

## CURRICULUM VITAE

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### EDUCATION

1993	B.Sc., Psychology, Biology emphasis, University of California, Davis
1996	M.A., Psychology, University of British Columbia
2000	Ph.D., Psychology, University of British Columbia

### ACADEMIC POSITIONS

2000-01	Assistant Research Professor, Department of Psychiatry, University of British Columbia, Vancouver, British Columbia
2001-07	Director, Clinical Cognitive Neuroscience Laboratory, Olin Neuropsychiatry Research Center, The Institute of Living at Hartford Hospital, Hartford, Connecticut
2001-05	Assistant Clinical Professor, Department of Psychiatry, Yale University School of Medicine, New Haven, Connecticut
2005-07	Associate Clinical Professor, Department of Psychiatry, Yale University School of Medicine, New Haven, Connecticut
2002-07	Lecturer, Department of Psychology, Yale University
2007-	Associate Professor, Department of Psychology, University of New Mexico, Albuquerque, New Mexico
2007-	Associate Professor, Department of Neuroscience, University of New Mexico School of Medicine, Albuquerque, New Mexico
2007-	Director, Mobile Imaging Core and Clinical Cognitive Neuroscience, Mental Illness and Neuroscience Discovery (MIND) Institute, Albuquerque, New Mexico.

### HONORS AND AWARDS

1991-93	Dean's Honor List, University of California, Davis
1993	President's Undergraduate Fellowship for honors thesis research, University of California Davis
1996-00	Nobel Laureate Michael Smith Graduate Scholarship, Medical Research Council of Canada, University of British Columbia
1999	McGeer Award for best scientific paper presentation, Department of Psychiatry, University of British Columbia

2000	Category 1 (highest attainable) ranking of doctoral dissertation. University of British Columbia
2000	Necia Elvin Award for early career contributions to schizophrenia research, inaugural recipient. University of British Columbia
2000	Best clinical poster presentation, Neuroscience Graduate student forum, University of British Columbia
2001-03	NARSAD Young Investigator Award
2004	NIH Student Loan Repayment Award
2004	Early Career Award - EEG & Clinical Neuroscience Society
2005	Society for Psychophysiological Research (SPR) Award for Distinguished Early Career Contributions to Psychophysiology
2006	NIH Student Loan Repayment Award – Competitive Renewal

## **PROFESSIONAL ACTIVITIES**

### ***SOCIETY MEMBERSHIPS AND SERVICE***

1993 -	Society for Psychophysiological Research
1993 -	Cognitive Neuroscience Society
1994 -	International Organization of Human Brain Mapping
1995 -	International Society for Magnetic Resonance in Medicine
2005 -	Society for the Scientific Study of Psychopathy (SSSP), Charter Member
2005-07	- Web developer for SSSP
2007-	- Elected to Board of Directors SSSP

### ***FEDERAL GOVERNMENT AND OTHER ADVISORY PANELS***

1999-00	Canada Foundation for Innovation (CFI) grant program
2001	General Electric (GE) Medical Advisory Board Committee Member on functional magnetic resonance imaging (fMRI)
2003	NIH Study Section, Exploratory/Developmental grants in Social Neuroscience
2004	NIH Study Section, Ad hoc member, Language and Communication Disorders (LCOM)
2004	NIDA Special Emphasis Panel, Developing Efficacious Behavioral Therapies for Criminal Justice-Involved Populations.
2005	NIH Study Section, Ad hoc member, Cognitive Neuroscience (COG)
2005	NIH Study Section, Ad hoc member, Adult Psychopathology and Disorders of Aging (APDA).
2005	NIH Study Section, Ad hoc member, Mood Disorders.
2005	NIDA Grant Reviewer for the Imaging - Science Track Award for Research Transition Program (I-START).
2006	NIH Study Section for the Extramural Student Loan Repayment Program
2006	NIH Study Section for the NIH Blueprint initiative: Training in Neuroimaging: Integrating First Principles and Applications (T90)
2007-09	National Science Foundation (NSF) Cognitive Neuroscience Study Section – standing member for 2007-2009.
2007-10	Panel member of the John T. and Catherine D. MacArthur Foundation Project 'Law and Neuroscience' (PI: Michael Gazziniga and Hank Greely). <a href="http://www.lawandneuroscienceproject.org">www.lawandneuroscienceproject.org</a>

**EDITORIAL POSITIONS**

2006-07 Associate Editor, *Psychophysiology*

**AD HOC REVIEWER**

Assessment, Archives of General Psychiatry, Biological Psychiatry, Biological Psychology, Brain, Cognitive Brain Research, Emotion, Frontiers in Human Neuroscience, Human Brain Mapping, International Journal of Psychophysiology, Journal of Abnormal Psychology, Journal of Cognitive Neuroscience, Nature Neuroscience, NeuroImage, Neuropsychology, NeuroReport, Psychological Assessment, Psychological Science, Psychophysiology, Psychopharmacology, Neuropsychopharmacology, Neuropsychology, Trends in Cognitive Sciences

**TEACHING EXPERIENCE**

1993 Research Methods Tutor, Department of Psychology, University of California, Davis

1993 Laboratory Teaching Assistant for Physiological Psychology, Department of Psychology, University of California, Davis

1994 - 00 Teaching Assistant for Abnormal Psychology, Introductory Psychology, Personality Psychology, and Biological Psychology, Department of Psychology, University of British Columbia

2002 Statistical Parametric Mapping for Functional Brain Imaging, Department of Psychology, Yale University (Psychology 755).

2002 Clinical Cognitive Neuroscience, Department of Psychology, Yale University (Psychology 673a/473a).

2003, 2005 Neuroimaging Analysis Course, Department of Psychology, Yale University (Psychology 412a/612a).

2005 Statistical Parametric Mapping (SPM) Short Course Faculty and local host, Yale University, New Haven, CT.

2005-07 fMRI Image Acquisition and Analyses Course, Co-sponsored by the Olin Neuropsychiatry Research Center and Yale University (faculty lecturer and primary coordinator).

2007- Three-day Training workshop on research and assessment of psychopathy. The MIND Institute and the University of New Mexico (primary lecturer and coordinator).

2007- Clinical Cognitive Neuroscience Seminar, Department of Psychology, University of New Mexico.

**RESEARCH EXPERIENCE**

- 1988-93 Research Laboratory Technician, Department of Anesthesiology, School of Medicine, University of California, Davis
- 1992-94 Post Graduate Researcher to Michael R. Levenson, Ph.D.  
Human Development & Family Studies, Applied Behavioral Sciences, University of California, Davis
- 1992-94 Research Assistant to Rosemarie Kraft, Ph.D.  
Human Development & Family Studies, Applied Behavioral Sciences, University of California, Davis
- 1992-94 Assistant Cetacean Researcher, Marine World Africa USA, Vallejo, CA
- 1993-94 Post-Graduate Researcher to George R. Mangun, Ph.D.  
Center for Neuroscience and Department of Psychology, University of California, Davis
- 1995 Graduate Research Assistant to James T. Enns, Ph.D.  
Department of Psychology, University of British Columbia
- 1996 Psychology Internship, Assistant to Johann Brink, M.D.  
Regional Health Centre (Pacific), A division of Correctional Services of Canada, Abbotsford, B.C., Canada
- 1994-97 Graduate Research Assistant to Robert D. Hare, Ph.D.  
Department of Psychology, University of British Columbia
- 1996-00 Graduate Research Assistant to Peter F. Liddle, Ph.D., M.D.  
Department of Psychiatry, University of British Columbia
- 1997 Clinical Psychology Internship, Assistant to Carson Smiley, Ph.D.  
Regional Health Centre (Pacific), A division of Correctional Services of Canada, Abbotsford, B.C., Canada
- 1997-01 Clinical Functional Magnetic Resonance Imaging Technician  
Department of Radiology, University Hospital, University of British Columbia
- 1998 Clinical Psychology Internship, Assistant to Carson Smiley, Ph.D.  
Regional Health Centre (Pacific), A division of Correctional Services of Canada, Abbotsford, B.C., Canada
- 1999-01 Consultant to Lakshmi Yatham, M.D.  
Department of Psychiatry, University of British Columbia
- 2001-02 Consultant to Karen Bolla, Ph.D.  
Department of Neurology, Psychiatry and Behavioral Services, and Environmental Health Services, Johns Hopkins Bayview Medical Center
- 2001-02 Consultant to Vince Clark, Ph.D.  
Functional Brain Imaging Program, University of Connecticut Health Science Center
- 2002-04 Consultant to Anna Rose Childress, Ph.D.  
Department of Psychiatry, University of Pennsylvania.
- 2004-05 Consultant to Lynn Hasher, Ph.D.  
Chair, Department of Psychology, University of Toronto
- 2004-05 Consultant to Robert A. Veselis, M.D.  
Director, Neuroanesthesiology Research Laboratory, Associate Attending Anesthesiologist, Memorial Sloan-Kettering Cancer Center, Cornell Medical School.
- 2001-07 Senior Research Scientist, Departments of Psychiatry, Neurosurgery, and Neurology, Institute of Living, Hartford Hospital.

- 2002-07 Consultant to Vince Clark, Ph.D., Functional Brain Imaging Program, University of New Mexico
- 2006- Consultant to Uma Rao, M.D., Department of Psychiatry, University of Texas, Southwestern.
- 2006- Consultant to William Burdon, Ph.D., UCLA Integrated Substance Abuse Programs, Criminal Justice Research Group.

### **STUDENTS/ POSTDOCS/ SCIENTISTS SUPERVISED**

#### Current:

- Lora Cope (2007- current). Northwestern University. Graduate student in cognitive science, Department of Psychology, University of New Mexico. Role: Primary graduate school advisor.
- Carla Harenski, Ph.D., (2006-current). Received Ph.D., 2006, Emory University. Role: NRSA recipient 2007-2010. NRSA mentor and primary post-doctoral supervisor.
- Mathew Shane, Ph.D. (2006-current). Received Ph.D., 2004, University of Toronto. Role: Primary post-doctoral supervisor
- Deidre Reis (2006-current), doctoral student in cognitive psychology, Department of Psychology, Yale University, Role: Imaging advisor, dissertation committee.
- Jesse Chasman (2004-current), doctoral student in clinical psychology, Department of Psychology, University of Connecticut-Storrs, Role: Adjunct Advisor
- Michael Stevens, Ph.D., (2002-current). Received Ph.D. 1999, Department of Psychology, University of Connecticut-Storrs. Appointed junior faculty in the Olin Neuropsychiatry Research Center, 2002-2004. Currently K-awardee (2004-2009). Role: Primary Advisor; co-mentor on K-Award.

#### Past: (sample)

- Elizabeth Stevens (2004-2006). Received Ph.D., Clinical Psychology, Department of Psychology, Yale University. Role: Primary Advisor
- Derek Mitchell, Ph.D. (1996-1998), University of British Columbia; Post doc, NIMH Mood Disorders Program, currently faculty University of Western Ontario. Received Ph.D., 2005, Department of Psychology, Institute of Cognitive Neuroscience, University College London. Role: Co-advisor of Undergraduate Honors Thesis.
- Sara Johnson, M.D. (1996-1998), University of British Columbia. Currently in private practice. Received MD, 2002, University of British Columbia. Role: Primary Advisor of Undergraduate Honors Thesis.
- Adrien Desjardins, B.S., (1998-2001), University of British Columbia, Currently doctoral candidate biophysics program, Harvard University. Role: Primary Advisor of Undergraduate Honors Thesis.
- Kristin Laurens, Ph.D. (2000-2001). Received Ph.D. 2003, Neuroscience, University of British Columbia; Post-doctoral Fellow, University of Nottingham 2004-5; Currently faculty, University College London, London UK. Role: Co-mentor on dissertation.
- Athena Vouloumanos, Ph.D. (1999-2000). Received Ph.D., 2003, Department of Psychology, University of British Columbia. Currently Assistant Professor McGill University, Montreal, CA. Role: Primary mentor on fMRI training

- Alan Bates, Ph.D. (1998-2000). Received Ph.D., University of Nottingham, 2004; Currently medical student, University of British Columbia. Role: Primary mentor on undergraduate training in fMRI and ERPs.
- Adrianna Mendrek, Ph.D. (2000-2001). Received Ph.D., 2002, Department of Psychology, University of British Columbia. Currently, Research Professor, University of Montreal, Montreal, CA. Role: Co-mentor on doctoral dissertation.
- Timothy O'Keefe, B.S. (2002-2004). Currently research trainee, Brown University. Role: Primary supervisor of post-graduate training period.
- Kim Celone, B.S. (2002-2004). Currently doctoral candidate Clinical Psychology, Boston University, 2005. Role: Primary supervisor of post-graduate training period.
- Matthew Johnson, B.A. (2003-2005). Currently doctoral candidate Neuroscience, Yale University. Role: Co-supervisor of post-graduate training period.
- Joseph Bates (2004-2005), Masters student in cognitive science, Department of Psychology, Yale University. Role: Primary Advisor
- Valentina Gumenyuk, Ph.D. (2004-2005). Received Ph.D., 2004, Cognitive Brain Research Unit, Department of Psychology, University of Helsinki (Supervisor, Risto Naatanen). Currently, post-doctoral fellow (part-time), Olin Neuropsychiatry Research Center, Institute of Living, Hartford, CT. Role: Primary Post-doctoral supervisor.
- Heather Gordon, Ph.D. (2004-2005). Received Ph.D., Cognitive Psychology, Department of Psychology and Brain Sciences, Dartmouth College. Postdoctoral fellow (part time), Olin Neuropsychiatry Research Center, Institute of Living, Hartford, CT. Role: Adjunct Advisor of Doctoral Dissertation.

**GRANT HISTORY****FEDERAL GRANTS – ACTIVE**

NIMH; 1 R01 MH070539-01 (PI: Kiehl) 12/01/04-11/30/08 10% or 1.2  
*ERP and fMRI of emotion and cognition in psychopathy* \$202,000/yr direct costs;  
 \$1,192,320 total costs  
 To test the paralimbic dysfunction hypothesis of adult psychopathy in community samples using event-related potentials and functional magnetic resonance imaging.  
 Role: Primary Investigator

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NIMH; 1 R01 MH072681-01 (PI: Kiehl) 07/01/05-06/30/10 10% or 1.2  
*Abnormal functional connectivity in psychosis* \$212,500/yr direct costs;  
 \$1,542,750 total costs  
 To use functional imaging measures to differentially diagnose schizophrenia from psychotic bipolar illness.  
 Role: Primary Investigator

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NIMH; 1 R01 MH071896-01 (PI: Kiehl) 02/01/06-12/30/10 10% or 1.2  
*Neurocognitive assessment of 'Callous' Conduct Disordered youth* \$212,500/yr direct costs;  
 \$1,815,000 total costs  
 To use ERP and fMRI measures to test the hypothesis that youth with Callous Conduct Disorder show abnormalities in the paralimbic system  
 Role: Primary Investigator

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NIDA; 1 R01 DA020870-01 (PI: Kiehl) 10/01/05-09/30/10 14% or 1.68  
*Neurocognitive changes associated with behavioral treatment in cocaine abusers* \$388,096/yr direct costs;  
 \$2,942,529 total costs  
 To examine functional and structural changes associated with three cognitive behavioral treatment protocols in cocaine abusers.  
 Role: Primary Investigator

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NSF; 1R01EB005846-01 (PI: Calhoun) 8/01/05-07/31/08 6% or 0.72  
*Collaborative Research: Spatiotemporal Fusion of fMRI, EEG, and Genetic Data Using Independent Component Analysis* \$210,000  
 To develop data fusion approaches for fMRI, EEG, and gene SNP array data with application to healthy controls and patients with schizophrenia  
 Role: Co-Investigator

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NIBIB; 1 R01 EB 000840-01 (PI: Calhoun) 04/01/03-04/01/08 8% or 0.96  
 Multi-group Semi-blind ICA of fMRI \$250,000  
 To develop, evaluate the performance of, and optimize semi-blind independent component analysis for the analysis of multi-group functional magnetic resonance imaging data and to use study data previously collected from patients with schizophrenia and healthy controls performing an auditory oddball task.  
 Role: Co-Investigator

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NIBIB/NIMH; 1R01EB006841 (Calhoun) 04/01/07-03/31/11 10% or 1.2  
 Multivariate methods for identifying multi-task/multimodal brain imaging biomarkers \$250,000  
 To develop methods, based upon independent component analysis, for joint-statistical analysis of multi-task

and multimodal brain data (functional MRI, DTI, structural MRI) in order to make inferences about brain connectivity, to apply these methods to patients with schizophrenia and healthy controls, and to develop, and make publicly available, an online web-enabled database implementing our joint ICA approach.

Role: Co-Investigator

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NIMH 2 R01 R3743775-14 (PI: Pearlson) 03/01/05-02/28/09 4% or 0.60  
*Quantitative Neuroimaging in Psychosis* \$250,000

Investigates circuit-wide abnormalities in schizophrenia using functional and structural brain MRI in schizophrenia and healthy controls.

Role: Co-Investigator

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K23 MH070036-01 Stevens (PI) 08/01/04 -07/01/09 No salary  
*Neuroimaging Cognition in Adolescent Behavior Disorders* \$142,250

A 5-year Career Development Award to provide the PI skills for an independent clinical neuroscience research career investigating how brain function relates to diagnoses associated with disruptive behavior.

Role: Co-Mentor

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NIMH: 1 R01 MH074934-01 (PI: Tolin) 05/01/06-04/30/10 consultant  
*Neural Mechanisms of Compulsive Hoarding* \$200,000

To use functional brain imaging to assess error processing dysfunction in compulsive hoarding syndrome, obsessive-compulsive disorder, and anxious control groups.

Role: Co-Investigator

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NIDA: RO1 DA020709. (PI: Pearlson) 09/01/06-10/30/11 2% or 0.24  
*Reward, Impulsivity and Cocaine Addiction; fMRI Studies* \$332,688

Studies 240 adult subjects who are either currently cocaine dependent, formerly cocaine dependent but currently abstinent and matched controls. The subjects will be characterized on scales, interviews and computer tasks assessing impulsivity. With functional MRI two distinct tasks will examine reward deficit and a response inhibition, to dissect the underlying functional anatomy of the relevant circuits.

Role: Co-Investigator

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NIAAA; 1 R01 AA017390-01 (PI: Bryan) 10/01/07-09/30/12 8% or .96  
*HIV prevention with adolescents: Neurocognitive deficits and treatment response* \$395,531

This research is designed to understand the genetic and neurocognitive predispositions that contribute to sexual risk behaviors that place criminally-involved adolescents at high risk of unintended pregnancy and STDs including HIV/AIDS. The findings will help us to design better interventions to decrease alcohol-related sexual risk behavior in this population of highly vulnerable young people.

Role: Co-Investigator

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### **FEDERAL GRANTS – PENDING**

NIMH: 1 RO1 MH073864-01 (PI: Pearlson) 06/01/07-05/30/11 10% or 1.2  
*Schizophrenia: Integrated Structural/Functional Imaging* \$659,176

Examines structure-function relationships in schizophrenia and healthy controls, to measure to what extent structural misplacement explains aberrant activation patterns.

Role: Co-Investigator

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NIDA: 1 R03 pending (PI: Shane) 01/01/08-2/31/08 5% or .6

*Error Detection and Error Awareness in Incarcerated Cocaine Dependent Individuals* \$237,990

The present study will collect electrophysiological and functional magnetic resonance imaging data from incarcerated cocaine-dependent individuals to characterize error-monitoring deficits typical of this population. Findings will aid delineation of mechanisms of dependency, and will increase insight into treatment strategies targeting these cognitive deficiencies.

Role: Co-Investigator

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NIDA: 1 R21 pending (PI: **Kiehl**) 01/01/08-12/31/09 10% or 1.2  
*Relationship Between Error Monitoring Deficits, Dopamine Genes and Risky Decision Making in Incarcerated Drug Abusers* \$218,157yr  
 \$436,315 total

The present study will investigate the neurobiological and genetic underpinnings of error monitoring and risky decision making in cocaine-dependent individuals. Findings will aid delineation of mechanisms of addiction and dependency by providing insight into the role of genetic variation in cognitive deficiencies underlying these disorders.

Role: Co-Investigator

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NIMH: RO1 MH077945-01 (PI: Pearlson) 12/01/07-11/30/12 2.5% or 0.3  
*Bipolar & Schizophrenia Consortium for Parsing Endophenotypes* \$670,295/yr; \$3,936,632 total

To examine electrophysiologic, oculomotor, cognitive and structural brain changes and genotypes associated with psychotic bipolar illness and schizophrenia in patients and unaffected first-degree relatives. This is a 5-site collaborative linked investigation.

Role: Co-Investigator

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### **FEDERAL GRANTS – PAST**

NIDA; RO1 DA 11426 (PI: Bolla). 10/01/98-09/30/02 Consultant  
*Cocaine abuse and limbic prefrontal function* \$738,423

Examination of prefrontal function in cocaine abusers using positron emission tomography.

Role: Consultant

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### **ADDITIONAL NON-FEDERAL FUNDING – ACTIVE**

n/a

### **ADDITIONAL NON-FEDERAL FUNDING - PAST**

National Alliance on Research in Schizophrenia and Depression (NARSAD) (PI: **Kiehl**) 08/01/01-07/31/03 No salary

*Hemodynamic assesment of neurocognitive remediation in schizophrenia.* \$60,000

Young Investigator Award to assess changes in attention and working memory in schizophrenia as assessed with fMRI following cognitive remediation.

Role: Primary Investigator

Mentors: Drs. John Krystal and Bruce Wexler, Yale University

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Institute of Living/Hartford Hospital Open Grant Competition Award (PI: Stevens) 07/01/04-06/30/06 No salary

<i>Response inhibition in Attention-Deficit/Hyperactivity Disorder</i>	\$65,000	
Double-blind placebo study of the effects of stimulant medication on response inhibition processes in ADHD. Role: Co-Investigator		
Institute of Living/Hartford Hospital Open Grant Competition Award (PI: Stevens)	07/01/04-06/30/06	No salary
<i>Neuropsychology and DTI of Traumatic Brain Injury</i>	\$75,000	
<i>Test-retest study examining functional and structural (gray and white matter) changes associated with acute traumatic brain injury</i>		
Institute of Living/Hartford Hospital Open Grant Competition Award <b>(PI: Kiehl)</b>	8/01/02-7/31/03	No salary
<i>Electrophysiological assessment of error monitoring in psychotic illnesses</i>	\$50,000	
To examine brain potential correlates of error-monitoring in patients with schizophrenia Role: Primary Investigator		
Institute of Living/Hartford Hospital Open Grant Competition Award <b>(PI: Kiehl)</b>	01/15/03-01/14/04	No salary
<i>Differentiating the neural systems involved in psychosis: Affective disorder versus schizophrenia</i>	\$50,000	
Pilot study to collect ERP and fMRI data in patients with bipolar illness and schizophrenia to develop algorithms to discriminate them. Role: Primary Investigator		
Institute of Living/Hartford Hospital Open Grant Competition Award (PI: Tolin)	08/01/02-07/31/03	No salary
<i>A pilot study of conflict monitoring in obsessive-compulsive disorder: Relationship to symptoms and treatment response</i>	\$50,000	
A pilot study examining changes in conflict monitoring in obsessive-compulsive disorder associated with cognitive behavioral treatment Role: Co-Investigator		
Institute of Living/Hartford Hospital Open Grant Competition Award (PI: Maltby)	01/15/03-01/14/04	No salary
<i>Dismantling the neural systems of obsessive-compulsive disorder: a symptom provocation study of compulsive hoarding.</i>	\$50,000	
A pilot fMRI study of a symptom provocation paradigm in individuals with compulsive hoarding disorder. Role: Co-Investigator		
Institute of Living/Hartford Hospital Open Grant Competition Award (PI: Calhoun)	01/15/03-01/14/04	No salary
<i>Functional mapping of the neocortical network in schizophrenia: Executive-function impairments and spontaneous fluctuations in fMRI.</i>	\$50,000	
A pilot study employing Independent Component Analyses to examine functional connectivity in patients with schizophrenia during working memory and 'resting' state paradigms. Role: Co-Investigator		

## **SOFTWARE AND HARWARE DEVELOPMENT**

- 1994–99 LumiTouch reply system. Fiber-optic response device for collection of behavioral data in magnetoencephalography and functional magnetic resonance imaging experiments. In collaboration with John Kidder, CEO, and Doug Broadfoot, Lightwave Medical Inc. Vancouver, B.C., Canada. <http://www.photonixco.com> Patent Pending.
- 1995 Conversion programs for creating ANALYZE format images from GE structural and functional data sets. In collaboration with Scott Morrison. Software available upon request.
- 1995 MRI off-line reconstruction software for EPI data on the Silicon Graphics Workstations. In collaboration with Bryan Mock, University of Wisconsin – Madison; General Electric Medical Systems, Milwaukee, WI. Software available upon request.
- 1998-04 CIRC – computer program designed to monitor and analyze behavioral performance online during behavioral, event-related potential, magnetoencephalography, and functional magnetic resonance imaging experiments. In collaboration with Arthur Jones.
- 1998-04 Digitize – Solaris based high-resolution EEG acquisition system. Designed for collection of up to 128 channels of EEG for brain mapping and source localization. In collaboration with Arthur Jones. <http://sourceforge.net/projects/digitize>
- 1999 Talairach atlas labeling system. Software designed to automatically search the results of functional imaging data and label with brain structures from the Talairach atlas. In collaboration with Adrien Desjardins and Peter Liddle. Software available upon request.
- 1994- Visual and Auditory Presentation Package (VAPP). Software designed for presenting visual and auditory stimuli for behavioral, event-related potential, magnetoencephalography, and functional magnetic resonance imaging experiments. In collaboration with Tony Gray, Peter Liddle, Ron Mangun, Steve Hillyard, Steve Luck and Marty Woldorff <http://nilab.psychiatry.ubc.ca/vapp/>

**PEER-REVIEWED PUBLICATIONS**

1. Levenson, M.R., **Kiehl, K.A.**, & Fitzpatrick, C. (1995) Assessing psychopathic attributes in a noninstitutionalized population. Journal of Personality and Social Psychology, 68, 151-158.
2. **Kiehl, K. A.**, Smith, A. M., Forster, B.B., & Hare, R.D. (1995). Protocol for a functional MRI study of semantic and affective processing in psychopaths. Issues in Criminological & Legal Psychology, 24, 84.
3. Forster, B.B., MacKay, A., Whittall, K. P., **Kiehl, K.A.**, Smith, A.M., Liddle, P.F. & Hare, R.D. (1998). Functional MRI: The basics of the BOLD (blood oxygen level dependent) technique. Canadian Journal of Radiology, 49, 320-329.
4. **Kiehl, K.A.**, Hare, R.D., McDonald, J. J., & Brink, J. (1999). Semantic and affective processing in psychopaths: An event-related potential (ERP) study. Psychophysiology, 36, 765-774.
5. **Kiehl, K.A.**, Hare, R.D., Liddle, P.F. & McDonald, J.J. (1999). Reduced P300 responses in criminal psychopaths during a visual oddball task. Biological Psychiatry, 45, 1498-1507.
6. **Kiehl, K.A.**, Liddle, P.F., Smith, A.M., Mendrek, A. Forster, B.B., & Hare, R.D. (1999). Neural pathways involved in processing concrete and abstract words. Human Brain Mapping, 7, 225-233.
7. Szymanski, M.D., Bain, D., **Kiehl, K.A.**, Henry, K., Pennington, S., & Wong, S. (1999). Killer whale (*Orcinus orcas*) hearing: Auditory brainstem response (ABR) and behavioral audiograms. Journal of the Acoustic Society of America, 106, 1134-1141.
8. McDonald, J.J., Ward, L.M., & **Kiehl, K.A.** (1999). An event-related brain potential analysis of inhibition of return. Perception and Psychophysics, 61, 1411-1423.
9. **Kiehl, K.A.**, Liddle, P.F., & Hopfinger, J.B. (2000). Error processing and the rostral anterior cingulate: An event-related fMRI study. Psychophysiology, 37, 216-223.
10. **Kiehl, K.A.** Smith, A.M., Liddle, P.F., & Hare, R.D. (2000). An event-related potential investigation of response inhibition in schizophrenia and psychopathy. Biological Psychiatry, 48, 210-221.
11. Liddle, P.F., **Kiehl, K.A.**, & Smith, A.M. (2001). An event-related fMRI study of response inhibition. Human Brain Mapping, 12, 100-109.
12. **Kiehl, K.A.**, Laurens, K.R., Duty, T.L., Forster, B.B., & Liddle, P.F. (2001). Neural sources involved in auditory target detection and novelty processing: An event-related fMRI study. Psychophysiology, 38, 133-142.

13. **Kiehl, K.A.** & Liddle, P.F. (2001). An event-related functional magnetic resonance imaging study of an auditory oddball task in schizophrenia. Schizophrenia Research, 48 (2-3), 159-171.
14. **Kiehl, K.A.**, Smith, A.M., Hare, R.D., Forster, B.B., & Liddle, P.F. (2001). Limbic abnormalities in affective processing in criminal psychopaths as revealed by functional magnetic resonance imaging. Biological Psychiatry, 50, 677-684.
15. **Kiehl, K.A.**, Laurens, K.R., Duty, T.L., Forster, B.B., & Liddle, P.F. (2001). An event-related fMRI study of visual and auditory oddball tasks. Journal of Psychophysiology, 21, 221-240.
16. Desjardins, A., **Kiehl, K.A.**, & Liddle, P.F. (2001). Removal of confounding effects of global signal in functional MRI analyses. NeuroImage, 13, 751-758.
17. Vouloumanos, A., **Kiehl, K.A.**, Werker, J. F., & Liddle, P.F. (2001). Detection of sounds in the auditory stream: fMRI evidence for differential activation to speech vs. non-speech. Journal of Cognitive Neuroscience, 13(7), 994-1005.
18. Bates, A.T., **Kiehl, K.A.**, Laurens, K.R., & Liddle, P.F. (2002). Error-related negativity and correct response negativity in schizophrenia. Clinical Neurophysiology, 113, 1454-63.
19. **Kiehl, K.A.**, Laurens, K.R. & Liddle, P.F. (2002). Reading anomalous sentences: An event-related fMRI study of semantic processing. NeuroImage, 17, 842-850.
20. **Kiehl, K.A.** & Liddle, P.F. (2003). Reproducibility of the hemodynamic response to auditory oddball stimuli: A six week test-retest study. Human Brain Mapping, 18, 42-52.
21. Laurens, K.R., Ngan, E.T.C., Bates, A.T., **Kiehl, K.A.**, & Liddle, P.F. (2003). Rostral anterior cingulate cortex dysfunction during error processing in schizophrenia. Brain, 126, 610-622.
22. Bolla, K.I., Eldreth, D.A., London, E.D., **Kiehl, K.A.**, Mouratidis, M., Contoreggi, C., Kurian, V., Cadet, J-L., Kimes, A.S., Funderburk, F.R., & Ernst, M. (2003). Orbitofrontal dysfunction in abstinent cocaine abusers performing a decision-making task. NeuroImage, 19, 1085-94.
23. **Kiehl, K.A.**, Smith, A.M., Mendrek, A., Forster, B.B., Hare, R.D., & Liddle, P.F. (2004). Temporal lobe abnormalities in semantic processing by criminal psychopaths as revealed by functional magnetic resonance imaging. Psychiatry Research: Neuroimaging, 130, 27-42.
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29. Laurens, K. R., **Kiehl, K. A.**, & Liddle, P. F. (2005). A supramodal network encompassing limbic, paralimbic, and frontal and parietal association cortices mediates goal-directed attention. Human Brain Mapping, 24, 35-49.
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32. Calhoun, V. D., Adali, T., Stevens, M. C., **Kiehl, K.A.** & Pekar, J.J. (2005). Semi-blind ICA of fMRI: A method for utilizing hypothesis-derived time courses in a spatial ICA analysis. NeuroImage, 25, 527-538.
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35. Laurens, K.R., **Kiehl, K.A.**, Ngan, E.T.C, & Liddle, P.F. (2005). Attention orienting dysfunction during salient novel stimulus processing in schizophrenia. Schizophrenia Research 75, 159-171.
36. Stevens, M.C., Calhoun, V.D., & **Kiehl, K.A.** (2005). Hemispheric differences in hemodynamics elicited by auditory oddball stimuli. NeuroImage, 26, 282-292.

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42. Stevens, M. C., Laurens, K. R., Liddle, P F. & **Kiehl, K. A.** (2006). The hemodynamics of oddball processing during single-tone and two-tone target detection tasks. International Journal of Psychophysiology, 60, 292-303.
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47. Johnson, M.R., Morris, N.A., Astur, R.S., Calhoun, V.D., Mathalon, D.H., **Kiehl, K.A.**, & Pearlson, G.D. (2006). An fMRI study of working memory abnormalities in schizophrenia. Biological Psychiatry, 60, 11-21.
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50. Stevens, M.C., **Kiehl, K.A.**, Pearlson, G.P., & Calhoun, V.D. (2007) Functional neural circuits for mental timekeeping. Human Brain Mapping, 28, 394-408.
51. Hejnar, M.P., **Kiehl, K.A.** & Calhoun, V.D. (in press). Interparticipant correlations: A model free fMRI analysis technique. Human Brain Mapping,
52. Stevens, M.C., **Kiehl, K.A.**, Pearlson, G.P., & Calhoun, V.C. (2007). Functional neural networks underlying response inhibition in adolescents and adults. Behavioural Brain Research, 181, 12-22.
53. Stevens, M.C., Pearlson, G.P., & **Kiehl, K.A.** (in press). Hemodynamics of auditory oddball performance in combined-subtype Attention-Deficit/Hyperactivity Disorder. American Journal of Psychiatry
54. Stevens, M.C., **Kiehl, K.A.**, Pearlson, G.P., & Calhoun, V.C. (in press). Brain network dynamics during error commission. Human Brain Mapping
55. Calhoun, V.D., Maciejewski, P. K., Pearlson, G.P., & **Kiehl, K.A.** (in press). Temporal lobe and 'default' hemodynamic brain modes discriminate between schizophrenia and bipolar disorder. Human Brain Mapping.
56. Kim, D.I., Pearlson, G.P., **Kiehl, K.A.**, Bedrick, E., & Calhoun, V.D. (in press). A method for multi-group inter-participant correlation: Abnormal synchrony in patients with schizophrenia during auditory target detection. Human Brain Mapping.
57. Dien, J., Franklin, M.S., Michelson, C.A., Lemen, L.C., Adams, C.L., & **Kiehl, K.A.** (in press). fMRI characterization of the language formulation area. Brain Research

## **BOOK CHAPTERS**

1. **Kiehl, K.A.** (in press). A paralimbic dysfunction hypothesis of psychopathy. Cognitive and Affective Neuroscience of Psychopathology, D. Barch, Ed. Oxford University Press, London. UK.
2. **Kiehl, K.A.** (in press). Without morals: The cognitive neuroscience of psychopathy. The psychology and biology of morality. W. Sinnott-Armstrong, Ed.
3. **Kiehl, K.A.** (in press). A Reply to de Oliveira-Souza, Ignácio, and Moll and Schaich Borg. The psychology and biology of morality. W. Sinnott-Armstrong, Ed.
4. Shane, M. S., & **Kiehl, K. A.** (2007). Psychopathy as a Measure of Offender Risk: An Important Component of a Comprehensive Risk Assessment Battery. In K. Knight, D. Farabee (Eds.). Treating Addicted Offenders: A continuum of effective practices. Vol. 2. Civic Research Institute: NJ. pg. 8.1-8.10.

**MANUSCRIPTS SUBMITTED FOR PUBLICATION**

1. Morris, N.A., Kuzu, C.H., Astur, R.S., Calhoun, V.D., Mathalon, D.H., **Kiehl, K.A.**, & Pearlson, G.P. (submitted 1/5/05). Working memory deficits and aberrant prefrontal cortex activation in relatives of patients with schizophrenia: An fMRI study. (Manuscript submitted for publication).
2. Tolin, D.F., **Kiehl, K.A.**, Worhunsky, P., Maltby, N., (submitted 5/10/07). Dismantling the neural systems of obsessive-compulsive disorder: a symptom provocation fMRI study of compulsive hoarding. (Manuscript submitted for publication).
3. Stevens, M.C., Pearlson, G.D., Calhoun, V.C. & **Kiehl, K.A.** (submitted 8/10/05). Are separate neural networks specialized for regular movement timing? An examination of brain hemodynamics during regularly-paced finger tapping. (Manuscript submitted for publication).
4. Kurtz, M.M., Wexler, B.E., Stevens, M.C., & **Kiehl, K.A.** (submitted 9/1/05). Hemodynamics of temporally distinct aspects of verbal working memory in healthy controls (Manuscript submitted for publication).
5. Bates, A.T., **Kiehl, K.A.**, Laurens, K.R., & Liddle, P.F. (submitted 9/7/05). Low-frequency EEG oscillations associated with information processing in schizophrenia (Manuscript submitted for publication).
6. Kurtz, M.M., Wexler, B.E., Stevens, M.C., & **Kiehl, K.A.** (submitted 11/20/05). Abnormal hemodynamics of verbal working memory in patients with schizophrenia. (Manuscript submitted for publication).
7. Schaich Borg, J., Lieberman, D., & **Kiehl, K.A.** (submitted 4/24/07). The common and distinct neural correlates of pathogen and socio-moral disgust. (Manuscript submitted for publication).
8. Shane, M.S., Stevens, M.C., Harenski, C.L., & **Kiehl, K.A.** (submitted 5/1/07). Neural correlates of the processing of another's mistakes: A possible underpinning for social and observational learning (Manuscript submitted for publication).
9. Aikins, D.E., Anticevic, A., **Kiehl, K.A.**, & Krystal, J.H. (submitted 6/6/07) Sex moderates amygdala activity for immediate affective recognition memory. (Manuscript submitted for publication).
10. Harenski, C.L., Antonenko, O., Shane, M.S., & **Kiehl, K.A.** (submitted 7/7/07). Gender differences in neural mechanisms underlying moral judgments. (Manuscript submitted for publication).
11. Shane, M.S., Stevens, M.C., Harenski, C.L., & **Kiehl, K.A.** (submitted 7/7/07). This is going to hurt me as much as it hurts you: Empathic concern and the observation of another's mistakes. (Manuscript submitted for publication).

## **PRESENTATIONS**

Kiehl, K.A. (1993, June). The relationship between psychopathy and two psychophysiological measures of arousability. Paper presentation at the annual research conference of the Department of Psychology, University of California, Davis. Invited speaker.

Levenson, M.R., Kiehl, K.A., & Fitzpatrick, C. (1993, August). Assessing psychopathic attributes in a noninstitutionalized population. Poster session presented at the annual meeting of the American Psychological Association, Toronto, Canada.

Kiehl, K.A. & Levenson, M.R. (1994, February). Psychopathy, arousal, and sensation seeking: A psychophysiological investigation. Poster session presented at the annual meeting of the American Association for the Advancement of Science, San Francisco.

Levenson, M.R. & Kiehl, K.A. (1994, April) Personality and deviant alcohol behavior in a nonclinical sample. Poster session presented at the annual meeting of the Western Psychological Association, Kona, Hawaii.

Kiehl, K.A., Mangun, G.R., & Hare, R.D. (1995, March) Differential hemispheric processing of affective language: An ERP study. Poster session presented at the annual meeting of the Cognitive Neuroscience Society, San Francisco.

Kiehl, K.A. & Hare, R. D. (1995, April) Neuroimaging and its implications for understanding the psychopathic mind. In C. Davis (Chair), Cognitive and biological correlates of psychopathy. Symposium conducted at the Mental Disorder and Criminal Justice Conference, Vancouver, Canada

Kiehl, K.A., Smith, A.M., Forster, B.B., & Hare, R.D. (1995, December). Protocol for a functional MRI study of semantic and affective processing in psychopaths. Psychopathy, Theory, Research, and Implications for Society. NATO ASI, Alvor, Portugal.

McDonald, J.J., Ward, L.M., Kiehl, K.A., & Richard, C.M.. (1996, March) An electrocortical analysis of inhibition of return. Poster session presented at the annual meeting of the Cognitive Neuroscience Society, San Francisco.

Forster, B.B., MacKay, A., Whittall, K.P. Kiehl, K.A., Smith, A.M., & Hare, R.D. (1996, June). Functional MRI: The basics of the BOLD (blood oxygen level dependent) technique. Poster session presented at the annual meeting of Canadian Association of Radiologists, Vancouver, B.C.

Brink, J. H., Kolton, D.J.C., Kiehl, K.A., & Strauss, P. R. (1996, October). Schizophrenia and psychopathy: A study of comorbidity in a Canadian forensic psychiatric population. Paper presented at the meeting Schizophrenia 1996; Breaking Down the Barriers 4th International conference. Vancouver, Canada.

Kiehl, K. A. & Hare, R. D. (1997, March). Abnormal processing of affective words by psychopaths: Emotional polarity discrimination. Poster session presented at the annual meeting of the Cognitive Neuroscience Society, Boston, MA.

Smith, A.M., Mendrek, A., Kiehl, K.A., Forster, B.B., MacKay, A., & Liddle, P.F. (1997, October). Sex differences in brain activity associated with word generation: An fMRI study. Poster presented at the annual meeting for the Society for Neuroscience, New Orleans, Louisiana.

Kiehl, K.A., Smith, A.M., Forster, B.B., MacKay, A.L., Whittall, K.P., Liddle, P.F. & Hare, R.D. (1997, September) A whole-brain multi-subject fMRI comparison of EPI spin-echo, asymmetric spin-echo and gradient-echo sequences at 1.5 T. Paper presented at the annual meeting of the Radiological Society of North America, Chicago, IL.

Smith, A.M., Kiehl, K.A., & Liddle, P.F. (1998, February). Event-related potentials during a Go/ No Go task in schizophrenia. Poster presented at the International Winter Workshop on Schizophrenia, Davos, Switzerland.

Kiehl, K.A. (1998, February). Functional imaging: Watching the working brain. Paper presented at the University of British Columbia, Science First Lecture Series. Invited speaker.

Kiehl, K. A., Liddle, P. F., Smith, A. M., Mendrek, A., Forster, B.B., & Hare, R.D. (1998, April) Neural pathways involved in the processing of concrete and abstract language. Poster session presented at the annual meeting of the Cognitive Neuroscience Society, San Francisco.

Smith, A.M., Kiehl, K.A., Forster, B.B., Whittall, K.P., MacKay, A.L., Liddle, P.F. & Hare, R.D. (1998, April). Whole brain EPI gradient echo fMRI: Optimizing TE to maximize signal activation and minimize susceptibility artifact in the orbitofrontal cortex. Poster presented at the annual meeting of the International Society for Magnetic Resonance in Medicine. Sydney, Australia.

Kiehl, K. A., Smith, A. M., Mendrek, A., Forster, B.B., Hare, R.D., & Liddle, P. F. (1998, June) Activation of the amygdala during an affective memory task. Poster presented at the annual meeting of the International Society for Human Brain Mapping, Montreal, Canada.

Smith, A.M., Kiehl, K.A., Mendrek, A., Forster, B.B., Hare, R.D., & Liddle, P.F. (1998, June). Whole brain fMRI of a Go/No Go task. Poster presented at the annual meeting of the International Society for Human Brain Mapping, Montreal, Canada.

Kiehl, K.A., Hare, R.D., McDonald, J.J., & Liddle, P.F. (1998, September). Event-related potential investigation of semantic processing in criminal psychopaths. Poster presented at the annual meeting of the Society of Psychophysiological Research, Denver, Colorado.

Kiehl, K.A., Laurens, K.R. & Liddle, P.F. (1998, April). Reading anomalous sentences: An event-related fMRI study of semantic processing. Poster presented at the annual meeting of the Cognitive Neuroscience Society, Washington D.C.

Liddle, P.F., Mendrek, A., Kiehl, K.A., Smith, A.S., & Duty, T. (1999, April). Fronto-temporal coordination in schizophrenia. Paper presented at the International Congress on Schizophrenia, Santa Fe, New Mexico.

Liddle, P.F., Smith, A.S., Kiehl, K.A., Mendrek, A., & Hare, R.D., (1999, April). Response inhibition in schizophrenia & psychopathy: Similarities & differences. Poster presented at the International Congress on Schizophrenia, Santa Fe, New Mexico.

Kiehl, K.A., Liddle, P.F., & Hopfinger, J.B. (1999, July). Error processing and the rostral anterior cingulate: An event-related fMRI study. Paper presented at ICON: 7<sup>th</sup> International Conference on Cognitive Neuroscience. Budapest, Hungary. Invited speaker.

Smith, A.S., Liddle, P.F., Kiehl, K.A., Mendrek, A., Forster, B.B., & Hare, R.D. (1999, July). Neural mechanisms of inhibitory processing in psychopathy and schizophrenia during a Go/No go task using fMRI. Poster presented at the annual meeting of the European Association of Psychology and Law Conference, Dublin, Ireland.

Kiehl, K.A., Forster, B.B., & Liddle, P.F. (1999, October). Abnormal semantic activation in schizophrenia as revealed by event-related fMRI. Poster presented at the annual meeting for the Society for Neuroscience, Miami, Florida.

Mendrek, A., Kiehl, K.A., Smith, A.S., Duty, T., Forster, B.B., & Liddle, P.F. (1999, October). Abnormal coordination of cerebral activity during a working memory task in schizophrenia: An fMRI study. Poster presented at the annual meeting for the Society for Neuroscience, Miami, Florida.

Laurens, K.R., Kiehl, K.A., Schwarz, D. W. F., Forster, B.B., & Liddle, P.F. (1999, October). An whole-brain event-related fMRI study of an auditory oddball task in schizophrenia. Poster presented at the Annual meeting of the Society for Neuroscience, Miami, Florida.

Liddle, P. F. & Kiehl, K.A. (1999, October). fMRI of an auditory oddball task in schizophrenia. Paper presented at the ISBET annual meeting, Adelaide, Australia.

Kiehl, K.A., Liddle, P.F., & Hopfinger, J.B. (2000, April). Error processing and the rostral anterior cingulate: An event-related fMRI study. Poster presented at the annual meeting of the Cognitive Neuroscience Society, San Francisco, California.

Vouloumanos, A., Kiehl, K.A., Werker, J.F., & Liddle, P.F. (2000, April). Neurological bases of speech and non-speech processing: An event-related functional magnetic resonance imaging study. Poster presented at the annual meeting of the Cognitive Neuroscience Society, San Francisco, California.

Mendrek, A., Kiehl, K.A., Forster, B.B., & Liddle, P.F. (2000, April). Encoding and retrieval of affective words: An fMRI study. Poster presented at the annual meeting of the Cognitive Neuroscience Society, San Francisco, California.

Mendrek, A., Laurens, K.R., Kiehl, K.A., Ngan, E., Stip, E., & Liddle, P.F. (June, 2000). An fMRI investigation of cerebral state and trait markers of schizophrenia. Poster presented at the annual meeting of the International Society for Human Brain Mapping, San Antonio, Texas.

Kiehl, K. A., Smith, A.M., Hare, R.D., Mendrek, A., Forster, B.B., Brink, J., & Liddle, P.F. (June, 2000). Limbic abnormalities in affective processing by criminal psychopaths as revealed by fMRI. Poster presented at the annual meeting of the International Society for Human Brain Mapping, San Antonio, Texas.

Kiehl, K.A. (2000, September). Electrophysiological and hemodynamic evidence of fronto-temporal abnormalities in psychopathic offenders. Paper presented at the Executive Control, Errors, and the Brain meeting. Jena, Germany. Organizers Wolfgang H. R. Miltner and Michael Coles. Invited speaker.

Kiehl, K.A., Liddle, P.F., & Hopfinger, J.B. (2000, September). Error processing and the rostral anterior cingulate: An event-related fMRI study. Poster presented at the Executive Control, Errors, and the Brain meeting. Jena, Germany. Organizers Wolfgang H. R. Miltner and Michael Coles.

Kiehl, K.A., Bates, A.T., Laurens, K.R., Hare, R.D., Forster, B.B., & Liddle, P.F. (October, 2000). Electrophysiological and hemodynamic evidence for fronto-temporal abnormalities in psychopathic offenders. Poster presented at the annual meeting of the Society for Psychophysiological Research, San Diego, California.

Bates, A.T., Kiehl, K.A., & Liddle, P.F. (October, 2000). Abnormal error-related negativity in schizophrenia: An event-related potential study. Poster presented at the annual meeting of the Society for Psychophysiological Research, San Diego, California.

Kiehl, K.A. (January, 2001). The psychopath electrified: Brain potentials reflect fronto-temporal abnormalities in psychopathic offenders. Invited address given to the faculty at the Western Psychiatric Clinic, University of Pittsburgh Medical Center, Pittsburgh, Pennsylvania.

Kiehl, K.A., Laurens, K.R., Mendrek, A., & Liddle, P.F. (April, 2001). Improved hemodynamic activity in first episode psychotic patients with atypical neuroleptic treatment: A six week test-retest event-related fMRI study. Poster presented at the International Congress on Schizophrenia, Whistler, British Columbia, Canada.

Bates, A.T., Kiehl, K.A., & Liddle, P.F. (April, 2001). Error-related negativity in schizophrenia and its relation to symptom profiles: An event-related potential study. Poster presented at the International Congress on Schizophrenia, Whistler, British Columbia, Canada.

Mendrek, A., Laurens, K.R., Kiehl, K.A., Ngan, E., Stip, E., & Liddle, P.F. (April, 2001). New insights into prefrontal function in schizophrenia. Poster presented at the International Congress on Schizophrenia, Whistler, British Columbia, Canada.

Kiehl, K.A., Laurens, K.R., Mendrek, A., & Liddle, P.F. (June, 2001). Improved hemodynamic activity in first-episode psychotic patients with atypical neuroleptic treatment: A six-week test-retest event-related fMRI study. Poster presented at the annual meeting of the Organization for Human Brain Mapping. Brighton, U.K.

Laurens, K.R., Kiehl, K.A., Smith, A., Bates, A., Forster, B.B., & Liddle, P.F. (June, 2001). Abnormal response inhibition in criminal psychopaths: Evidence from event-related fMRI. Poster presented at the annual meeting of the Organization for Human Brain Mapping. Brighton, U.K.

Kiehl, K.A. (September, 2001). The clinical utility of functional MRI: From presurgical mapping to diagnosing psychiatric illnesses. Invited lecture, New England Technologists Association Annual Conference.

Kiehl, K.A. (September, 2001). The psychopath electrified, then magnetized: ERP and fMRI evidence for fronto-temporal abnormalities in criminal psychopaths. Invited lecture, Yale University School of Medicine, fMRI talk series.

Kiehl, K.A. (December, 2001). Delineating neural signatures in psychotic illnesses using functional brain imaging: Implications for diagnosis, treatment, and prevention. Grand Rounds lecture for the Department of Psychiatry at the Institute of Living Psychiatry.

Kiehl, K.A. (December, 2001). The psychopath electrified, then magnetized: ERP and fMRI evidence for fronto-temporal abnormalities in criminal psychopaths. Invited lecture, Nathan Kline Institute, Orangeburg, New York.

Ngan, E.T.C., Bates, A.T., Power, Y., Laurens, K.R., Kiehl, K.A., & Liddle, P.F. (February, 2002). Decreased BOLD activation in right heteromodal association cortex in patients with schizophrenia during error detection. Schizophrenia Research (Supplement), 52 (3), 212.

Ngan, E.T.C., Stip, E., Whitman, J., Kiehl, K.A., & Liddle, P.F. (February, 2002). No changes in P300 amplitude or latency following acute administration to the alpha-1 agonist modafinil. Schizophrenia Research (Supplement), 52 (3), 212.

Bates, A.T., Liddle, P.F., Kiehl, K.A., & Ngan, E.T.C. (February, 2002). Increased amplitude of caudal error related negativity and positivity potentials during the performance of an error detection task in acutely ill patients following 6 weeks' treatment with neuroleptics. Schizophrenia Research (Supplement), 52 (3), 219.

Kiehl, K.A. (April, 2002). The psychopath electrified, then magnetized: ERP and fMRI evidence for fronto-temporal abnormalities in criminal psychopaths. Invited lecture, Dartmouth College.

Kiehl, K.A. (October, 2002). The psychopath electrified, then magnetized: ERP and fMRI evidence for fronto-temporal abnormalities in criminal psychopaths. Invited lecture, University of California, Davis.

Kiehl, K.A. (December, 2002). Deconstructing psychopathy: Assessment, treatment, recidivism, and neurobiology. Invited lecture, Department of Criminology, University of Pennsylvania.

Kiehl, K.A. (December, 2002). A cognitive neuroscience perspective on criminal psychopathy: Neuroimaging evidence for temporal-limbic brain abnormalities. Invited lecture, Center for Cognitive Neuroscience, University of Pennsylvania.

Kiehl, K.A. (January, 2003). The oddball task magnetized: fMRI studies in health and psychopathology. Invited lecture, New York Psychiatric Institute, Columbia University.

Stevens, M.C., Laurens, K.R., Liddle, P.F., & Kiehl, K.A. (2003, March). New brain imaging findings from a random-effects analysis of 100 participants using a three-stimulus auditory oddball task. Poster presented at the annual meeting of the Cognitive Neuroscience Society, New York, NY.

Celone, K., Laurens, K.R., Liddle, P.F., & Kiehl, K.A. (2003, March). Negative picture processing: Engagement of the temporal-limbic system and beyond. Poster presented at the annual meeting of the Cognitive Neuroscience Society, New York, NY.

O'Keefe, T.O., Liddle, P.F., & Kiehl, K.A. (2003, March). Neural sources underlying emotional lexical decision. Poster presented at the annual meeting of the Cognitive Neuroscience Society, New York, NY.

Calhoun V. D., Kiehl, K. A., Liddle, P. F., & Pearlson, G. D. (2003, March). Aberrant Localization of synchronous fMRI activity in temporal auditory cortex reliably characterizes schizophrenia. Proceedings from the International Congress on Schizophrenia Research, Colorado Springs, CO.

Kiehl, K.A., Stevens, M.C., Laurens, K.R., Pearlson, G.P., & Liddle, P.F. (2003, June). The missing stimulus: An event-related fMRI study of a 'gap' detection oddball task. Poster presented at the annual meeting of the Society for Human Brain Mapping, New York, NY.

Laurens, K.R., Kiehl, K.A., Ngan, E.T.C., Mendrek, A., Stip, E., & Liddle, P.F. (2003, June). Dysfunction in a supramodal network supporting attention to salient stimuli in schizophrenia: Evidence from event-related fMRI of novelty processing. Poster presented at the annual meeting of the Society for Human Brain Mapping, New York, NY.

Stevens, M.C., Laurens, K.R., Liddle, P.F., Pearlson, G.P., & Kiehl, K.A. (2003, June). Hemodynamics of oddball processing during single, two-, and three-tone target detection tasks. Poster presented at the annual meeting of the Society for Human Brain Mapping, New York, NY.

Stevens, M.C., Laurens, K.R., Liddle, P.F., Calhoun, V.C., Pearlson, G.P., & Kiehl, K.A. (2003, July). Independent component analyses of fMRI auditory oddball task reveals paralimbic abnormalities in psychopaths. Developmental and Neuroscience Perspectives on Psychopathy, Madison, WI.

Kiehl, K.A. (2003, July). The paralimbic hypothesis of psychopathy: Evidence from multimodal neuroimaging. Invited Lecture - Developmental and Neuroscience Perspectives on Psychopathy, Madison, WI.

Kiehl, K. A., Laurens, K. R., Celone, K., Pearlson, G. P., & Liddle, P.F. (2003, October). Abnormal affective picture processing in criminal psychopaths: Evidence supporting the paralimbic dysfunction hypothesis. Poster presented at the annual meeting of the Society for Psychophysiological Research, Chicago, IL.

Liddle, P. F., Mendrek, A., Laurens, K. R., Kiehl, K. A., & Ngan, E. T. C. (2004, February). An fMRI study of state-dependent abnormalities of frontal lobe function during working memory in schizophrenia. Poster to be presented at the International Congress on Schizophrenia, Davos, Switzerland.

Bates, A. T., Kiehl, K. A., Laurens, K. R., Ngan, E. T. C. & Liddle, P. F. (2004, February). Inefficient coordination of slow oscillations in schizophrenia. Poster presented at the International Congress on Schizophrenia, Davos, Switzerland.

Maltby, N., Worhunsky, P., Kiehl, K. A., & Tolin, D. F. (2004, March). Hyperactive error processing in Obsessive Compulsive Disorder. Paper presented to the Annual Meeting of the Anxiety Disorders Association of America, Miami, FL.

Maltby, N., Worhunsky, P., Kiehl, K., & Tolin, D.F. (2004, March). Is Dysfunctional Action Monitoring Functionally Related to Obsessive Compulsive Disorder: an fMRI Study. Presented to the Annual Meeting of the Anxiety Disorders Association of America, Miami

Aikens, D. E., O'Keefe, T., Anticevic, A., & Kiehl, K. A. (2004, April). Implicit associative learning for affective materials. Poster presented at the Annual meeting of the Cognitive Neuroscience Society, San Francisco, CA.

Kiehl, K.A., Stevens, M.C., Laurens, K.R., Pearlson, G.P., & Liddle, P. F. (2004, April). An adaptive reflexive processing model of neurocognitive function. Poster presented at the Annual meeting of the Cognitive Neuroscience Society, San Francisco, CA.

Kiehl, K.A. (April, 2004). The cognitive neuroscience of psychopathic personality disorder: Evidence for paralimbic dysfunction. Invited lecture. Department of Psychology, University of California, Santa Barbara.

Kiehl, K.A. (April, 2004). The cognitive neuroscience of criminal psychopaths: Evidence for paralimbic dysfunction. Invited lecture. Department of Psychology, University of Toronto.

Kiehl, K.A., Stevens, M.C., Celone, K., Kurtz, M.M., & Pearlson, G.D. (2004, April). fMRI of auditory oddball processing in schizophrenia II: Replication and extension. Poster presented at the annual meeting of the Society for Biological Psychiatry, New York, NY.

Hejnar, M.P., Kurtz, M.M., Calhoun, V.D., Kiehl, K.A., & Pearlson, G.D. (2004, April). Performance on the Penn Conditional Exclusion Task (PCET) in patients with schizophrenia (SZ) and healthy controls: An fMRI study. Poster presented at the annual meeting of the Society for Biological Psychiatry, New York, NY.

Egolf, E., Kiehl, K.A., & Calhoun, V.D. (2004, April). GIFT. Poster presented at the annual meeting of the Society for Biological Psychiatry, New York, NY.

Stevens, M.C, Celone, K., Kurtz, M.M., Pearlson, G.D., & Kiehl, K.A. (2004, May). fMRI of oddball processing in schizophrenia: Support for the disconnection hypothesis. Poster to be presented at the annual meeting of the American Psychiatric Association, New York, NY.

Kiehl, K.A., Stevens, M.C, Celone, K., Ortengren, A., & Pearlson, G.D. (2004, May). fMRI of oddball processing in bipolar illness. Poster presented at the annual meeting of the American Psychiatric Association, New York, NY.

Maltby, N., Worhunsky, P., Kiehl, K. A., & Tolin, D. F. (2004, May). Hyperactive error processing in Obsessive Compulsive Disorder. Paper presented to the annual meeting of the American Psychiatric Association, New York, NY.

Kiehl, K.A. (2004, May). Without morals: The cognitive neuroscience of criminal psychopaths. Paper presented at The Psychology and Biology of Morality Conference, Dartmouth College, Hanover, NH (invited speaker).

Kiehl, K.A. (2004, August). Focal hemodynamic measures of the P3a and P3b event-related potentials. Symposium paper presented at the Biomag Annual meeting. Boston, MA.

Kiehl, K.A. (2004, September). What has hemodynamic imaging of oddball target detection taught us about how the brain works? Paper presented at the symposium 'The P300: Past and Present' at the ECNS and ISNIP joint meeting. Irvine, CA. (Organizer and chair).

Kiehl, K.A. (2004, September). Functional MRI – An introduction. Educational course presented at the ECNS and ISNIP joint meeting. Irvine, CA.

Kiehl, K.A. (2004, October). The psychopath electrified: Brain potentials implicate paralimbic abnormalities. Early Career Award Address presented at the ECNS and ISNIP joint meeting. Irvine, CA.

Kiehl, K.A. & Liddle, P.F. (2004, October). Electrophysiological evidence for paralimbic abnormalities in psychopathic offenders. Poster presented at the annual meeting of the Society for Psychophysiological Research. Santa Fe, New Mexico.

Maltby, N., Worhunsky, P., Kiehl, K.A., & Tolin, D.F. (2004, November). Compulsive hoarding: The neurobiological perspective. In T.L. Hartl (Chair), Compulsive hoarding: Recent advances in research and important clinical considerations. Presented to the Annual Meeting of the Association for Advancement of Behavior Therapy, New Orleans.

Kiehl, K.A. (2004, December). Deconstructing Psychopathy: Assessment, Treatment, Recidivism, and Neurobiology. Invited Lecture, NIDA Special Emphasis Panel: Developing Efficacious Behavioral Therapies for Criminal Justice Involved Populations, Gaithersburg, MD.

Kiehl, K.A. (2004, December). Brain potentials in cetaceans - can they illuminate language processes? Educational lecture given the staff and researchers at Mystic Aquarium, Mystic, CT.

Kiehl, K.A. (2004, December). Paralimbic system dysfunction model of psychopathic personality: Evidence from ERPs and fMRI. Guest lecture at the Massachusetts General Hospital Brain Mapping Lecture Series. Boston, MA.

Kiehl, K.A. (2005, January). Word of the day: Cetaceans (it mean's dolphins and whales). Guest lecture at Bay Laurel Elementary School, Calabasas, CA.

Kiehl, K.A. (2005, January). Hemodynamic measures of oddball responses. Invited lecture, Forty Years of P300 meeting hosted by Manny Donchin (Carmel, 2005). University of South Florida, St. Petersburg, FL.

Kiehl, K.A. (2005, February). Paralimbic dysfunction in criminal psychopaths: Evidence from ERP and fMRI studies. Invited lecture, NIDA Intramural Program, Bethesda, MD.

Maltby, N., Worhunsky, P., Kiehl, K.A., & Tolin, D.F. (2005, May). Dysfunctional action monitoring: Specificity to obsessive compulsive disorder. Poster presented to Annual Meeting of the Society of Biological Psychiatry, Atlanta, Georgia.

Maltby, N., Worhunsky, P., Kiehl, K.A., & Tolin, D.F. (2005, May). Dismantling the neural systems of Obsessive-Compulsive Disorder: A symptom provocation fMRI study of compulsive hoarding. Poster presented to Annual Meeting of the Society of Biological Psychiatry, Atlanta, Georgia.

Kiehl, K.A. (2005, May). Psychopathy: Assessment, substance abuse, treatment, and neurobiology. Invited lecture, Department of Psychiatry, University of California, Los Angeles.

Kiehl, K.A. (2005, May). ERP and fMRI studies in psychopathy: Evidence of paralimbic dysfunction. Invited lecture by the Department of Neuroscience, University of California, Los Angeles.

Kiehl, K.A. (2005, July). A paralimbic dysfunction model of psychopathy. Invited lecture by the Department of Psychology, University of British Columbia, Vancouver, British Columbia, Canada.

Kiehl, K.A. (2005, July). Brain potentials and fMRI suggest paralimbic abnormalities in orienting processes in adolescent and adult psychopathy. Symposium lecture "The Cognitive Neuroscience of Psychopathy" Chair Kiehl, K.A., Paper given at the Biannual meeting of the Society for the Scientific Study of Psychopathy, Vancouver, British Columbia, Canada.

Kiehl, K.A. (2005, September). P300 from the perspective of fMRI. Symposium lecture "40 Years of the P300: A tribute" Chair Donchin, E. Paper given at the Annual meeting of the Society for Psychophysiological Research, Lisbon, Portugal.

Kiehl, K.A. (2005, September). A paralimbic dysfunction model of psychopathy. Award address for Distinguished Early Career Contributions to Psychophysiology. Paper given at the Annual meeting of the Society for Psychophysiological Research, Lisbon, Portugal.

Kiehl, K.A. (2005, September). The killer whale electrified: Can brain potentials indicate language processing in cetaceans? Paper given to the public and staff at Mystic Aquarium, Mystic, CT.

Kiehl, K.A. (2005, October). The cognitive neuroscience of psychopathic personality: Evidence for paralimbic dysfunction. Paper given to the Department of Psychology, University of Connecticut – Storrs, Connecticut.

Kiehl, K.A. (2006, January). The Hemodynamics of the Oddball Paradigm. Paper given at the annual Carmel meeting on the Basis of the P300. Hosted by Emmanuel Donchin, St. Petersburg, Florida.

Kiehl, K.A. (2006, January). Neuroscientific assessment of 'Callous' Conduct Disordered Youth. Paper given to the Director and Staff of the Miami Dade County Juvenile Assessment Center (JAC). Miami.

Kiehl, K.A. (2006, January). Aberrant connectivity in schizophrenia: Is it diagnostic? Paper presented at the annual Winter Conference on Brain Research, Steamboat Springs, Colorado.

Kiehl, K.A., (2006, February). The cognitive neuroscience of psychopathic personality: Evidence for paralimbic dysfunction. Invited lecture, Department of Psychology, University of California – San Diego. La Jolla, California.

Kiehl, K.A. (2006, February). The hemodynamics of the P300. Invited lecture, Scripps Research Institute, La Jolla, California.

Kiehl, K.A., (2006, February). Aberrant connectivity in schizophrenia: Is it diagnostic? Paper presented at the Annual Winter Conference on Brain Research. Steamboat Springs, CO. Invited lecture.

Maltby, N., Worhunsky, P., Kiehl, K. A., & Tolin, D. F. (2006, March). Dismantling the neural systems of obsessive-compulsive disorder: A symptom provocation fMRI study of compulsive hoarding. In K. Cromer (Chair), Elucidating the Relationship Between Hoarding Symptoms and Stressful Life Events. Symposium presented to the Annual Meeting of the Anxiety Disorders Association of America, Atlanta.

Kiehl, K.A. (2006, March). The cognitive neuroscience of psychopathic personality: Evidence for paralimbic dysfunction. MIND Institute, Albuquerque, NM.

Kiehl, K.A. (2006, March). Psycholinguistics in Psychopathic Personality: Decoding troubled processing. Lecture presented to the Department of Psychology, University of Connecticut – Storrs. Storrs, CT. Invited Lecture.

Maltby, N., Tolin, D.F., & Kiehl, K.A. (2006, May). Compulsive hoarding: Is there evidence for dysfunctional error processing. Presented to the Annual Meeting of the Society of Biological Psychiatry, Toronto.

Anticevic, A., Aikins, D.E., & Kiehl, K.A. (2006, April). Modulation of Brain Activity by Signaling Pictorial Valence. Poster presented at the annual meeting of the Cognitive Neuroscience Society, San Francisco, CA.

Schaich Borg, J., Lieberman, D. & Kiehl, K.A. (2006, April). Moral, Sexual, and Pathogen Disgust – Distinct or Common Neural Networks? Poster presented at the annual meeting of the Cognitive Neuroscience Society, San Francisco, CA.

Schaich Borg, J. Sinnott-Armstrong, W. & Kiehl, K.A. (2006, April). How we decide something is morally wrong: An fMRI study of moral judgment. Poster presented at the annual meeting of the Cognitive Neuroscience Society, San Francisco, CA.

Kiehl, K.A. (2006, April). Update on the cognitive neuroscience of psychopathy. Neuroscience Grand Rounds, Institute of Living, Hartford, CT.

Kiehl, K.A. (2006, April). The cognitive neuroscience of psychopathic personality: Evidence for paralimbic dysfunction. Department of Psychology, University of New Mexico, Albuquerque, NM. Invited lecture.

Stevens, M.C., Kiehl, K.A., Pearlson, G.P., Calhoun, V.D. (2006, June). Functional neural circuits for mental timekeeping. Poster presented at the annual meeting of the society for Human Brain Mapping, Florence, Italy.

Kiehl, K.A., (2006, June). Designing fMRI studies for clinical populations. Lecture provided during the Special Education Symposium, annual meeting of the society for Human Brain Mapping, Florence, Italy. Invited lecture.

Kiehl, K.A. (2006, September). Integrating Neuroscience and Basic Research in Drug Courts: The Construct of Psychopathy. National Institute on Drug Abuse: Drug Courts and Other Problem- Solving Courts: State of the Science – Special Emphasis Panel, Bethesda, MD. Invited lecture.

Kiehl, K.A. (2006, September). Aberrant emotional word processing in psychopathy. Paper presented in the symposium Emotional Processing in Psychopathy, Chair Verschuere, B. at the Annual Meeting of the Society for Psychophysiological Research, Vancouver, B.C., Canada.

Shane, M.S., Stevens, M.C., & Kiehl, K.A. (2006, September). An fMRI Investigation of the Neural Response to Another's Errors. Poster presented at the annual meeting of the Society for Psychophysiological Research, Vancouver, B.C.

Most, S.B., Chun, M.M., Johnson, M.R., Kiehl, K.A. (2006, November). Attentional modulation of the amygdala varies with personality. Poster presented at the annual meeting of the Psychonomic Society. Dallas, Tx.

Kiehl, K.A. (2006, November). Program in Forensic Psychology at The MIND Institute. Lecture offered to the MIND Institute Board of Director's meeting. Albuquerque, NM. Invited lecture.

Kiehl, K. A., (2006, December). The cognitive neuroscience of people who do bad things: A story of paralimbic dysfunction in psychopathic personality. Lecture to the Department of Psychology, Stony Brook University, Stony Brook, NY. Invited lecture.

Kiehl, K.A. (2006, December). Success and Barriers to Brain Imaging with Prisoners Populations. Symposium on Research With Prisoners: Ethics and Opportunities, W. Compton, Chair (NIDA organizer). Annual Meeting of the American College of Neuropsychopharmacology (ACNP), Hollywood, FL. Invited lecture.

Mathalon, D.H., Kiehl, K.A., Calhoun, V.D., McGlashan, T.H. Pearlson, G D., Woods, S.W. (2006, December). Abnormal fronto-temporal cortical activation during fMRI attention and working memory tasks in prodromal and early illness patients with schizophrenia. Poster presented at the Annual Meeting of the American College of Neuropsychopharmacology, Hollywood, FL.

Shane, M.S., Harenski, C.L., Stevens, M.C., & Kiehl, K.A. (January, 2007) This hurts me as much as it hurts you: Empathic concern and the observation of another's errors. Memphis, TN

Kiehl, K.A. (February, 2007). The cognitive neuroscience of people who do bad things: A story of paralimbic dysfunction in psychopathic personality. In symposium: What Are the Sociobiological Bases for Aggression? Buchesbaum, M. organizer. Annual meeting of the American Neuropsychiatric Association. Tucson, AZ.

Byrd, A.L., Shane, M.S., Book, G., Kahn, R.E., Antonenko, O., & Kiehl, K.A. (April, 2007). Response inhibition as a protective factor against incarceration in those high and low in psychopathic traits. Poster presented at the annual meeting of the Society for the Scientific Study of Psychopathy. St. Petersburg, FL.

Shane, M.S., Harenski, C.L., & Kiehl, K.A. (April, 2007). Why should I care what happens to you? fMRI evidence for reduced empathic concern associated with subclinical psychopathy. Paper offered in the symposium: Psychopathy, Emotion, and Emotion Regulation; Chair: Kosson, D. Presented at the annual meeting of the Society for the Scientific Study of Psychopathy. St. Petersburg, FL.

Antonenko, O., Shane, M.S., Harenski, C.L., Kahn, R., Byrd, A., & Kiehl, K.A. (April, 2007). The PCL-R and self-report Scales in a substance abusing sample. Poster presented at the annual meeting of the Society for the Scientific Study of Psychopathy. St. Petersburg, FL.

Schaich Borg, J., Sinnott-Armstrong, W., & Kiehl, K.A. (May, 2007). How we decide something is morally wrong: An fMRI study. Poster presented at the annual meeting of the Society for Cognitive Neuroscience, New York, NY.

Kiehl, K.A. (September, 2007). Psychopathic personality: How important is the construct for the legal system. Paper for the Women's Lawyer's Association of San Luis Obispo County. Invited lecture.

Kiehl, K.A. (September, 2007). Psychopathy: Legal implications and neuroscience. Inaugural meeting of the MacArthur Foundation Network on Law and Neuroscience. Invited speaker.

Kiehl, K.A. (September, 2007). The cognitive neuroscience of youth and adult psychopathic personality: Evidence for paralimbic abnormalities. Grand rounds, Department of Psychiatry, Medical College of South Carolina, Charleston, SC. Invited speaker.

Kiehl, K.A. (September, 2007). The relevance of the assessment of psychopathy for forensic populations. Paper presented at the 25<sup>th</sup> Annual Meeting of the New Mexico Criminal Justice Association. Invited speaker.