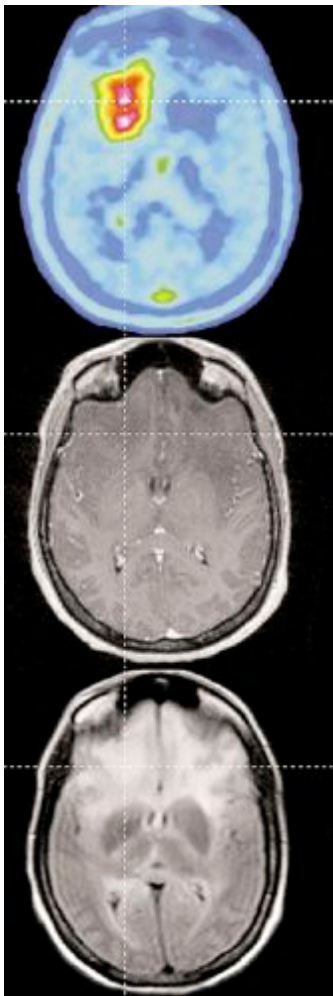


NATIONAL CORE FOR NEUROETHICS LA NEUROÉTHIQUE

THE UNIVERSITY OF BRITISH COLUMBIA

*Aligning innovations in neuroscience with societal, cultural
and individual human values through high impact research,
education and outreach.*



ANNUAL REPORT 2008 - 2009

[PRODUCED BY] National Core for Neuroethics

[ADDRESS] 2211 Wesbrook Mall, Koerner Pavilion S124
University of British Columbia Hospital
Vancouver, British Columbia
CANADA V6T 2B5

[TELEPHONE] 604-822-7920

[FACSIMILE] 604-827-5229

[EMAIL] info@neuroethics.ubc.ca

[WEBPAGE] <http://www.neuroethicscanada.ca>

[ANNUAL REPORT] http://www.neuroethicscanada.ca/National_Core_for_Neuroethics/Research.html

[DESIGNED BY] Neil Chahal



NATIONAL CORE FOR NEUROETHICS LA NEUROÉTHIQUE



September 2009

Dear Colleagues and Friends,

Tremendous advances in neuroscience, along with the attention that the “Decade of the Brain” in the 1990s brought to them, sparked heightened focus on public awareness of brain research. An already fast paced field was met with new demands on innovation and discovery. Along with progress in genomics, molecular medicine and other disciplines, new windows were opened onto the understanding of many brain disorders such as depression, addiction, and dementia, and hope for new interventions realized. Today, we are poised to launch a new decade – one focused on mind – and with all the complexity that the notion of mind brings forth, the implications of new research in neuroscience for individuals, society, and culture are profound: How shall society respond as a better understanding of brain biology changes fundamental perceptions of self, moral responsibility, and beliefs? What guidelines are needed to manage staggering, and potentially life-endangering, increases in the use of medicines for children diagnosed with new or poorly understood variants of attention and mood disorders? What policies are needed to respond to a diversion of already scarce medical resources from quality and respectful care for the elderly? How will our privacy be protected in an ever-expanding information age? What hope can we expect from progress, and what should we fear?

It is at this juncture of ethics, human values, and neuroscience that neuroethics fulfills its critical role. Neuroethics is a relatively new discipline that has deep roots in ancient philosophical discussions of mind and brain, and has joined this history with contemporary thinking in biomedical ethics and neuroscience. Many issues in neuroethics have the same starting points as other fields of bioethics – predicting disease, dealing with unexpected findings and unintended consequences of research, drawing attention to areas of potential concern. Neuroethics, though, is distinguished by wrestling with challenges that probe and touch us most deeply: free will, personal responsibility, personhood, and more. Diversity of culture and language, gender and ethnicity, also all factor into the equation of what defines brain health versus brain disease, risk versus benefit, acceptable versus unacceptable. The task, therefore, is to close the gap between the traditionally lagging consideration of the ethical and social implications of frontier brain technology, and the development of the technology itself.

The Core’s major research projects are focused on high impact, high visibility areas. These include challenges associated with:

- ✦ predicting dementia, depression and addiction
- ✦ identifying signs of consciousness in patients with severe brain injury
- ✦ developing the resources needed by children with behavioral and cognitive disorders
- ✦ “peering” into the brain of individuals to assess guilt or innocence
- ✦ embracing multicultural differences in perceptions of brain health and disease
- ✦ enhancing the performance of the human brain
- ✦ commercializing advanced neurotechnology.

To be sure, there will be no “one size fits all” answers to these thorny questions. But there is a time to ask them and to be proactive, and that time is now. Inaction is the greatest risk. As neuroscience advances to define and redefine how we think and why, it will most assuredly take us out of our comfort zone. Neuroethics addresses all these zones - personal, cultural and societal – so that we may better understand where neurobiology intersects with human values, and use those insights to help shape and empower both neuroscience and science policy of the future.

Yours sincerely,

Judy Illes, Ph.D.
Director, National Core for Neuroethics
Canada Research Chair in Neuroethics



TABLE OF CONTENTS

ONE	[OVERVIEW OF THE CORE].....1
	<ul style="list-style-type: none"> Role and functions <ul style="list-style-type: none"> Vision Values Mission The team <ul style="list-style-type: none"> Faculty members Staff members, interns, and visiting scholars Faculty affiliates Core advisory boards <ul style="list-style-type: none"> Scientific advisory board to the Core Advanced neuroimaging scientific advisory board Health Sciences Online neuroethics course advisors
TWO	[THE YEAR IN REVIEW]8
	<ul style="list-style-type: none"> Research <ul style="list-style-type: none"> Aging and dementia Imaging and genetics Addiction and autonomy Stem cells Enhancement Special events
THREE	[OUTREACH, EDUCATION AND SERVICE]16
	<ul style="list-style-type: none"> Outreach programs Education Service
FOUR	[PUBLICATIONS]20
	<ul style="list-style-type: none"> Peer-reviewed publications Books, edited volumes, and book chapters Editorials, letters, and reviews Abstracts
FIVE	[OTHER ACTIVITIES]23
	<ul style="list-style-type: none"> Neuroethics journal clubs Neuroethics seminar series Conference participation Invited lectures and presentations Media coverage and publicity
SIX	[THE YEAR AHEAD]27
	<ul style="list-style-type: none"> New staff New initiatives
SEVEN	[PHOTOGRAPHY CREDITS]28
EIGHT	[ACKNOWLEDGEMENT OF SPONSORS]29

OVERVIEW OF THE CORE

[role and functions]

With the remarkable pace of advances in neuroscience, 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 frontier technology has lagged the development of the technology itself. Our mission is to tackle this challenge straight-on, working hand-in-hand with practicing neuroscientists, physicians, allied healthcare professionals, policy-makers, the press, and others to ensure an early and close alignment of innovation with societal and individual human values. The National Core for Neuroethics at the University of British Columbia and UBC Hospital was established in August 2007 as an academic centre devoted to advancing this agenda.

Since we opened our doors our team, research, education, and outreach activities have grown substantially. We are pleased to share this second annual report of progress with you.

[core values]

Integrity: Uphold high moral and ethical principles in all aspects of neuroethics research, education and outreach.

Innovation: Pursue creative and novel approaches to critical issues in neuroethics.

Leadership: Inspire and motivate neuroethics scholars of the present and future.

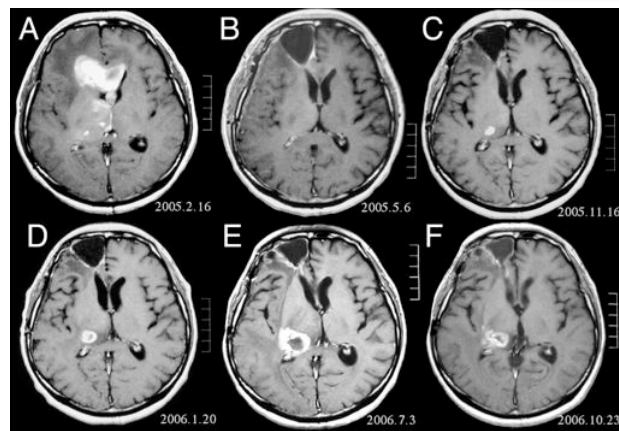
Teamwork: Respect the diversity and individuality of thoughts, ideals, and beliefs.

Partnership: Actively engage collaborators and stakeholders.

Responsiveness: Promote sensitivity to culture and spiritual issues and in research neuroscience literacy.

VISION

"For neuroscience to be applied for maximum knowledge, health benefit and public good, it is critical to identify and address the interaction of research with ethics and society at its earliest stages, pursue a common understanding of neuroscience innovation among stakeholders and develop policy as the science unfolds."



[the team]

During the 2008/09 year, the Core tripled its research personnel to a network of over fifteen.

Faculty Members

Judy Illes
Peter B. Reiner

Administrative Staff

Neil Chahal

Research Interns

Kevin Sauvé

Visiting Scholars

Gidon Felsen
Umamon Puangthong
Jason Valerio

Research Staff

Yemi Banjo
Emily Borgelt
Elana Brief
Daniel Buchman
Kevin Comerford
Carole Federico
Sofia Lombera
Joanne Reimer
Mohsen Sadatsafavi
Kate Tairyan
Ranga Venkatachary

MISSION

"To tackle the ethical, legal, policy and social implications of frontier neuroscience straight-on by working hand-in-hand with practicing neuroscientists, physicians, allied health professionals, policy makers, the press and the public to ensure the close alignment of innovation with societal and individual human values."



National Core for Neuroethics Vancouver Sun Run Team. From left to right (top) Ms. Joanne Reimer, Mr. Daniel Buchman; (bottom) Dr. Judy Illes, Dr. Kate Tairyan, Ms. Carole Federico. Vancouver, BC, April 2009.



[faculty members]

**Judy Illes, Ph.D.**

Dr. Illes, Canada Research Chair in Neuroethics, is Director of the National Core for Neuroethics at the University of British Columbia, Professor of Neurology, and Adjunct Professor with the School of Population and Public Health. She is faculty of the Brain Research Centre, of the Vancouver Coastal Health Research Institute, and a founding fellow of the Institute of Mental Health at UBC. She is a co-founder of the Neuroethics Society, a member of the Internal Advisory Board for the Institute of Neurosciences, Mental Health and Addiction (INMHA) of the Canadian Institutes of Health Research (CIHR), a member of the Institute of Medicine, Forum on Neuroscience and Neurological Disorders, and a member of the Dana Alliance for Brain Initiatives. Dr. Illes is editor of the American Journal of Bioethics (AJOB) - Neuroscience, and chair of Women in World Neuroscience of the International Brain Research Organization.

**Peter B. Reiner, V.M.D., Ph.D.**

Dr. Reiner is Professor in the Kinsmen Laboratory of Neurological Research, Department of Psychiatry, Brain Research Centre and the National Core for Neuroethics. Dr. Reiner has a distinguished track record as a research scientist studying the neurobiology of behavioral states and the molecular underpinnings of neurodegenerative disease. Dr. Reiner also has experience in the private sector, having been President & CEO of Active Pass Pharmaceuticals, a drug discovery company that he founded to tackle the scourge of Alzheimer Disease. Upon returning to academic life in 2004, Dr. Reiner refocused his scholarly work in the area of neuroethics, specializing in the commercialization of neuroscience with a particular interest in cognitive enhancement.

[staff members, interns, and visiting scholars]

**Yemi Banjo, B.Sc., M.Sc.**

Yemi Banjo, B.Sc., M.Sc., joined the Core in June, 2009 as a Research Fellow, and is currently coordinating the 'International Neuroethics: Enhancement, Drugs and Devices' study led by Dr. Peter Reiner in collaboration with Dr. Thomas Metzinger (Johannes Gutenberg University Mainz). She graduated from the University of California, Davis in 2005 with a Bachelor of Science degree in Neurobiology, Physiology and Behavior and recently completed a Master's degree in Neuroscience at UBC. As a graduate student, she studied the effects of brief fetal exposure and subsequent adult re-exposure to cycad neurotoxins in mice based on the fetal basis of adult disease (FeBAD) hypothesis. Ms. Banjo also co-manages the International Neuroethics Network.

**Emily Borgelt, B.Sc., M.A.**

Emily Borgelt, B.Sc., M.A., is a Research Coordinator at the Core. She presently coordinates a project with Daniel Buchman, regarding stakeholder perspectives on the potential clinical use of brain scans and genetic testing in psychiatry. She also manages the Clinical Neuroethics program. Ms. Borgelt graduated from Emory University in 2008 with a Bachelors degree in Neuroscience and Behavioral Biology and a minor in Ethics Studies. She then pursued a Masters degree in Bioethics at Case Western Reserve University, which she completed in May 2009.

Elana Brief, Ph.D.



Elana Brief, Ph.D., is a Consulting Research Fellow at the Core. She received her doctorate in Physics from the University of British Columbia where she developed methods for using MRI (Magnetic Resonance Imaging) to non-invasively measure concentrations of chemicals in human brain. During her post-doctoral fellowships she used similar techniques to study the human lung in Paris, France and to analyze fabricated human skin at Simon Fraser University. Dr. Brief has also worked in population health as one of the Research Directors of the Women's Health Research Network (funded by the Michael Smith Foundation for Health Research). There she co-authored "Our Common Ground" a guide describing how to engage in community based research. At the Core, Dr. Brief leads a project investigating First Nations community members' perspectives on normal and pathological brain aging.

Daniel Buchman, B.A., M.S.W.



Daniel Buchman, B.A., M.S.W., is a Research Fellow at the Core. He graduated from McGill University in 2005 with a Bachelors degree in Psychology and Social Studies of Medicine. He then obtained his Masters degree in Social Work at the University of Toronto in June 2008, specializing in Mental Health, and completed the Collaborative Program in Addiction Studies. Mr. Buchman's Masters thesis focused on clinical neuroethical challenges in the addictions, and how complex issues like addictions can be approached through a systems-based analysis. Mr. Buchman is presently leading a project on stakeholder perspectives on the potential clinical use of brain scans and genetic testing in psychiatry. He also coordinates the Clinical Neuroethics Program. Mr. Buchman will begin his doctoral studies in Neuroscience with a focus on neuroethics at UBC in the fall of 2009.

Neil Chahal, B.Sc., M.H.A.



Neil Chahal, B.Sc., M.H.A., is the Administrator for Finance and Research at the National Core for Neuroethics. During the 2008/09 year he completed a Masters degree in Health Administration at UBC. His thesis explored the intricacies of sustainable practice and neuroethics as they apply to healthcare program administration using the Vernicke-Korsakoff Syndrome as the model. Mr. Chahal has responsibilities for the financial, human resource, and information technology management of Core affairs and has been instrumental in expanding the team and its resource base over the course of the past year.

Kevin Comerford, M.F.A., M.I.S.



Kevin Comerford, M.F.A., M.I.S., joined UBC in the Fall 2008 as a graduate student with Prof. Edie Rasmussen in the School of Library, Archival and Information Studies. In a collaborative effort with Prof. Rasmussen, Mr. Comerford has been examining changing trends in how ethics is represented in the neuroscience literature and vice versa.

Carole Federico, B.Sc.



Carole Federico, B.Sc., is a Research Coordinator at the Core. She completed her undergraduate studies at the University of British Columbia in Biopsychology with an interest in Philosophy. Ms. Federico is presently coordinating two studies at the Core: both examine the needs of neuroimagers and neurodegenerative disease researchers for incorporating neuroethics into their research. She is working on a complementary project looking at these issues from the perspective of bioethics program directors. Ms. Federico is coordinating a number of events that the Core is hosting in anticipation of the 2010 Winter Olympics. Ms. Federico is the assistant editor, and a contributing author, of the forthcoming Oxford Handbook of Neuroethics publication, forthcoming in the fall of 2010.



Gidon Felsen, Ph.D.

Gidon Felsen, Ph.D., is a Visiting Scholar at the Core. His postdoctoral work at Cold Spring Harbor Laboratory focused on the neural mechanisms of decision making, using electrophysiological recordings in behaving rodents. In October 2009 he will be joining the faculty in the Department of Physiology and Biophysics at the University of Colorado, Denver, where his lab will apply similar techniques to study movement disorders. At the Core, he is studying how recent findings in the neuroscience of decision making can affect the quality patient care through improved doctor-patient interactions.



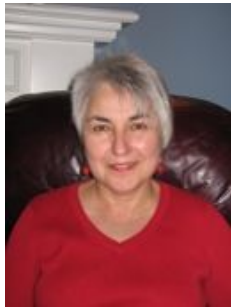
Sofia Lombera, B.Sc.

Sofia Lombera, B.Sc., is the Core's Manager for Research and Global Partnerships. She graduated from Stanford University with honors in Science, Technology and Society in 2007. Her specific research interests are the international dimensions of neuroethics. Ms. Lombera manages the International Neuroethics Network which is headquartered at the Core. Ms. Lombera looks forward to beginning a Master's program at the BIOS Centre at the London School of Economics in September 2009.



Umamon Puangthong, M.D.

Umamon Puangthong, M.D., is a Visiting Scholar with the National Core for Neuroethics, as well as a Clinical Fellow with the Alzheimer Disease and Related Disorder Centre at UBC Hospital. She obtained her medical degree and psychiatric diploma in Bangkok, Thailand, where she worked as a geriatric psychiatrist. Her specific research interests relate to cross-cultural challenges in brain research with special focus on dementia.



Joanne Reimer, R.N., M.N.

Joanne Reimer, R.N., M.N., is the Research Coordinator for the Spinal Cord Injury Stakeholders Initiative Project that is focused on eliciting patients' interests and preferences, along with those of their caregivers and physicians, on the use of stem cells in the treatment of spinal cord injury. The goal of the project is to advance clinical trials informed by these perspectives. Ms. Reimer brings over 25 years of experience in healthcare as a clinical specialist in palliative care and life-threatening illness, education, and research.



Mohsen Sadatsafavi, M.D., M.H.Sc., Ph.D.

Mohsen Sadatsafavi, M.D., M.H.Sc., is a Ph.D. student at Collaboration for Outcome Research (CORE) and the Center for Clinical Epidemiology and Evaluation (CCEE) at UBC. His research interest is in the application of statistical techniques in economic evaluation and medical decision making. He is working with members of the Core to continue to elucidate the problem of incidental findings in brain imaging.



Kevin Sauvé, B.Sc.

Kevin Sauvé, B.Sc., is a research intern with the National Core for Neuroethics and a graduate student of Science Journalism at the University of British Columbia. He studied neurobiology at the University of Guelph and is a recipient of the Health Research Communications Award from the Canadian Institutes of Health Research for health science communication as well as a CTV Globemedia fellowship for academic excellence from UBC. He was the student intern for the neuroscience communication workshop led by Dr. Illes and Jay Ingram of the Discovery Channel. Mr. Sauvé's ongoing work with Dr. Judy Illes includes the assessment of the nature of contemporary public discourse regarding neuroscience and ethics.



Kate Tairyan, M.D., M.P.H.

Kate Tairyan, M.D., M.P.H., is a Senior Research Fellow with the Core. Dr. Tairyan obtained a medical degree in preventive medicine from the Armenian State Medical University and a diploma in health management from the National Institute of Health. She received the Ed Muskie Graduate Fellowship Award to obtain a Master of Public Health degree with a concentration on Global Health Leadership from Emory University. Her public health expertise and work experience includes several positions at the Ministry of Health of Armenia and collaborations with international experts on health policy development and poverty reduction issues at national and local levels. Dr. Tairyan is spearheading a project to evaluate investigator needs for integrating neuroethics into neuroscience using imaging as the model. In addition to her work at the Core, Dr. Tairyan is the Content Director for the Health Sciences Online (HSO) program and teaches courses on global health at Simon Fraser University.



Jason Valerio, M.Sc., M.D.

Jason Valerio, M.Sc., M.D., graduated from University of Western Ontario with a Bachelor's degree in neurophysiology and a Master's degree in Neuroscience in 2004. Dr. Valerio's main focus of research was functional MRI in young healthy subjects with varying physiological responses to mental stress. He obtained his medical degree from the University of Ottawa in 2008, and is currently a neurology resident at the University of British Columbia. His project with the Core deals with new neuroimaging modalities for concussion in sport and the neuroethical questions this will raise.



Ranga Venkatachary, Ph.D.

Ranga Venkatachary, Ph.D., is the coordinator for the Canadian Dementia Knowledge Translation (CDKTN) program at the National Core for Neuroethics. She has a successful track record in designing curricula and assessment processes for problem-based learning and inquiry-based learning. In addition, she has been preparing professional development programs for faculty and instructors to strengthen teaching-research links.

[faculty affiliates]

✎ **Jehannine C. Austin, Ph.D., C.G.C.**

Assistant Professor, Centre for Complex Disorders, Department of Psychiatry, University of British Columbia

✎ **B. Lynn Beattie, M.D., F.R.C.P.C.**

Professor Emeritus, Department of Medicine, University of British Columbia

✎ **Erica Frank, M.D., M.P.H.**

Professor and Canada Research Chair, School of Population and Public Health and Department of Family Practice, University of British Columbia

✎ **David Li, M.D.**

Professor of Radiology, University of British Columbia

✎ **Carlo A. Marra, Ph.D., F.C.S.H.P.**

Assistant Professor, Research Scientist Director of CORE, University of British Columbia

✎ **Hendrik F.M. Van der Loos, Ph.D.**

Adjunct Professor of Mechanical Engineering, University of British Columbia

[scientific advisory board to the core]

- ✦ **Rémi Quirion, Ph.D., O.C., F.R.S.C., C.Q.** (*lead*)
Scientific Director, Research Centre, Douglas Institute, McGill University
- ✦ **Mary Anne Bobinski, Ph.D.**
Dean, School of Law, University of British Columbia
- ✦ **Max Cynader, C.M., O.B.C., Ph.D., F.R.S.C., F.C.A.H.S.**
Director, Brain Research Center, University of British Columbia
- ✦ **Howard Feldman, M.D., F.R.C.P.**
Vice President and Therapeutic Area Head, Global Clinical Research, Neuroscience, Bristol Myers Squibb
- ✦ **Joseph J. Fins, M.D., F.A.C.P.**
Chief, Division of Medical Ethics, Weill Cornell Medical College
- ✦ **Anthony Phillips, Ph.D., F.R.S.C.**
Scientific Director, Canadian Institutes of Health Research Institute of Neurosciences, Mental Health and Addiction

[advanced neuroimaging scientific advisory board]

- ✦ **Howard Feldman, M.D., F.R.C.P.** (*lead*)
Vice President and Therapeutic Area Head, Global Clinical Research, Neuroscience, Bristol Myers Squibb
- ✦ **Richard Ashcroft, M.A., Ph.D., F.H.E.A.**
Professor of Bioethics, School of Law, Queen Mary, University of London
- ✦ **Michael Burgess, Ph.D.**
Chair in Biomedical Ethics, Center for Applied Ethics, University of British Columbia
- ✦ **Mildred Cho, Ph.D.**
Associate Director, Stanford Center for Biomedical Ethics, Stanford University
- ✦ **Hank Greely, J.D.**
Deane F. and Kate Edelman Johnson Professor of Law, Stanford Law School, Stanford University
- ✦ **Joachim Hallmayer, M.D.**
Associate Professor, Department of Psychiatry and Behavior Science, Stanford University School of Medicine
- ✦ **David Magnus, Ph.D.**
Director, Stanford Center for Biomedical Ethics, Stanford University
- ✦ **Barbara Sahakian, Ph.D.**
Professor of Clinical Neuropsychology, Department of Psychiatry, University of Cambridge
- ✦ **Allan Schatzberg, M.D.**
Chairman, Department of Psychiatry, Stanford University
- ✦ **Phil Upshall, L.L.B.**
President, Mood Disorders Society of Canada

[health sciences online neuroethics course advisors]

- ✦ **Art Caplan, Ph.D.**
Director, Center for Bioethics, University of Pennsylvania
- ✦ **Erica Frank, M.D., M.P.H.**
Professor and Canada Research Chair, School of Population and Public Health and Department of Family Practice, University of British Columbia
- ✦ **Gladys Maestre, M.D., Ph.D.**
Professor of Neuroscience, Department of Neurosciences, School of Medicine, University of Zulia Maracaibo
- ✦ **Eric Racine, Ph.D.**
Research Unit Director, Institute de recherches cliniques de Montreal, University of Montreal
- ✦ **Barbara Sahakian, Ph.D.**
Professor of Clinical Neuropsychology, Department of Psychiatry, University of Cambridge

THE YEAR IN REVIEW

The Core's projects are focused on high impact, high visibility research including the use of drugs and devices for neuroenhancement, ethics in neurodegenerative disease and regenerative medicine, international and cross-cultural challenges, neuroimaging in the private sector, and the ethics of personalized medicine, among others. The following descriptions provide status updates on the five new and six ongoing programs based at the Core.

[aging and dementia]

Bioethical Landscape of Neurodegenerative Diseases Research and Treatment

Foundation for Ethics and Technology

We developed an online survey and launched it to identify the key ethics issues in neurodegenerative disease research. One thousand principal investigators were invited to complete the online survey. In total, 193 responses were received. Results will lead to better resources. As a corollary to this goal, this survey was designed to reveal how ethics resources can be customized for investigators and clinical scientists working on drug discovery, regenerative medicine and other related areas of research that may lead to interventions and treatments.



Dementia Research with Diverse Ethnocultural Populations: Exploring the Neuroethics Challenges

Canadian Institutes of Health Research



This project examines how researchers take ethnocultural considerations into account for the purposes of tailoring research on dementia. Over the past seven months, we have invited researchers from within British Columbia to participate in either face-to-face or telephone interviews and speak on ethnocultural considerations of their research. In the coming months we hope to extend the scope of this project and begin collecting data from Canadian researchers outside of British Columbia. At this point in time, 8 interviews have been completed.

"A major challenge for... care partners of individuals with dementia is timely access to research-based information, to best care practices, and to the services, resources, and supports provided by various government and community agencies and organizations."

- A Network for Translation of Research in Alzheimer Disease and Dementia



TWO

Dementia Knowledge Translation

Canadian Institutes of Health Research; Canadian Dementia Knowledge Translation Network

This multi-site project is aimed at building knowledge translation capacity in the area of dementia. This aim is met through specific goals under the three pillars of education and training in knowledge translation, dementia resource and knowledge exchange, and person and partner-centered knowledge translation. The UBC site holds the responsibilities for developing an educational and training program. During the 2008/09 period, the project milestones from the UBC site included a comprehensive literature review encompassing the areas of dementia education, knowledge translation and exchange, the constitution of an expert advisory panel, development of a conceptual framework for the design of curriculum architecture, and preparation of an online survey to assess training needs in knowledge translation in dementia. This project adds perspectives from educational and training development to the array of interdisciplinary research interests in Neuroethics at the Core.

Multicultural Concepts of Autonomy, Mental Well-Being and Cognitive Decline in Aging and Dementia

North Growth Foundation

Culture shapes notions of self, status of members of a community, and understandings of health and well-being. In Western culture, aging adults gradually lose their status as productive members of society. In contrast, First Nations' communities grant higher status to aging adults, Elders, and maintain their connection to their traditions and their history through teachings from Elders. Through this project we seek to understand how a remote northern Canadian First Nations community makes sense of, and responds to, cognitive decline and dementia experienced by their aging adults. In February 2009, we held focused discussion groups in the community. We learned that adults with age-related cognitive deficits are kept in the community for as long as possible, and that the community works together to respond to wandering and caregiver burnout. Traditional medicines, traditional foods, and connection to the land are seen as health promoting. The closest long-term residential care exists outside of their traditional territory, and families experience loss and anxiety in sending a loved one unprotected into another territory. Through this collaborative work we wish to be enriched by non-Western ideas of aging and cognitive decline, design relevant educational programs at the request of the community, and inform health policies for this and other North American Aboriginal communities.

[imaging and genetics]

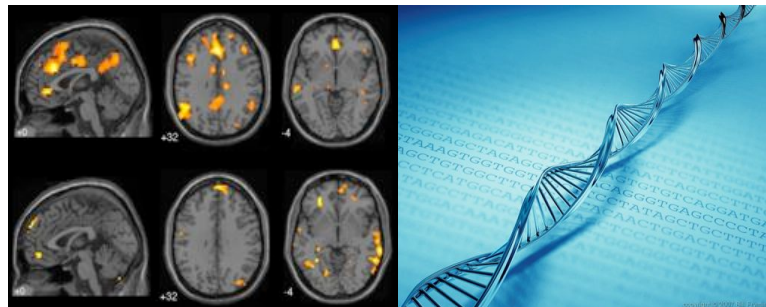
Neuroimaging and Ethics

National Institutes of Health/National Institute of Mental Health

In the sixth year of funding the Advanced Neuroimaging: Ethical, Legal and Social Issues initiative has three specific projects with the goal of identifying and addressing the interactions of neuroscience research with ethics and society.

Project 1: Examine the Early Integration of Neuroethics into Neuroscience. During the first year of the project, we found positive integration of neuroethics subject matter in the larger universe of neuroscience and bioethics publishing.

Project 2.1: Evaluation of Investigator Needs for Integrating Neuroethics into Neuroscience. An online survey was developed and launched in February 2009 aimed at developing and maximizing the utility of ethics resources for neuroscientists whose research involves neuroimaging, neurostimulation, and imaging genomics.



Twelve hundred principal investigators (funded by NIH, SBIR, CIHR, NSERC, SSHRC) and their research staff were invited to complete the online survey. We received 605 responses with data suggesting that there is a considerable interest among neuroscientists in ethics; more formal and informal discussions of neuroethics related issues and access to hands-on ethics resources are in high demand. Data also provided insights about the motivators and barriers for incorporating ethics into neuroimaging research. Our upcoming publications will reflect on those findings. Approximately 150 researchers also expressed interest in participating in focus group discussions. Five focus group sessions were held at the 15th Annual Meeting of the Organization for Human Brain Mapping in San Francisco in June 2009. Further focus groups are being planned for the Society for Neuroscience meeting later this year. Preliminary survey data were presented at the Canadian Association for Neuroscience and an abstract drawing on data about motivators and barriers has been accepted for poster presentation at the Society for Neuroscience Meeting in 2009.

Project 2.2: Incidental Findings. We continue our work on incidental findings (IF) as part of our goal to address ethics challenges in neuroscience. The aim of the present analysis was to find the most cost-effective policy to handle IFs using incidental intracranial aneurysms (IA) on magnetic resonance imaging (MRI) research scans as a model. Findings suggest that review of the scans explicitly for incidental findings by a non-specialist, a procedure adopted by many laboratories, is not an appropriate decision for any subgroup. No formal review of the scans is the best option for male subjects without a positive family history and males >60 years old with a positive family history. For all other men with a positive family history and in women with negative family history, the option of review of all study scans by a specialist is the most cost-effective. A full clinical workup is the best decision in female volunteers of all age groups with a positive family history. The results of the present decision analysis are another step towards reaching a consensus in the management of incidental findings.

Project 3: Integrating Stakeholder Perspectives. We have made tremendous progress to date in our research on neuroimaging and neurogenetics for people suffering from mood disorders. We have interviewed more than 30 patients and healthcare providers and have been actively analyzing the data. Results are giving us insights into both the receptivity to different forms of predictive testing for mental illness and the perceived impact on the objective self. In parallel with our work on this study, we are also preparing to launch a second phase of research focusing on individuals with schizophrenia and obsessive compulsive disorder, and a third phase with parents of children with attention deficit/hyperactivity disorder.

[addiction and autonomy]

Neuroethics for British Columbia

Michael Smith Foundation for Health Research

To deeply understand the place of ethical, social and policy considerations of frontier neurotechnology in British Columbia, we established the Neuroethics for BC team in April 2008. Since then, the team has worked hand-in-hand with practicing neuroscientists, clinical researchers, policy makers, and all citizens of science in British Columbia to ensure the close alignment of innovation with societal and individual human values in the realm of neuroethics. A key vehicle to achieve this goal have been presentations by senior members of the National Core for Neuroethics at the University of BC, University of Victoria, local colleges, and various public venues. A conference on *The Neuroethics of Addiction* was held in April of 2009 (please also see page 16 for more details on Neuroethics for British Columbia).



The Emerging Neurobiology of Autonomy

Canadian Institutes of Health Research

The notion of personal autonomy underlies our ethical considerations in a variety of societal contexts, such as shared doctor-patient decision making and the evaluation of criminal responsibility. Although autonomy has long been the purview of philosophers and ethicists, recent advances in neuroscience have shed light on the biological bases of the expression of, and constraints on, autonomy. The goal of this project is to describe how neuroscience can inform our concept of autonomy. For example, the degree of autonomy possessed by particular individuals, and even nonhuman animals, appears to depend on the structure of the cortex and its level of functioning. Incorporating the relevant neurobiology into our understanding of autonomy may have practical implications for several aspects of society.

[stem cells]

Stem Cells for Spinal Cord Injury: ELSI Issues

Stem Cell Network; Networks of Centers of Excellence

The goal of the Stem Cells for Spinal Cord Injury project is to harness the voice of people with spinal cord injury to both inform the development of clinical trials and to identify likely candidates for whom stem cell therapy may have an early and maximum benefit. To achieve this goal, we are conducting focus groups with people who have acquired a spinal cord injury, their primary caregivers, and healthcare providers. Preliminary analysis from the first physician groups indicates that they perceive themselves as more risk averse than do patients regarding stem cell therapy. In particular, physicians await more data about clinical safety and utility. Rehabilitation physicians describe themselves as devoting a lot of time to educating and "myth busting" about the reality of stem cell therapy without destroying hope, a benefit identified by physicians from both settings. Focus groups with patients and their primary caregivers will begin in September 2009.



[enhancement]

The Neuroethics of Enhancement

Canadian Institutes of Health Research

The *Neuroethics of Enhancement* initiative, coordinated by Dr. Thomas Metzinger of Johannes Gutenberg University Mainz, and led here at the Core by Dr. Peter Reiner, began in the summer of 2009. Under this program, the first project assesses the cross-cultural attitudes of physicians to prescribing cognitive enhancers and is currently in development. Although it is neither a disease nor an early indication for dementia, the normal cognitive decline of aging can be disturbing in a society in which one's cognitive abilities are important determinants of self-esteem and respect from one's peers. As a consequence, drugs designed to enhance cognition in "normal" individuals are currently in clinical trials. When these drugs become available, the burden of prescription will fall on physicians.

"We anticipate widespread interest in the outcome of this survey among physicians, pharmaceutical companies, the scientific community, regulatory authorities, and the general public."

- The Neuroethics of Enhancement

The goal of this study is to assess the views of physicians toward prescribing medications designed to treat normalcy; in this case, treating the normal decline in cognition that occurs with age. We focus first on physicians because they are key decision-makers in the adoption of new technologies in medical practice and are increasingly being asked to prescribe drugs that fall in the 'grey zone' between treatment and enhancement. We have designed a survey to be run in major cities in Canada, Germany, and likely Japan, U.S.A, and the U.K. We anticipate widespread interest in the outcome of this survey among physicians, pharmaceutical companies, the scientific community, regulatory authorities, and the general public.

[special events]

Inauguration of the National Core for Neuroethics

The National Core for Neuroethics celebrated its establishment with a public inauguration at the UBC Chan Centre for the Performing Arts on September 11, 2008. Invited plenary speakers included international leaders in neuroethics, such as Drs. Rémi Quirion, Barbara J. Sahakian, and Joseph J. Fins. They spoke on neuroethics in the life of a scientific director, cognitive enhancement, and the Canadian origins of neuroethics. A highly engaging panel and open discussion on the partnerships, priorities, and opportunities for neuroethics in Canada followed the plenary session. This interactive discussion featured a wide-range of perspectives from Drs. Judy Illes, Éric Racine, Michael McDonald, and Timothy Caulfield.

*Dr. Peter Reiner facilitating question period.
Inauguration of the National Core for
Neuroethics, Chan Centre for the Performing
Arts, September 2008.*

*Dr. Judy Illes providing welcoming remarks.
Inauguration of the National Core for
Neuroethics, Chan Centre for the Performing
Arts, September 2008.*



Panel Discussion and Open Forum: At the Crossroads of Ethics in Canada – Partnerships, Priorities and Opportunities for Neuroethics featuring Dr. Michael McDonald (W. Maurice Young Centre for Applied Ethics), Dr. Judy Illes (National Core for Neuroethics), and Dr. Erica Frank (UBC School of Population and Public Health). Inauguration of the National Core for Neuroethics, Chan Centre for the Performing Arts, September 2008.



Audience at the National Core for Neuroethics Inauguration. Chan Centre for the Performing Arts, September 2009.



YWCA Women of Distinction Awards

The Women of Distinction Awards began in 1984 to honor, encourage, and recognize women whose outstanding activities and achievements contribute to the health and future of the community. Since then, YWCA Vancouver has honored over 200 deserving women. Recognized nationally as one of the most prestigious awards for women, the Women of Distinction Awards also honors businesses and organizations that support the diverse needs of their employees. In the category of Technology, Science, and Industry, Dr. Judy Illes was nominated by the Society for Canadian Women in Science and Technology (SCWIST), alongside five other extraordinary nominees, for this 26th annual event held on 3 June 2009.



National Core for NEUROETHICS la NEUROÉTHIQUE Inauguration

WELCOME & INTRODUCTIONS
Judy Illes, Professor of Neurology and Canada Research Chair in Neuroethics, UBC
Gavin Stuart, Dean, Faculty of Medicine, UBC
Stephen J. Toope, President and Vice Chancellor, UBC

PRESENTATIONS
"Neuroethics in the Life of a Scientific Director"
Rémi Oubon
Director, Institute for Neuroscience, Mental Health and Addiction, CIHR, and Professor of Psychiatry, McGill University, Canada
"Pharmacological Cognitive Enhancement at the Juncture of Neuroscience and Ethics"
Barbara J. Sahakian
Professor of Clinical Neuropsychology, Cambridge University, UK
"Canadian Origins of Neuroethics: Historic Contributions of Drs. William Osler and Wilder Penfield"
Joseph J. Fins
Chief, Medical Ethics Division, Weill Cornell Medical College, USA

PANEL DISCUSSION & OPEN FORUM
"At the Crossroads of Ethics in Canada – Partnerships, Priorities and Opportunities for Neuroethics"
FEATURING: Erica Frank
CBC in Population and Public Health, UBC (moderator)
Judy Illes
CBC in Neuroethics, UBC
Michael McDonald
Maurice Young Chair of Applied Ethics, UBC
Eric Racine
Director, Neuroethics, Institut de recherches cliniques de Montréal
Timothy Caulfield
CBC in Health Law and Policy, University of Alberta

INAUGURATION RECEPTION
5:30 – 6:30 pm | Open to the public
Refreshments provided

SPONSORSHIP PROVIDED BY:
NIH National Institute of Mental Health
CIHR IRSC
Michael Smith Foundation for Health Research
Vancouver Coastal Health Research Institute
FACULTY OF MEDICINE

For more information, contact info@neuroethics.ubc.ca / 604.822.7920
WWW.NEUROETHICS.UBC.CA



2009 YWCA Women of Distinction Awards. Westin Bayshore Hotel, June 2009.

Communications for Senior Scientists 2009: NeuroTalk

Held at the Banff Centre in Banff, Alberta on March 19-22, 2009, this three-day science communications program was the first to bring senior neuroscientists, ethicists, and journalists together to identify strategies to improve communications. The participants included science and journalism leaders on these issues and was co-chaired by the Core's very own Dr. Judy Illes. As a collective with substantial leadership and experience, the participants clarified a path forward and created new examples of science communications. The communications specialists and senior scientists articulated a sophisticated two-way understanding of the challenges in neuroscience communication and prototyped possible new approaches. They were also featured on the Discovery Channel's *Daily Planet*.



Mr. Jay Ingram, host of the Discovery Channel's *Daily Planet* and Co-chair of "NeuroTalk". Banff Centre, March 2009.

TWO

12th Annual Jus Lecture

The Jus Lecture Series was created by Dr. Karolina Jus in 1994 in honor of her late husband, Dr. Andrzej Jus. The mandate of the series is to bring to the University of Toronto each year an internationally recognized major contributor to the advancement of genetics, neuroscience, psychiatry and its ethical implications. On January 29, 2009, Dr. Judy Illes presented on *Knowledge, Values, Neuroscience* at the Joint Centre for Bioethics at the University of Toronto to a capacity crowd.

The Gairdner Foundation 50th Anniversary Symposium

The Gairdner Foundation was created in 1957 by James Arthur Gairdner to recognize and reward the achievements of medical researchers whose work contributes significantly to improving the quality of human life. Since the first awards were made in 1959, the Gairdner Awards have become Canada's foremost international award. They hold up the pinnacle of achievement as a mirror to Canadians, and in so doing, play a role in helping Canada achieve its goals of excellence. Throughout the 50th Anniversary year, international symposia were held in Vancouver, Edmonton, Toronto, Ottawa, Montreal, Sherbrooke, and Halifax. As a Gairdner Symposium speaker, on March 11, 2009, Dr. Judy Illes presented on *Neuroethics for our Neurogenetic Future*, in the category of *Science and the Future of Medicine* in Vancouver. Additional features in the category included presentations from such Nobel Laureates as Drs. Harold Varmus, Sydney Brenner, Roger Tsien, and Carl Wieman.

Café Scientifique

Café Scientifique is a place where, for the price of a cup of coffee or a glass of wine, anyone can come to explore the latest ideas in science and technology. Meetings take place in cafes, bars, restaurants and even theatres, but always outside a traditional academic context. Café Scientifique is a forum for debating science issues, not a shop window for science. The Café is committed to promoting public engagement with science and to making science accountable. In October 2008, Dr. Peter Reiner presented a talk on *The Ethics of Your Body* at Gene Café, followed by Dr. Judy Illes presenting on *Neuroethics: In the Pursuit of Brain Well-Being and Brain Privacy* to a lively and engaged crowd at the Railway Club pub in downtown Vancouver in November 2008.

OUTREACH, EDUCATION, AND SERVICE

[outreach programs]

Neuroethics for British Columbia

Michael Smith Foundation for Health Research

The National Core for Neuroethics sponsored a diverse program of speakers at a conference entitled Neuroethics of Addiction on April 14, 2009 at the Wosk Centre for Dialogue in Vancouver. Plenary lectures by Dr. Anthony Phillips (Addiction is a Brain Disease) and Dr. Michael Krausz (Treatment of Addiction and Concurrent Disorders: Between Prohibition and Stigma), both from UBC, and Dr. Wayne Hall (Reaping Benefits and Avoiding Misuse of Addiction Neurobiology) from the University of Queensland were followed by a panel discussion entitled Neuroethics of Addiction: From the Laboratory to the Street. Chaired by Lorraine Greaves, the panel included Russ Maynard from the Insite supervised safe injection site, Thomas Kerr from the University of BC, as well as plenary speaker Wayne Hall.



Annual Dana Brain Awareness Week Lectureship in Neuroethics

The Dana Foundation

Brain Awareness Week (BAW) is an international campaign dedicated to advancing public awareness about the progress and benefits of brain research. Founded and coordinated by the Dana Alliance for Brain Initiatives and its sister organization, the European Dana Alliance for the Brain, BAW is now entering its fourteenth year as a catalyst for public understanding of brain science. The Dana Alliances are joined in the campaign by partners from around the world, including universities, hospitals, patient groups, government agencies, schools, service organizations, and professional associations. For the 2009 year, the National Core for Neuroethics with sponsorship from the Dana Foundation welcomed Dr. Bruce Wexler of the Yale School of Medicine, who presented on *Brain and Culture-Neurobiology, Ideology and Social Change*.

Clinical Neuroethics

Vancouver Coastal Health Research Institute

Over the past year, we met regularly with medical residents in Neurology, Neurosurgery, Radiology and Psychiatry in the Vancouver Coastal Health Authority, and engaged with them in high calibre academic discussions on cutting edge topics at the interface of ethics, neuroscience and medicine. Many of the residents took an active role in the creation of a “tough cases” clinical neuroethics template – a clinical case template that facilitates documentation of ethically provocative situations that occur in the resident’s daily practice. We have also developed a long list of UBC faculty members from diverse fields who are creating opportunities for and collaborating on research projects with the residents. Many residents have expressed interest in beginning Clinical Neuroethics research projects of their own or to join on some the exciting initiatives put forward by faculty. We also hosted international scholars who spoke on topics such as the ethics of cognitive enhancement, neuroplasticity and cultural values, and clinical partnerships for research and discovery for neurodegenerative diseases. We were delighted to see the high level of attendance at these Grand Rounds and special seminars. Our next steps are to fully roll out the tough case reporting to residents, both in hard copy and electronically, and to mentor new research projects.



Neuroethics Education in Canadian Neuroscience Programs

Canadian Institutes of Health Research

The focus of this project is to describe the current landscape of ethics training in neuroscience programs in Canada. To do this, we used a survey and expert interviews with neuroscience program directors and principal investigators (PIs) Strategic Training Initiatives in Health Research (STIHR) in neuroscience. Results demonstrate that although interest in ethics education is high, current approaches to training are not meeting their needs of this cohort. Program directors reported a desire to include more ethics content in their curricula but identified lack of time, relevant tools and expertise as major barriers to doing so. We have developed a set of recommendations for program directors, neuroethics collaborators, and funders to address these barriers that includes a new, highly flexible curriculum. Resources will consist of a web-based, open-access library of case studies and peer-reviewed and non-peer-reviewed materials. The archive will be sufficiently broad and comprehensive – effectively spanning molecules to mind – so that program directors and PIs can select materials that are most suitable to the scientific goals of their program (e.g., pediatric, aging, stem cells).



Health Science Online (HSO) Neuroethics Resources and References

Canadian Institutes of Health Research

The Health Science Online (HSO) Neuroethics Resources and References serve as an introduction to current topics in neuroethics and directs users to landmark papers in the field. The content was designed with particular attention to key emerging topics in neuroethics, to priority areas for the international community identified in the peer-reviewed literature, and to the neurologic and mental health challenges facing the developing world. The material is now complete and has been posted on the HSO website (<http://www.hso.info>). The content will be translated to French, Spanish, and Russian and regularly updated by members of the National Core for Neuroethics.

International Neuroethics Network (INN)

Canadian Institutes of Health Research

The INN's objective is to serve as a means of communication and support among neuroethicists around the world. Our goals are to foster international collaborations in neuroethics through the identification of common priorities and joint funding opportunities, research and training, and increased awareness of neuroethics globally.

Launched by CIHR-INMHA in 2005 at the Society for Neuroscience annual meeting in Washington, D.C. under the leadership of Rémi Quirion (INMHA), Judy Illes (UBC) and Astrid Eberhart (INMHA), the INN is now headquartered at UBC and chaired by Judy Illes. The INN has held meetings during the past two Society for Neuroscience (SfN) meetings, the first in San Diego in 2007, and the second in Washington D.C. in 2008. During these meetings, we have witnessed increasing international participation in our initiative, and view it as evidence of the interest worldwide in the intersection of brain science, ethics, and society. We currently have several ongoing initiatives including the formation of topic-focused interest groups, for example for those interested in the neuroethics of addiction, as well as the formation of regional chapters to be discussed at our next annual meeting in October 2009 in Chicago.



Dr. George Wanderi (centre) pictured with Dr. Judy Illes (left) and Ms. Sofia Lombra (right) at the National Core for Neuroethics.

International Brain Research Organization School of Neuroscience

National Core for Neuroethics

Held in Vancouver, Canada from May 29 to June 4, 2009, the 3rd Annual US/Canada Region International Brain Research Organization (IBRO) School of Neuroscience focused on Neural Degeneration and Regeneration. This year, like last, the school offered students from Africa, Asia and Latin America advanced neuroscience courses taught by local and foreign experts. We were pleased to sponsor Dr. George M. Wanderi from Kenya to attend the IBRO School. Dr. Wanderi, a medical doctor whose work focuses on adenoviral and adeno-associated vector gene therapy to treat malignant brain tumors, Parkinsonism, Cystic Fibrosis and HIV encephalitis, had particular interest in understanding neuroethics and policy related issues. Dr. Wanderi took away with him a greater understanding of the promise and limitations of new therapies as they are applied and regulated in North America and other parts of the world.

[education]

- ✦ **Buchman, D.** DPAS 410 - Doctor, Patient and Society. Ethics and Law Module Bioethics Tutor, University of British Columbia
- ✦ **Reiner, P.B.** COGS 300 - Understanding and Designing Cognitive Systems. Neuroethics and the Pharmacological Modulation of Cognition, University of British Columbia
- ✦ **Reiner, P.B.** DPAS 410 - Doctor, Patient and Society. Ethics and Law Module, University of British Columbia
- ✦ **Reiner, P.B.** MEDI 548 - Directed Studies in Experimental Medicine. Neuroethics, University of British Columbia
- ✦ **Reiner, P.B.** NRSC 501 - Neuroscience II. Learning and Memory Module Leader, University of British Columbia
- ✦ **Reiner, P.B.** NRSC 501 - Neuroscience II. Pharmacology of Memory, University of British Columbia
- ✦ **Reiner, P.B.** PHAR 472 - Pathophysiology III. Alzheimer's Disease, University of British Columbia
- ✦ **Reiner, P.B.** PRIN 410. Principles of Human Biology. Problem-Based Learning, University of British Columbia
- ✦ **Reiner, P.B.** PSYC 514 - Genes and Behaviour: Brains, Genes, and Responsibility, University of British Columbia

[service]

Contributions

- ✦ **Buchman, D., Federico, C., Felsen, G., Lomber, S. Reiner, P.B., Sauvé, K.** Contributor, Neuroethics at the Core Blog
- ✦ **Lomber, S.** Contributor, Neuroethics Society Newsletter
- ✦ **Reiner, P.B.** Contributor, Neuroethics and Law Blog

Chair/Committee Seats

- ✦ **Illes, J.** Chair, Women in World Neuroscience, International Brain Research Organization
- ✦ **Illes, J.** Committee co-Chair, Women in Neuroscience, Society for Neuroscience
- ✦ **Illes, J.** Executive Committee, Neuroethics Society
- ✦ **Reiner, P.B.** Chair, Merit Review Committee, Department of Psychiatry
- ✦ **Reiner, P.B.** Member, Early Career Scholars Selection Committee, Peter Wall Institute of Advanced Studies
- ✦ **Reiner, P.B.** Member, Neuroscience Graduate Program Comprehensive Exam Committee, University of British Columbia
- ✦ **Reiner, P.B.** Member, Neuroscience Graduate Program MSc and PhD Supervisory Committees, University of British Columbia



PUBLICATIONS

[peer-reviewed publications]

- ✦ Fins, J.*, **Illes, J.***, Bernat, J.L., Hirsch, J., Laureys, S., **Murphy, E.R.** (*lead authors). Neuroimaging and disorders of consciousness: Envisioning an ethical research agenda. *American Journal of Bioethics - Neuroscience*, 2008, 8(9):3-12.
- ✦ Grunwell, J., Karkazis, K., **Illes, J.** Advancing neuroregenerative medicine: A call for expanded collaboration between neuroscientists and ethicists. *Neuroethics*, 2008, 2(1):13-20.
- ✦ Hallmayer, J., Singh, J., Lazzeroni, L., **Illes, J.** Trends in U.S. autism research funding. *Journal of Autism and Developmental Disorders*, 2008, 39(5):788-95.
- ✦ **Illes, J.**, Chin, V.N. Bridging philosophical and practical implications of incidental findings in brain research. *Journal of Law, Medicine and Ethics*, 2008, 36(2):298-304.
- ✦ **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*, 2008, 70(5):384-390.
- ✦ **Illes, J.**, **Lau, P.W.**, Giacino, J.T. Viewpoint: Neuroimaging, impaired states of consciousness, and public outreach. *Nature Clinical Practice Neurology*, 2008, 4(10):542-3.
- ✦ **Illes, J.**, **Lombera, S.**, Rosenberg, J., Arnow, B.A. In the mind's eye: Provider and patient attitudes on functional brain imaging. *Journal of Psychiatric Research*, 2008, 43(2):107-14.
- ✦ **Illes, J.**, **Pierce, R.** Introduction: Accountability in neuroethics. *Accountability in Research*, 2008, 15(4):205-8.
- ✦ Racine, E., Amaram, R., Seidler, M., Karczewska, M., **Illes, J.** Media coverage of the persistent vegetative state and end-of-life decision-making. *Neurology*, 2008, 71(13):1027-32. Comment in: *Neurology*, 2008, 71(13):964-965.
- ✦ Wolf, S.W., Lawrenz, F., Nelson, C.A., Kahn, J.P., Cho, M.K., Clayton, E., Fletcher, J., Georgieff, M., Hammerschmidt, D., Hudson, K., **Illes, J.**, Kapur, V., Keane, M., King, R., Koenig, B., LeRoy, B., McFarland, E., Paradise, J., Parker, L., Terry, S., Van Ness, B., Wilfond, B. Managing incidental findings in human subjects research. *Journal of Law, Medicine and Ethics*, 2008, 36(2):219-248.
- ✦ Caulfield, T., Zarzeczny, A., McCormick, J., Bubela, T., Critchley, C., Einsiedel, E., Galipeau, J., Harmon, S., Huynh, M., Hyun, I., **Illes, J.**, Isasi, R., Joly, Y., Laurie, G., Lomax, G., Longstaff, H., McDonald, M., Murdoch, C., Ogbogu, U., Owen-Smith, J., Pattinson, S., Premji, S., von Tigerstrom, B., Winickoff, D.E. The stem cell research environment: A patchwork of patchworks. *Stem Cell Reviews and Reports*, 2009, 5(2):82-8.
- ✦ Crawley, L.M., **Illes, J.** Direct-to-consumer advertising in black and white: Racial differences in placement patterns of print advertisements for health products and messages. *Health Marketing Quarterly*, 2009, 27(2).
- ✦ **Illes, J.**, **Lombera, S.** Identifiable neuro ethics challenges to the banking of neuro data. *Minnesota Journal of Law, Science and Technology*, 2009, 10(1):71-94.
- ✦ **Lau, P.W.**, **Illes, J.** The gray zones of privatized imaging. *American Journal of Bioethics – Neuroscience*, 2009, 9(4):21-2.
- ✦ **Lombera, S.**, **Illes, J.** International dimensions of neuroethics. *Developing World Bioethics*, 2009, 9(2):57-6.
- ✦ **Reiner, P.B.** Unintended benefits arising from cell-based interventions for neurological conditions. *American Journal of Bioethics*, 9(5):51-2.
- ✦ Singh, J., **Illes, J.**, Lazzeroni, L., Hallmayer, J. Clinical and research trends in autism. *Journal of Autism and Developmental Disorders*, 2009, 39(5):788-95.



- ✦ **Buchman, D., Reiner, P.B.** Stigma and addiction: Being and becoming. *American Journal of Bioethics-Neuroscience*, 2009, 9(9):18-19.
- ✦ Hannah, D.R., **Venkatachary, R.** Putting “organizations” into an organization theory course: A hybrid CAO model for teaching organization theory. *Journal of Management Education*, 2009, in press.
- ✦ Racine, E., **Illes, J.**, Lansberg, M.G., Dion, M.J., Wijman, C. Profiles of neurological outcome prediction among intensivists. *Neurocritical Care*, 2009, in press.
- ✦ Reid, C., **Brief, E.** Confronting condescending ethics: How community-based research challenges traditional approaches to consent, confidentiality, and capacity. *Journal of Academic Ethics*, 2009, in press.
- ✦ **Tairyan, K., Illes, J.** Imaging genetics and the power of combined technologies: A perspective from neuroethics. *Neuroscience*, 2009, in press.

[books, edited volumes, and book chapters]

- ✦ **Illes, J.** *Medicine, neuroscience, ethics and society: The Tanner Lectures on Human Values*, University of Utah Press, 2008.
- ✦ **Illes, J., Pierce, K.R.** (Eds.) *Journal of Accountability in Research*, Special Issue on Neuroethics. October – December 2008.
- ✦ **Illes, J.** (Ed.) *Minimally Conscious States, Imaging and Ethics*, Special Issue of *AJOB-Neuroscience on Minimally Conscious States*. January 2009.
- ✦ Reid, C., **Brief, E.**, LeDrew, R. Our common ground: Cultivating women’s health through community based research. *Women’s Health Research Network* 2009.
- ✦ **Illes, J.** Vicissitudes of imaging, imprisonment, and intentionality. In: R. Brownsword (Ed.). *Regulating Technologies: Legal Futures, Regulatory Frames and Technological Fixes*. Hart Publishing, 2009.
- ✦ Racine, E., Bell, E., **Illes, J.** Can we read minds? Ethical challenges and responsibilities in the use of neuroimaging research. In: Giordano and Gordijn (Eds.). In press.

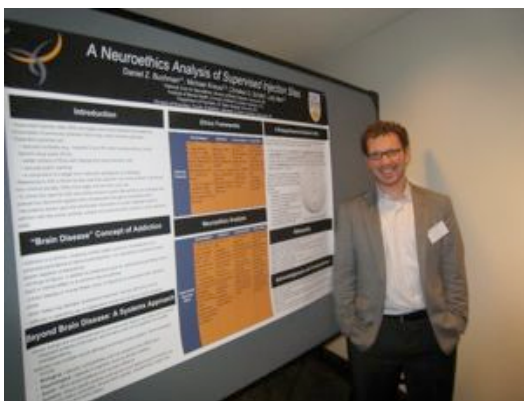


[editorials, letters, and reviews]

- ✦ Fins, J.J., **Illes, J.** Lights, camera, inaction? Neuroimaging and disorders of consciousness. *American Journal of Bioethics*, 2008, 8(9):1-3.
- ✦ **Illes, J.** Appealing to the restless consumer. *Nature Clinical Practice Neurology*, 2008, 4(3):117.
- ✦ **Illes, J.** Brain screening and incidental findings: Flocking to folly? *Lancet Neurology*, 2008, 7(1):23-4.
- ✦ **Illes, J.** Fixing the leaky faucet. *Science*, 2008, 321(5897):1776.
- ✦ **Pierce, R., Illes, J.** Policy must recognize drug impact on different sectors. *Nature*, 2008, 451(7178):521.
- ✦ Skinner, W., Russell, B., **Buchman, D.** The essentials of...ethics and professionalism. *Canadian Network of Substance Abuse and Allied Professionals*, 2008.
- ✦ **Buchman, D.Z.**, Russell, B.J. Addictions, autonomy and so much more: A reply to Caplan. *Addiction*, 2009, 104(6):1053-1055.
- ✦ Caulfield, T., Zarzecny, A., McCormick, J., Bubela, T., Chritchley, C., Einsiedel, E., Galipeau, J., Harmon, S., Huynh, M., Hyun, I., **Illes, J.**, Isasi, R., Joly, Y., Laurie, G., Lomax, G., Longstaff, H., McDonald, M., Murdoch, C., Ogbogu, U., Owen-Smith, J., Pattinson, S., Premji, S., von Tigerstrom, B., Winickoff, D.E. International stem cell environments: A world of difference. *Nature Reports Stem Cells*, 2009.

[abstracts]

- ✦ Crawley, L., Stone, J.R., **Illes, J.** Direct to consumer advertising in black and white: Racial differences in consumer exposure and physician perspectives. American Society for Bioethics and Humanities, Cleveland, OH, October 2008.
- ✦ Karkazis, K., Bell, E., Murphy, E., Tovino, S., **Illes, J.** Women's neuroethics? Why gender matters for neuroethics. American Society for Bioethics and Humanities, Cleveland, OH, October 2008.
- ✦ **Buchman, D.Z.**, Krausz, M., Schutz, C.G., **Illes, J.** A neuroethics analysis of supervised injection sites. Neuroethics Society Meeting, Washington, DC, November 2008.
- ✦ **Illes, J., Lau, P.W., Lomber, S., Reiner, P.B.** Clinical neuroethics outreach. Society for Neuroscience, Washington, DC, November 2008.
- ✦ **Lau, P.W., Illes, J.** Privatized imaging for brain disorders. Society for Neuroscience, Washington, DC, November 2008.
- ✦ **Lau, P., Illes, J.** Privatized imaging for brain disorders. Society for Neuroscience, Washington, DC, November 2008.
- ✦ **Lomber, S., Illes J.** International neuroethics education online: The development of a web-based curriculum. Society for Neuroscience, Washington, DC, November 2008.
- ✦ **Lomber, S., Illes, J.** Neuroethics on the Canadian neuroscience landscape. Neuroethics Society Meeting, Washington, DC, November 2008.
- ✦ **Illes, J., Tairyan, K.** Imaging genetics: Ethics at the interface of research and clinical neuroscience. American Academy of Neurology, Seattle, WA, April 2009.
- ✦ **Illes, J., Federico, C., Tairyan, K.** Neuroethics resources: Moving from "invisibility" to high usability. Canadian Association for Neuroscience Meeting, Vancouver, BC, May 2009.
- ✦ **Lomber, S., Butler, R., Beattie, B.L., Illes J.** Concepts of aging, dementia and cognitive decline: Perspectives of an Aboriginal community in northern British Columbia. Canadian Association for Neuroscience Meeting, Vancouver, BC, May 2009.
- ✦ **Buchman, D.Z., Illes, J.** Navigating the ethical space of imaging genetics: Clinical translation of neuropsychiatric research. Canadian Bioethics Society, Hamilton, ON, June 2009.



Mr. Daniel Buchman with poster the Neuroethics Society Meeting, Washington, DC, November 2008.

- ✦ Butler, R., Sadovnick, A.D., Dwosh, E., Guimond, C., **Lomber, S., Illes, J., Beattie BL.** Genetic counseling for early onset familial Alzheimer Disease in a large Aboriginal kindred from a remote community in northern British Columbia: unique challenges and possible solutions. Alzheimer's Association International Conference on Alzheimer's Disease, Vienna, Austria, July 2009.
- ✦ **Venkatachary, R., Macdonald, A.** Telling tales for higher order student engagement in auditing concepts. Improving University Teaching: Navigating Innovations in Teaching-Learning, Burnaby, BC, July 2009.

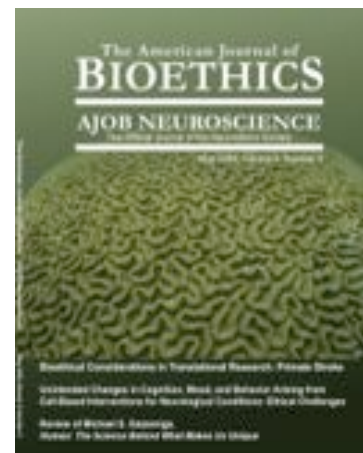
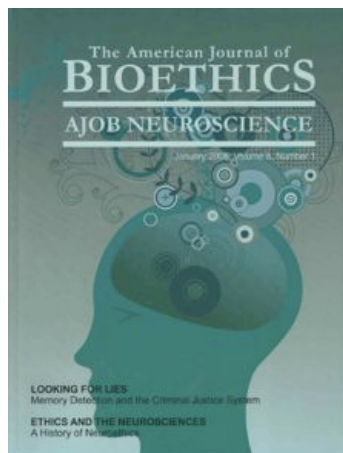
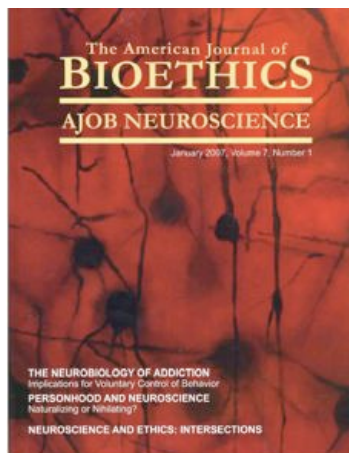
OTHER ACTIVITIES

[neuroethics journal clubs]

- ✦ **Lombera, S.** Propranolol and the Prevention of Post-Traumatic Stress Disorder: Is it Wrong to Erase the “Sting” of Bad Memories? Vancouver, BC, October 2008.
- ✦ **Banjo, Y.** Neuroimaging and Disorders of Consciousness: Envisioning an Ethical Research Agenda. Vancouver, BC, November 2008.
- ✦ **Buchman, D.** The Issue of Consent in Research that Administers Drugs of Addiction to Addicted Persons. Vancouver, BC, December 2008.
- ✦ **Tairyan, K.** What Frontotemporal Dementia Reveals About the Neurobiological Basis of Morality. Vancouver, BC, February 2009.
- ✦ **Di Curzio, D.** Body Integrity Identity Disorder (BIID): Is the Amputation of Healthy Limbs Ethically Justified? Vancouver, BC, April 2009.

[neuroethics seminar series]

- ✦ Corral, M., Feeney, S., White, RF. Omega-3 Fatty Acids and Mental Health: The Implications of Promoting Seafood Consumption. Vancouver, BC, October 2008.
- ✦ Trimble, J. Responsible and Ethical Conduct of Research with Ethnocultural Populations. Vancouver, BC, November 2008.
- ✦ Rodney, P. Moral Psychology in healthcare Delivery: Research on Moral Distress. Vancouver, BC, January 2009.
- ✦ Filate, I. Liar, Liar, Brain on Fire. Vancouver, BC February 2009.
- ✦ Wexler, B. Brain and Culture: Neurobiology, Ideology and Social Change. Brain Awareness Week Lecture. Vancouver, BC, March 2009.
- ✦ Ivins, I. How to Get Published in High Impact Journals. June 2009.



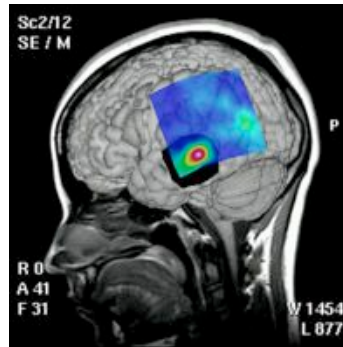
[conference participation]

Moderator

- ✦ **Illes, J.** Venture Philanthropy Strategies Used by Patient Organizations to Support Translational Research. Institute of Medicine Forum on Neuroscience and Nervous Systems Disorders. Irvine, CA, October 2008.
- ✦ **Illes, J.** Mind and Matter: Ethical Challenges in Deep Brain Stimulation. The Dana Foundation. New York, NY, November 2008.
- ✦ **Illes, J.** Cell Transplants: Reality or Pipe Dream? Debate. iCord Annual Research Meeting, Vancouver Coastal Health Research Institute. Vancouver, BC, January 2009.
- ✦ **Illes, J.** Modeling Trusteeship. Eighty-Third Annual Meeting of the American Philosophical Association (Pacific Division), Vancouver, BC, April 2009.
- ✦ **Buchman, D.Z.** Clinical Ethics Session. Canadian Bioethics Society Conference. Hamilton, ON, June 2009.

Keynote Speaker

- ✦ **Illes, J.** A Vision for Quality End of Life Care. Vancouver Coastal Health Clinical Ethics Conference. Vancouver, BC, October 2008.
- ✦ **Illes, J.** Knowledge, Values, Neuroscience. Twelfth Annual Jus Lectures, University of Toronto. Toronto, ON, January 2009.
- ✦ **Illes, J.** Neuroethics for our Neurogenetic Future. The Gairdner Foundation Symposium. Vancouver, BC, March 2009.
- ✦ **Illes, J.** Neuroethics. Institute of Medicine Board on Health Policy. Washington, DC, June 2009.



Chair

- ✦ **Illes, J.,** Ingram, J. Senior Scientist Communication Program. The Banff Centre, Banff, AB, March 2009.

Panelist

- ✦ **Illes, J.** Neuro Talk: Truth, Lies, Neuroscience and Ethics. The Banff Centre, Banff, AB, March 2009.
- ✦ **Illes, J.** Interior Traces. The Dana Centre, London, UK, May 2009.
- ✦ **Illes, J.** Interior Traces. Birkbeck Cinema, London, UK, May 2009.

[invited lectures and presentations]

- ✦ **Illes, J.** Neuroethics: In the Pursuit of Brain Well-Being and Brain Privacy. Café Scientifique, Vancouver, BC, November 2008.
- ✦ **Illes, J.** Addiction, Psychiatry and Neuroethics. St. Paul's Hospital Work in Progress Session, Vancouver, BC, December 2008.
- ✦ **Illes, J.** Knowledge, Neuroscience, healthcare and Privacy. The Women's Discussion Group, Vancouver, BC, February 2009.
- ✦ **Illes, J.** Neuroethics and our Legal Future. What's Next in Law, Health & the Life Sciences? Debating Openness, Access and Accountability Conference, University of Minnesota, Minneapolis, MN, March 2009.
- ✦ **Illes, J.** Cutting Edge Applications of Functional Neuroimaging - Unprecedented Ethical Challenges. Grand Rounds, Department of Radiology, University of British Columbia, Vancouver, BC, March 2009.
- ✦ **Illes, J.** Neuroethics Challenges for Neuroengineering and the Neurosciences. Interdisciplinary Research in the Mathematical and Computational Sciences Centre, Simon Fraser University, Vancouver, BC, April 2009.
- ✦ **Illes, J.** The Neuroethics Challenge for the Brain and Behavioral Sciences. BIOS Centre for the Study of Bioscience, Biomedicine, Biotechnology and Society, London School of Economics, London, UK, May 2009.
- ✦ **Illes, J.** Subjects' Expectations of Neuroimaging Research: Trust, Hope and Reciprocity. The University College of London, London UK, May 2009.
- ✦ **Illes, J.** Neuroethics Challenges: Neurodegeneration and Regeneration. International Brain Research School, Vancouver, BC, June 2009.
- ✦ **Illes, J.** Addiction Neuroethics: Traditional and Innovative Approaches to Addiction. Centre for Health Evaluation and Outcomes, Vancouver, BC, July 2009.
- ✦ **Reiner, P.B.** Neuroessentialism. Court of Appeals of British Columbia, Vancouver, BC, March 2009.



- ✦ **Reiner, P.B.** Ethics of your Body. Café Scientifique, Vancouver, BC, October 2008.
- ✦ **Reiner, P.B.** Neuroethics of Cognitive Enhancement. Geriatric Psychiatry, University of British Columbia, Vancouver, BC, September 2008.
- ✦ **Reiner, P.B.** Neuroethics of Cognitive Enhancement. Kwantlen College, Richmond, BC, December 2008.
- ✦ **Reiner, P.B.** Neuroethics of Cognitive Enhancement. University of Victoria, Victoria, BC, February 2009.
- ✦ **Reiner, P.B.** Neuroethics of Cognitive Enhancement. University of British Columbia-Okanagan, Kelowna, BC, January 2009.

Public Reception. Inauguration of the National Core for Neuroethics, Chan Centre for the Performing Arts, 11 September 2008.

[media coverage and publicity]



- ✦ **Illes, J.** Media coverage of persistent vegetative state and end-of-life decision-making. News-Medical.net, August 2008.
- ✦ **Illes, J.** The Schiavo case: Are mass media to be blamed? EurekAlert! Public News List; Genetic Engineering and Biotechnology News, August 2008.
- ✦ **Illes, J.** The Schiavo case: Are mass media to blame? Science Daily; Science News, August 2008.
- ✦ **Illes, J.** Brain scans as evidence. Parovaacha, September 2008.
- ✦ **Illes, J.** Brain scans used to convict woman of murder in India. Reason.com, September 2008.
- ✦ **Illes, J.** fMRI scans convict woman of murder in India. Cognitive Research and Design, September 2008.
- ✦ **Illes, J.** India's novel use of brain scans. World Monitor, September 2008.
- ✦ **Illes, J.** India's novel use of brain scans in courts is debated. New York Times; TimesDaily.com; Noobsters, September 2008.
- ✦ **Illes, J.** India's use of brain scans in courts dismays critics. worldaffairsboard.com, September 2008.
- ✦ **Illes, J.** Indian neuroscientist peers into a woman's brain, finds guilt. Binoy Anto, September 2008.
- ✦ **Illes, J.** Retention's the thing. Science, September 2008.
- ✦ **Illes, J.** Trying to find the mental edge in sports. SportMedBC, September 2008.
- ✦ **Reiner, P.B., Buchman, D.Z., Lomberra, S.** Post-traumatic stress drug. The News Hour, Global BC, November 2008.
- ✦ **Illes, J.** Deceiving the law. Nature Neuroscience, November 2008, 11(11):1231.
- ✦ **Illes, J.** Is the MRI lie detector test reliable? Scienceline.org, November 2008.
- ✦ **Illes, J.** Member interview: Dr. Judy Illes, Ph.D. Dana Alliance Member News, November 2008, 12(2).
- ✦ **Illes, J.** The brain age. Oprah, November 2008, 9(11):169-172.
- ✦ **Illes, J.** War memories raise ethical dilemma. healthzone.ca, November 2008.
- ✦ **Illes, J.** War memories raise ethical dilemma: Experts debate using medication to help Holocaust survivors cope with recollections. Toronto Star, November 2008.
- ✦ **Illes, J.** Neuroimaging and capital punishment. The New Atlantis, Winter 2008, 19, 35-63.
- ✦ **Illes, J.** Communications for senior scientists 2009: Neuroethics. Kopf Carrier Newsletter, 67, December 2008.
- ✦ **Reiner, P.B.** The dilemma of pills that boost brain power. Toronto Star, December 2008.
- ✦ **Illes, J.** Are digital technologies actually changing the way your brain works? Some Neuroscientists Say Yes. Backbone Magazine, January 2009.
- ✦ **Illes, J.** This is your brain on technology. Backbone Magazine, January 2009.
- ✦ **Reiner, P.B.** The neuroethics of neuromarketing: The newest research into buyer behavior using fMRI. Broadband Network Three/Vancouver, January 2009.
- ✦ **Illes, J.** Cognitive enhancement. The Spark, Episode 25, CBC Radio, February 2009.
- ✦ **Illes, J.** Neuroscience: The brain game. The Point, CBC Radio, March 2009.
- ✦ **Illes, J.** NeuroTalk — Tapping In: Your Brain on Neuroethics. Neuroscience Nexus: Newsletter of the Society for Neuroscience, March 2009.
- ✦ **Illes, J.** Popular wakefulness drug may be addictive. Wired Science, March 2009.
- ✦ **Reiner, P.B.** Media coverage of lecture on cognitive aging. Richmond News, March 2009.
- ✦ **Illes, J.** Can brain science manipulate consumers? UBC Reports, April 2009.
- ✦ **Illes, J.** Daily Planet, Discovery Channel, April 2009.
- ✦ **Illes, J.** Interior Traces featuring Episodes 1 and 2 and the Wellcome Collection Panel Debate, Resonance 104.4 FM, London, UK, May 2009.
- ✦ **Illes, J.** Babies, French Fries and the Opalescent Nudibranch. Trek: The Magazine of the University of British Columbia, Summer 2009.
- ✦ **Reiner, P.B.** Meditation on demand. Mind Matters, Scientific American, May 2009.

THE YEAR AHEAD

[new staff]

Grant Gillett, M.A., M.B., Ch.B., D.Phil., F.R.A.C.

Dr. Grant Gillett will be joining the Core beginning in late November 2009 as a Green College Visiting Professor. Dr. Gillett studied medicine and psychology at Auckland and then specialized in neurosurgery. He completed a doctorate in philosophy and held a fellowship at Oxford before coming to Otago. He is a Neurosurgeon and Professor of Medical Ethics. Dr. Gillett's interests are broad, including the philosophy of mind and the philosophy of medicine and medical ethics. He has a particular interest in the philosophies of Kant and Wittgenstein and in post-structuralism. While in Vancouver, Dr. Gillett is scheduled to provide lectures at Green College, the Peter Wall Institute for Advanced Studies, and the Vancouver Institute.

Roland Nadler, B.A.

Roland Nadler, B.A., completed his undergraduate studies at Harvard College in 2009, concentrating in Philosophy with a specialization in Mind, Brain, and Behavior. He will be joining the Core in September 2009 as a Research Intern this fall to contribute to the "Neuroethics of Enhancement" research initiative under the guidance of Dr. Peter Reiner, with particular emphasis on the moral psychology of cognitive enhancement-related decisions. Roland also has research interests at the intersection of neuroscience, law, and philosophy; he plans to pursue a joint JD/PhD in the field.

Sara Parke, B.A.

Sara Parke, B.A., is a Human Biology graduate from Stanford University with a concentration in Neurobiology and Behavior and will be joining the Core in September 2009 on a Fulbright Scholarship. As an undergraduate Research Assistant in the Systems Neuroscience and Pain Lab at Stanford, Ms. Parke explored the relationship between human neural function, behavior and social interaction. She is also interested in health policy and patient advocacy. Ms. Parke is a Colorado native and, in her free time, she loves to hike, rock climb and downhill ski.

[new initiatives]

Neuroethics and the 2010 Olympic and Paralympic Winter Games

University of British Columbia Community Affairs

With the 2010 Olympic and Paralympic Winter Games being held in Vancouver, the National Core for Neuroethics will be co-hosting events in collaboration with the W. Maurice Young Centre for Applied Ethics to engage the public in dialogue with each other and with experts in the field about ethical issues surrounding the games. The goal is to enhance the visibility of social, ethical, and behavioral aspects of Olympic competition. A session in December, to be held at the Liu Centre for the Study of Global Issues, will explore the supposed difference between ability and disability and a second session in January, to be held at UBC Robson Square, will address issues of sport and enhancement. Speakers will include experts in science, ethics, engineering, and sport, as well as athletes and representatives from industry. Dr. Illes will also be a featured speaker in the series "Intellectual Muscle" in which she will explore answers to questions such as: *If we could predict from a brain scan who among our youth is likely to be an Olympic champion, how should we use this information? If we learned that an antidepressant increases the brain's ability to coordinate movement, should it be banned as performance enhancing?*

PHOTOGRAPHY CREDITS

Front Cover

<http://springboardmarketing.net/Blog/wp-content/uploads/2009/06/ethics-sign.jpg>
http://www.medical.siemens.com/siemens/it_IT/rg_marcom_FBAs/images/Press_Pictures/2007/MRPET.jpg
<http://jameswoodward.files.wordpress.com/2009/02/dementia.jpg>
http://www.gbo.com/images/ThinCert_-_Cell_Culture_Inserts.jpg

Page 1

<http://wjso.com/content/figures/1477-7819-5-89-1-l.jpg>

Page 2

Darin Dueck, UBC Public Affairs

Page 8

http://newsroom.stemcells.wisc.edu/stemcells/images/media/stem_cell_lab_hood05_10734.jpg
http://www.internationalrivers.org/files/images/nu_10.preview.jpg

Page 9

<http://www.cdktn.ca/>

Page 10

http://www.internationalrivers.org/files/images/nu_10.preview.jpg
<http://www.billfrymire.com/blog/wp-content/uploads/2008/04/dna-strand-code.jpg>

Page 11

<http://alcoholism-treatments.org/wp-content/uploads/2009/06/drug-addiction.jpg>

Page 12

<http://www.cwba.ca/English/Beijing/Photos/091108womenvsMexico/Boge...s%202336.jpg>

Page 13

Martin Dee, UBC Public Affairs
 Martin Dee, UBC Public Affairs
 Martin Dee, UBC Public Affairs

Page 14

Martin Dee, UBC Public Affairs
 Martin Dee, UBC Public Affairs
 Jason Congdon, UBC Faculty of Medicine Development Office
http://www.ywcavan.org/content/Women_of_Distinction_Awards_/201/30/114

Page 15

<http://www.banffcentre.ca/programs/program.aspx?id=851>
http://www2.jhu.edu/nthakor/images/logos/discovery_logo.png

Page 16

<http://www.commonground.ca/iss/211/pics/CitizensAssembly.jpg>
<http://www.panoramio.com/photo/9117607>

Page 17

<http://compliance.vpr.okstate.edu/images/research.jpg>
<http://www.helpinghandsps.com/picts/192871%20pastel%20file%20folders%20123rf.jpg>

Page 19

<http://www.reachingupforair.com/images/reaching-hands.jpg>
<http://www.db.uth.tmc.edu/research/images/CommitteeChairsDirectory.jpg>

Page 20

<http://larryfire.files.wordpress.com/2008/07/magazines.jpg>

Page 21

<http://paw.princeton.edu/issues/2008/07/16/pages/9729/LIVE.ReunionsBooks.jpg>

Page 22

<http://sophia.smith.edu/blog/recycling/files/2009/03/pile-of-papers2.jpg>
 Sofia Lombra, National Core for Neuroethics

Page 23

<http://brainethics.files.wordpress.com/2007/02/ajb-71-neuroscience-smallest.jpg>
[http://blog.bioethics.net/AJB%209\(5\)_Large%20Cover.jpg](http://blog.bioethics.net/AJB%209(5)_Large%20Cover.jpg)
[http://www.bioethics.net/images/AJB%208\(1\).jpg](http://www.bioethics.net/images/AJB%208(1).jpg)

Page 24

http://biology.clc.uc.edu/fankhauser/Labs/Anatomy_&_Physiology/A&P202/Nervous_System_Physiology/EEG/EEG_apparatus_P2041949md.JPG
<http://www.fzj.helmholtz.de/nic/Publikationen/Broschuere/Sonstiges/eeg.jpg>
<http://www.bawtryhealthandfitness.co.uk/physio/images/neurology.jpg>

Page 25

Martin Dee, UBC Public Affairs

Page 26

<http://www.sciencemag.org/content/vol321/issue5897/cover.dtl>
<http://www.tinafreydesigns.com/Images/Oprah%20-%20cover%20-%20November%202008.jpg>
<http://www.nature.com/nrn/journal/v9/n11/covers/index.html>
http://www.backbonemag.com/Magazine/Archive/TOC_2009_02.asp

Page 28

<http://ruonthelevel.com/files/Neuron.jpg>

Back Cover

Darin Dueck, UBC Public Affairs



ACKNOWLEDGEMENT OF SPONSORS

The National Core for Neuroethics graciously thanks the support of their sponsors....

