time? *Canadian Journal of Law & Technology*, 6:2, 109-117.

Baylis, F., & Fenton, A. (2007). Chimera research and stem cell therapies for human neurodegenerative disorders. *Cambridge Quarterly of Health Care Ethics*, 16, 195-208.

Baylis, F., Robert, J.S. (2007) Part-human chimeras: Worrying the facts, probing the ethics. *The American Journal of Bioethics*, 7:1, 41-45.

Downie, J., Schmidt, M., Kenny, N., D'Arcy, R., Hadskis, M., & Marshall, J. (2007) Paediatric MRI research ethics: The priority issues. *Journal of Bioethical Inquiry* 11673.

# Canadian Neuroethics Report 2006-2007

Downie, J., & Marshall, J. (2007) Paediatric neuroimaging ethics. *Cambridge Quarterly of Healthcare Ethics* 16:2.

Downie, J., & Murphy, R. (2007) Inadmissible, Eh? *The American Journal of Bioethics*, 7:9, 67-69.

Eaton, M. & Illes J. (2007) Commercializing cognitive neurotechnology – the ethical terrain. *Nature Biotechnology*, 25(4), 1-5.

Glannon W. ed. (2007) *Defining right and wrong in brain science: Essential readings in neuroethics*. Dana Press

Greely H., Illes, J. (2007) Neuroscience-based lie detection: The urgent need for regulation. *American Journal of Law and Medicine* 33, 377-431.

Illes, J., & Racine, E. (Eds.) (2007) Neuroethics: From neurotechnology to healthcare. *Cambridge Quarterly of Health Care Ethics*, 16, 125-127.

Illes, J., Rosen, A., Greicius, M. & Racine, E. (2007) Prospects for prediction: An ethics analysis of neuroimaging in Alzheimer's disease. *Annals of the New York Academy of Sciences* 1097: 278-295

Illes, J. (2007) Empirical neuroethics. *EMBO/EBML J.*, 8, 57-S61.

Illes, J. & Chin, V. (2007) An aversion the unknown. Review of B. Wexler, "Brain and Culture" published by MIT Press. *The American Scientist*. 95(1), 87-88.

Illes, J. Ipsa (2007) Scientia Potestas Est (Knowledge is Power), *American Journal of Bioethics – Neuroscience*. 7(1), 1-2.

Illes, J., & Atlas, S.W. (2007) Risks and benefits of the new medical imaging enterprise. *Virtual Mentor*. 9(99), 103. Available at: <http://www.ama-assn.org/ama/pub/category/17219.html>.

Illes, J., and Chin, V. (2007) Trust and reciprocity: Foundational principles in human subjects imaging research, *Canadian Journal of Neurological Sciences*. 34(1):3-4.

Illes, J. and Murphy, E. (2007) Chimeras of nurture, *American Journal of Bioethics-Neuroscience*. 7(5):3-4.

Illes, J. (2007) Not forgetting forgetting. *American Journal of Bioethics-Neuroscience*. 7(9):3-4.

Kimmelman, J., & Nalbantoglu, J. (2007). Faithful companions: A proposal for neurooncology trials in pet dogs. *Cancer Research* 2007; 67: 1-3.

Marshall, J., Martin, T., Downie, J., & Malisza, K. (2007) A comprehensive analysis of MRI research risks: In support of full disclosure. *The Canadian Journal of Neurological Sciences* 34:1.

Racine, E., & Illes, J. (2007) Emerging ethical challenges in advanced neuroimaging research, *Journal of Empirical Research on Human Research Ethics*. 2(2), 1-10.

Racine, E., Waldman, S., Palmour, P., Risse D. & Illes, J. (2007) Currents of hope: neurostimulation techniques in US and UK print media. *Cambridge Quarterly of Healthcare Ethics* 16: 314-318

Robert, J.S. (2007). Gene maps, brain scans, and psychiatric nosology. *Cambridge Quarterly of Health Care Ethics*, 16, 209-218.

Singh, J., Hallmayer, J. & Illes, J. (2007) Paradoxical relationships in the science of autism. *Nature Review Neuroscience*, 8, 153-160.

## **Forthcoming**

Alpert, S. Brain-computer interface devices: Risk and Canadian regulations. *Accountability in Research*

Alpert, S. Cost recovery and the future of the medical device regulation program in Canada. *Health Law Review*

Alpert S. Neuroethics & nanoethics: Do we risk ethical myopia? *Neuroethics*

Baylis, F. & Downie, J. (eds.) Special Issue, *Bioethics*

Bernstein, M. & Knifed, E. Ethical challenges of in-the-field training: A surgical perspective. *Learning Inquiry*

Fenton, A. Buddhism and the ethics of cognitive enhancement technologies. *Developing World Bioethics*

Glannon, W. (ed) Special Issue, *Journal of Ethics and Mental Health*

## Canadian Neuroethics Report 2006-2007

Illes, J. and Kirschen, M.P. Incidental neuroradiological findings. *Encyclopedia of Imaging*. Springer-Verlag, Heidelberg, Germany.

Illes, J., Kirschen, M.P., Edwards, E., Bandettini, P., Michael, D.B., Ford, P.J., Glover, G.H., Kulynych, J., Macklin R., Wolf, S.M., Grabowski, T., Seto B. Practical approaches to incidental findings in brain imaging research. *Neurology*

Illes, J., Vicissitudes of imaging, imprisonment, and intentionality, TELOS, R. Brownsword (Ed.).

Illes, J. Appealing to the restless consumer. *Nature Clinical Practice Neurology*.

Illes, J. Tempting fate: A review of books by J. Harris and A. De Grey. *Nature*.

Kimmelman, J. The Leap: The ethics of initiating translational trials. In J. Kimmelman (Ed.). *Lost in translation*. Cambridge: Cambridge University Press.

Knifed, E., July, J. & Bernstein, M. Neurosurgery patients' feelings about the role of residents in their care: A qualitative case study. *Journal of Neurosurgery*

Murphy, E.R., Illes, J. Neuroethics and psychiatry: New collaborations for emerging challenges. *Psychiatric Annals*.

Racine, E., Illes, J. "Emergentism" at the crossroads of philosophy, neurotechnology, and the enhancement debate. J. Bickle (Ed.) *Handbook of Philosophy*. Oxford University Press.

Racine, E., Illes, J. Neuroethics for clinicians: Ethical challenges of directly-marketed frontier neurotechnology. P. Singer and Adrian Viens (Eds.) *Bioethics for Clinicians*, Cambridge University Press, Cambridge, UK.

Racine, E., DuRousseau, D., Illes, J. Ethical issues in performance-enhancing technologies: From bench to headline. *Technology*.

Reid, L. & Nycum, G. Phase I gene transfer trials for glioblastoma multiform: Challenges to balancing possible harms and benefits of research. *Kennedy Institute of Ethics Journal*

Viirre, E., Baylis, F., & Downie, J. Promises and perils of cognitive performance tools: A dialogue. *Technology*