Remarkable advances in neuroscience over the past forty years are transforming as well as challenging the current legal system. As with many scientific advances, discoveries in neuroscience have quickly found their way into the courtroom, as judges and juries are asked to draw conclusions about individual decision-making capacity or personal responsibility using this new data. However, the emergence of these concepts into the courtroom is at times haphazard, as there are few reliable and scientifically accepted conclusions that have provided the legal profession the ability to measure the reliability and accuracy of these technologies. The Massachusetts General Hospital Center for Law, Brain and Behavior seeks to provide responsible, ethical and scientifically sound translation of neuroscience concepts into the legal arena. These questions require thoughtful interdisciplinary discourse to avoid arbitrary or premature interpretation of the science. Drawing on the established research and clinical expertise of MGH as well as the broad expertise of distinguished advisors from the medical, legal, government, entertainment, business and investment communities, the Center is coordinating an interdisciplinary research and training program to identify and implement appropriate applications of neuroscience in the courtroom.

There are many instances when neuroscience and neuroimaging have made positive contributions to a legal outcome. There are, however, egregious examples when poor translation of neuroscientific findings have undermined the pursuit of justice. A jury in a first-degree murder case used largely irrelevant population genetics to mitigate the offense and its punishment. A court in India convicted a young woman of murdering her ex-fiancé based on scientifically unsound brain wave tests. A judge ruled that a defendant could present evidence of a brain lesion to the jury without evidence that this brain scan finding had any impact on the defendant's behavior. These errors were not the fault of the dedicated jurists who pursue the truth, but the inaccessibility of neuroscience to the law. CLBB's principal goal is to cure this inaccessibility by offering immediate and useful translations of neuroscience in the legal arena.
Self Control and the Brain

CLBB is entering into a research initiative conceived of and directed by principal investigator Professor Joshua Buckholtz, Director of the Systems Neuropathology Laboratory at Harvard University. The aim of Dr. Buckholtz's study (using MR-PET and excitatory transdirect current (brain) stimulation (etDCS)) is to identify the functional neurologic circuits responsible for impulsivity. In its simplest terms, it seeks to clarify the balance of various dopamine circuits in impulsive decision-making. This has obvious and immediate implications for psychiatric illness, addictive behaviors and impulsive aggression. To quote Dr. Buckholtz, "Humans are constantly faced with the opportunity to pursue immediate rewards at the cost of larger long-term rewards. Many social and health benefits accrue to people who can forgo immediate gratification to maximize long-term gains. By contrast, highly impulsive people are unable to delay gratification, leading them to make poor decisions that can have serious negative health consequences. Impulsive traits and behaviors predict significant psychiatric and physical morbidity and mortality and are highly difficult to treat." CLBB's goal in entering into this project is to help identify the neural circuits that tip the balance of behavior in favor of impulsive decisions, and develop ways to intervene in that circuitry. As impulsivity is at play in most acts of aggression, advances in this area would have immediate implications for understanding and deterring spontaneous violence.

Decision Making and Undue Influence

CLBB is also starting a decision-making initiative that explores the problem of undue influence. Older Americans are vulnerable to various degrees of cognitive impairment and the psychiatric and neuropsychological manifestations of these impairments can undermine medical and financial decision-making. Although psychometric testing can help clarify and quantify degrees of cognitive impairment, there are few measures of vulnerability to coercion. We have all seen - whether in the news or in our own families - instances when impaired adults fall victim to the influence or pressure of opportunists who seek to control their decisions for financial or other gain. Unscrupulous individuals cleverly exploit common symptoms associated with diminished cognition, including fearfulness, confusion, and a sense of dependency and vulnerability. When disputes arise - such as guardianship proceedings, testamentary capacity, informed consent - it becomes an unscientific "he said vs. she said" with interested parties staking out claims. CLBB’s long-term goal is to devise a psychometric instrument to measure susceptibility to undue influence. The development of this tool will make an immediate contribution to the protection of adults with mild to severe intellectual impairments. CLBB has developed a fellowship and has hired its first fellow, Dr. Ekaterina Pivovarova, a talented forensic psychologist with experience in designing psychometric instruments, to begin work on this important project.
Year in Review
2012-2013

FEATURED EVENTS

April 12, 2012

Neuroscience and the Criminal Mind
In this second event in our series “Conversations on Law and Neuroscience”, panelists explored the roots of psychopathy, addiction, and notions of self control and free will.
http://clbb.mgh.harvard.edu/upcoming-empathy-insights-from-neurophysiology-neurology-and-psychiatry/

January 17, 2013

Empathy: The Development & Disintegration of Human Connection
In this third event in our series “Conversations on Law and Neuroscience”, panelists explored what we know about how and when empathy develops, how and why it fails, and whether these failures -- which can have consequences ranging from therapeutic breaches to episodes of violence -- can be rehabilitated.
http://clbb.mgh.harvard.edu/upcoming-empathy-insights-from-neurophysiology-neurology-and-psychiatry/

January 31, 2013

Memory in the Courtroom: Fixed, Fallible or Fleeting?
In this fourth event in our series “Conversations on Law and Neuroscience”, experts in the neuroscience of memory distortion, post-traumatic stress, and the laws of evidence discussed the complicated use of memory in the courtroom, and how it’s changing.
http://clbb.mgh.harvard.edu/upcoming-memory-in-the-courtroom-fixed-fallible-or-fleeting/

February 7, 2013

Three Myths of the Brain: Insights from the Science of Emotion
The talk by Lisa Feldman Barrett was the first CLBB-sponsored MGH Psychiatry Grand Rounds.

April 25, 2013

Models of the Mind: How Neuroscience, Psychology and the Law Collide
CLBB joined forces with the Affective Science Institute to host a conversation among experts in neuroscience, psychology, and the law about three distinct and sometimes conflicting views on the causes of human behavior.
http://clbb.mgh.harvard.edu/event-models-of-the-mind/

April 27, 2013

The Future of Law and Neuroscience
The one-day conference in Chicago included a panel on “Neuroscience in the Courtroom,” featuring Dr. Nita Farahany and Hank Greely, moderated by CLBB Co-Director Judith Edersheim.
FEATURED POPULAR PRESS ARTICLES

CLBB | Commentary
September 3, 2013
Friendly Fraud
Recently, Massachusetts Attorney General Martha Coakley took the unusual step of warning the Massachusetts elderly about a widespread telephone scam.
http://clbb.mgh.harvard.edu/friendly-fraud/

PBS | Nova
October 18, 2012
Neuroprediction and Crime
In this blog post for the new PBS series NOVA ScienceNow, CLBB faculty member Josh Buckholtz discusses the costs of violence and the limits of neuroprediction.
http://www.pbs.org/wgbh/nova/body/neuroprediction-crime.html

Wall Street Journal
October 22, 2012
'Your Honor, My Genes Made Me Do It'
The WSJ featured an Op-Ed from Drs. Edersheim, Price, and Smoller, in which the CLBB co-directors and faculty member challenged the use of behavioral genetics in the courtroom.
http://online.wsj.com/article/SB100008723963904444592404578030652157630958.html

Huffington Post
December 14, 2012
Can Neuroscience Predict Human Behavior?
Drs. Edersheim, Price, and Baker weigh in on the national dialogue on the role of "neuroprediction" in the courtroom with a timely op-ed in the Huffington Post on why genetics and brain imaging cannot yet (and may never) predict the violent behavior of single individuals.

CLBB | Commentary
March 20, 2013
Should Aurora Shooter James Holmes Be Subjected to Truth Serum?
CLBB Co-Director Judith Edersheim weighs in on this unconventional technique in evaluating an insanity defense.
http://clbb.mgh.harvard.edu/should-aurora-shooter-james-holmes-be-subjected-to-truth-serum/

CLBB | Commentary
May 5, 2013
Scientific Research – and Caution – Are Needed in the Courts: Dispatch from APLS 2013
Judge Martha Walters of the Oregon Supreme Court gave the opening plenary session for the American Psychology Law Society.
The Journal of Neuropsychiatry and Clinical Neurosciences
June 1, 2012
The Functional Neuroanatomy of Decision-Making
Decision-making is a complex executive function that draws on past experience, present goals, and anticipation of outcome, and which is influenced by prevailing and predicted emotional tone and cultural context. CLBB Co-Director Bruce Price is a co-author on this peer-reviewed article.
http://clbb.mgh.harvard.edu/the-functional-neuroanatomy-of-decision-making/

Nature | Neuroscience Reviews
January 28, 2013
Memory and Law: What Can Cognitive Neuroscience Contribute?
CLBB’s Daniel Schacter and Liz Loftus weigh in on a recent decision by the New Jersey Supreme Court that led to improved jury instructions that memory does not operate like a video recording and other pearls from the last few decades of psychological research.
http://www.nature.com/neuro/journal/v16/n2/full/nn.3294.html

Lancet
February 28, 2013
Identification of risk loci with shared effects on five major psychiatric disorders: a genome-wide analysis
CLBB faculty member Jordan Smoller was senior author on this landmark study showing that five of the major psychiatric disorders carry common genetic risk. Covered in NY Times, CBS News, and most major news outlets.

American Journal of Geriatric Psychiatry
April 2013
Evaluation of the Capacity to Appoint a Healthcare Proxy
In some situations, when a patient has not previously appointed a surrogate decision maker through an advance directive, a healthcare team may ask whether the patient, although lacking the capacity to make a healthcare decision, might still have the capacity to appoint a healthcare proxy. CLBB Director of Law and Ethics, Dr. Rebecca Brendel, was the senior author on this paper.
http://clbb.mgh.harvard.edu/evaluation-of-the-capacity-to-appoint-a-healthcare-proxy/
**Year in Review**

**2012-2013**

FEATURED CLBB PRESS | FACULTY IN THE NEWS

**December 21, 2012**

Steven Pinker and Joshua Buckholtz discuss the neuroscience of violence on PBS special "After Newtown"

As the American public struggles to make sense of the December’s mass shooting in Newtown, Connecticut, the scientific community has been called upon to discuss what we know about the neuroscience of violence and its relationship to such disturbing acts.

[http://clbb.mgh.harvard.edu/after-newtown/](http://clbb.mgh.harvard.edu/after-newtown/)

**January 28, 2013**

Lisa Feldman Barrett Elected to The Royal Society of Canada

The Society consists of elected Canadian citizens or residents who have made outstanding contributions to the arts, humanities, sciences, and Canadian public life, and is the highest Canadian honor that a scholar in the aforementioned fields can receive.


**March 8, 2013**

Joshua Buckholtz Awarded Sloan Research Fellowship

Buckholtz will use the fellowship to study impulsive decision-making and to develop circuit-based treatments for impulsive symptoms in psychiatric and neurological disorders.


**April 8, 2013**

CLBB Directors Report on “Notes from the Field” for Law and Neuroscience Course

The Vanderbilt Law School course is led by Jeffrey Schall and Owen Jones, director of the MacArthur Research Network on Law and Neuroscience.

**April 23, 2013**

Nancy Gertner Discusses Dzhokhar Tsarnaev’s Prosecution—And Defense

As Boston recovers from the bombing of the Boston Marathon, the dramatic pursuit of suspects Tamerlan and Dzhokhar Tsarnaev, and the ultimate capture of the younger brother, Dzhokhar, the next chapter of the story — its legal handling — is only beginning.


**April 25, 2013**

Steve Hyman Speaks at the AAAS Conference on “Neuroscience and the Law”

The CLBB faculty member and Director of the Stanley Center for Psychiatric Research at the Broad Institute of Harvard and MIT suggested that neuroscience will not transform the legal system any time soon.


**April 30, 2013**

Daniel Schacter Elected to National Academy of Sciences

A widely accepted mark of excellence in science, membership is considered one of the highest honors a scientist can receive.

CLBB Directors, Faculty, and Advisors
2012-2013

DIRECTORS

Judith G. Edersheim, JD, MD
Co-Director, CLBB
Senior Consultant, Law And Psychiatry Service Massachusetts General Hospital
Assistant Clinical Professor In Psychiatry, Harvard Medical School

Bruce H. Price, MD
Co-Director, CLBB
Chief, Department Of Neurology, Mclean Hospital
Associate In Neurology, Massachusetts General Hospital
Associate Professor Of Neurology Harvard Medical School

Justin T. Baker, MD, Ph.D.
Director of Scientific Programs, CLBB
Staff Psychiatrist At McLean Hospital
Instructor In Psychiatry At Harvard Medical School
Research Fellow At The Harvard University Center For Brain Science

Rebecca Weintraub Brendel, MD, JD
Director of Law and Ethics, CLBB
Psychiatrist, Law & Psychiatry Service And Consultation Psychiatry Service, Massachusetts General Hospital
Associate Director, Forensic Psychiatry Fellowship, Massachusetts General Hospital
Instructor In Psychiatry, Harvard Medical School

CORE STAFF / FELLOW

Jessica Patrick
Chief Operating Officer, CLBB

Ekaterina Pivovarova, Ph.D.
Forensic Psychology Fellow, CLBB
Dr. Pivovarova will start a one-year fellowship with CLBB in September 2013
CLBB Directors, Faculty, and Advisors
2012-2013

CORE FACULTY

Lisa Feldman Barrett, Ph.D
Distinguished Professor of Psychology, Northeastern University; Research Scientist, Department of Psychiatry, Research Neuroscientist, Department of Radiology, Massachusetts General Hospital

Joshua W. Buckholtz, Ph.D.
Assistant Professor of Psychology, Harvard University; Director, Systems Neuroscience of Psychopathology laboratory (SNPlab)

Randy L. Buckner, Ph.D
Professor of Psychology, Harvard University; Affiliate, Center for Brain Science, Harvard University; Faculty, Athinoula A. Martinos Center for Biomedical Imaging, Massachusetts General Hospital/Harvard Medical School

Shervert H. Frazier, MD
Psychiatrist-in-Chief, Emeritus, McLean Hospital

Judge Nancy Gertner
Professor of Practice, Harvard Law School; Former Federal Judge, U.S. District of Massachusetts

Edward Hundert, MD
Senior Lecturer in Medical Ethics and Co-Director of "Medical Ethics and Professionalism" course, Harvard Medical School; Director, Washington Advisory Group

Steven E. Hyman, MD
Distinguished Service Professor, Harvard University; Director, Broad Institute of Harvard and MIT
Jeffrey Rosen, Esq.
Professor of Law, George Washington University; Legal Affairs Correspondent, The New Republic; Senior Fellow, The Brookings Institution, Project on Technology and the Constitution

Jerrold F. Rosenbaum, MD
Psychiatrist-in-Chief, Massachusetts General Hospital; Stanley Cobb Professor of Psychiatry, Harvard Medical School

Daniel L. Schacter, Ph.D
William R. Kenan Jr. Professor of Psychology, Harvard University; Best Selling Author: The Seven Sins of Memory and Searching for Memory: The Brain, The Mind, The Past

Larry J. Seidman, Ph.D
Professor of Psychology, Harvard Medical School; Research Associate in Psychiatry, Massachusetts General Hospital; Director, Commonwealth Research Center; Affiliated Faculty, Athinoula A. Martinos Center for Biomedical Imaging

Jordan W. Smoller, M.D., Sc.D.
Professor of Psychiatry, Harvard Medical School; Associate Professor of Epidemiology, Harvard School of Public Health; Assistant Vice Chair, MGH Department of Psychiatry; Co-Director of the Genetics and Genomics Unit, MGH Clinical Research Program
CLBB Directors, Faculty, and Advisors
2012-2013

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Judi Flom, Esq.
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Peggy Edersheim Kalb
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Anne-Marie Slaughter
Bert G. Kerstetter ’66 University Professor of Politics and International Affairs, Princeton University

Gerrie Smith

H. Marshall Sonenshine
Founder and Principal, Sonenshine Partners

Eliot Spitzer
Lawyer and political commentator; formerly Attorney General and Governor of New York

Silda Wall Spitzer
Principal, NewWorld Capital Advisors; Founding Chair of Children for Children, now called generationOn, the youth service arm of the Points of Light Institute
The Center for Law, Brain and Behavior

Year in Review
2012 - 2013
Preserving Brain Health & Protecting Your Legacy

Experts on neurology, psychiatry, and the law discuss the changing science of memory and how to protect your health and your money.

April 16, 2013
Naples, Florida
Evaluation of the Capacity to Appoint a Healthcare Proxy

Jennifer Slope, Ph.D. Charles P Sabatine, J.D. Rebecca Weinstein Brendel, R.D., J.D.

The appointment of a healthcare proxy is the most common way through which patients appoint a surrogate decision maker in anticipation of a future time in which they may lack the ability to make medical decisions themselves. In some situations, when a patient has not previously appointed a surrogate decision maker through an advance directive, the healthcare team may ask whether the patient, although lacking the capacity to make a healthcare decision, might still have the capacity to appoint a healthcare proxy. In this article, the authors summarize the existing, albeit limited, legal and empirical basis for this capacity and propose a model for assessing capacity to appoint a healthcare proxy that incorporates clinical factors in the context of the risks and benefits specific to surrogate appointment under the law. In particular, it is important to weigh patients understanding and decisions within the context of the risks and benefits of the medical and interpersonal factors. Questions to guide capacity assessment are provided for clinical use and refinement through future research. (Am J Geriatr Psychiatry 2013; 21:529-536)

Am J Geriatr Psychiatry 21:4, April 2013

R. Brendel

Neuroscience of Violence & Self Control

J. Buckholtz
A Measure of Truth and Deception
The Past and Future of Lie Detection

January 21, 2010
Harvard Medical School

Part of "Conversations in Law and Neuroscience" series

Bruce K. Price, MD
Co-Director, CLBB, Chief of Neurology, McLean Hospital Associate Professor of Neurology, Harvard Medical School

Judith Edersheim, JD MD
Senior Consultant to the Law and Psychiatry Service at MGH, Co-Director of CLBB

Joshua Greene, PhD
John and Ruth Hazel Associate Professor of the Social Sciences, Department of Psychology, Harvard University

F. Lee Bailey, Esq.
Trial Lawyer and Legal Expert
January 31, 2013
Harvard Medical School

Memory in the Courtroom: Fixed, Fallible, or Fleeting?

Daniel Schacter, PhD
Professor of Psychology at Harvard University; best-selling author of *The Seven Sins of Memory*

Judge Nancy Berker
Professor of Practice at Harvard Law School; Retired US District Judge

Roger K. Pitman, MD
Professor of Psychiatry at Harvard Medical School; internationally recognized expert on post-traumatic stress disorder

Dick Lehr
Award winning journalist, author, and investigative reporter; professor of Journalism, Boston University

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**Memory and law: what can cognitive neuroscience contribute?**

David L. Schacter & Elisabeth F. Loftus

A recent decision in the United States by the New Jersey Supreme Court has led to a proposed juries instructions that incorporate psychological research showing that memory does not nee as a factor in the trial outcome. Here we consider how cognitive neuroscience could contribute to addressing memory in the courtroom. We discuss conditions in which memory has been shown to be distorted due to factors such as false memories and how these factors can be mitigated.

In November 2012, Larry Henderson was accused of killing a grocer in New Jersey. Witness witnesses reported seeing a man with a gun, but Henderson denied the accusation. A witness said that Henderson had been involved in an incident at a bar the night before the murder. After hearing from the witness, the judge ruled that the witness's testimony should be admitted into evidence. Henderson was convicted of murder and sentenced to life in prison. Henderson appealed his conviction, arguing that the judge's ruling was based on unreliable memories of the witness. The appellate court overturned Henderson's conviction, finding that the judge's ruling was based on unreliable memories of the witness. Henderson was released from prison.

In another case, a witness testified that she saw a man with a gun in the area where the murder occurred. The defense argued that the witness's memory was faulty and that she had misidentified Henderson. The jury found that the witness's testimony was reliable and that Henderson was guilty of murder.

These examples illustrate how memories can be influenced by various factors, such as stress, emotion, and suggestion. In order to ensure fair trials, it is important for juries to be aware of the limitations of human memory and to carefully evaluate the reliability of witnesses' testimony. Cognitive neuroscience offers insights into these limitations and can help juries make more informed decisions.

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**Focus on Memory**

**Commentary**

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**Nature Neuroscience** Volume 16 | Number 2 | February 2013
Models of the Mind: How Neuroscience, Psychology, and the Law Collide

April 25, 2013
Harvard Medical School

Part of "Conversations in Law and Neuroscience" series

Randy Buckner, PhD
Professor of Psychology and Neuroscience at Harvard University; Director of Psychiatric Neuroimaging at MGH

Lisa Feldman Barrett, PhD
Distinguished Professor of Psychology at Northeastern University; Research Scientist in the Dept. of Psychiatry and Radiology at MGH

Amanda Buxton, JD
Associate Professor of Law at the University of Maryland School of Law, where she teaches Law & Neuroscience

Ed Rundel, MD
Senior Lecturer in Medical Ethics, Harvard Medical School
Three Approaches to the Mind

In this 50-minute talk, Dr. Edward Hunder presents a synthesis of ideas from philosophers, psychiatrists, and neuroscientists in an effort to find a common language through which these diverse views of the human mind can contribute insights one to the next. Drawing on thinkers from Plato, Kant, Freud, Neur, and Hume to modern neuroscientists and researchers in artificial intelligence, Dr. Hundert compares the ways various fields interpret the "nature-nurture debate" around the question of how our basic concepts of the world find their way into our brains. He concludes by comparing all of these cognitive theories of knowledge with moral theories of justice, challenging us to appreciate just how interactive the relationship is ... in the realms of both knowledge and values ... between the human brain and the world we share.
April 12, 2012

Neuroscience and the Criminal Mind

Part of "Conversations in Law and Neuroscience" series

Kent A. Kiehl, PhD
Associate Professor of Psychology at the University of New Mexico

Heleen Mayberg, MD
Professor of Psychiatry, Behavioral Sciences and Neurology at Emory University

Steven E. Hyman, MD
Director, Stanley Center for Psychiatric Research, Broad Institute of MIT and Harvard

Lee Bailey, Esq
Trial Lawyer and Legal Expert

January 17, 2013
Harvard Medical School

Empathy: The Development and Disintegration of Human Connection

Part of "Conversations in Law and Neuroscience" series

Heleen Riess, MD
Associate Clinical Professor of Psychiatry and Director of the Empathy and Relational Science Program at MGH

Carl Marci, MD
Director of Social Neuroscience, Psychotherapy Research Program at MGH

Alice Flaherty, BD PhD
Associate Professor of Neurology and Psychiatry at MGH, Author

Judith Edersheim, JD, MD
Senior Consultant to the Law and Psychiatry Service at MGH, Co-Director of CLBB
Neurology, Psychiatry, and the Law: Notes from the Field

An Invited Lecture and Panel Discussion for the Course “Law and Neuroscience”

April 8, 2013
Vanderbilt Law School

Bruce H. Price, MD
Co-Director, CLBB; Chief of Neurology, McLean Hospital; Associate Professor of Neurology, Harvard Medical School

Judith Edersheim, JD MD
Senior Consultant to the Law and Psychiatry Service at MGH, Co-Director of CLBB

Justin T. Baker, MD PhD
Director of Research, CLBB; Instructor of Psychiatry, Harvard Medical School

Owen Jones, JD
Professor of Law and Biology, Vanderbilt University; Director, MacArthur Foundation Research Network on Law and Neurosciences

THE HUFFINGTON POST

Can Neuroscience Predict Human Behavior?

Written with Justin T. Baker, MD, PhD, and Bruce H. Price, MD.

Turn to the crime section of any major news outlet and you can’t miss the case of Army Staff Sgt. Robert Bales, accused of committing the violent massacre of 16 Afghan civilians.

While the case is in hold, awaiting the outcome of his Article 32 hearing (to determine whether the prosecution has enough evidence to proceed to court martial), statements from his defense team have alluded to possible trial strategy. Perhaps Sgt. Bales sustained a significant traumatic brain injury (TBI) on a previous tour of duty in Iraq? Perhaps he suffers from post-traumatic stress disorder (PTSD)? Perhaps there will be evidence, neuroscientific evidence, as to why his defense is one of “diminished capacity”?
10  Neuroimaging, Diminished Capacity and Mitigation

Judith G. Edersheim, Rebecca Weintraub Brendel, and Bruce H. Price

The Center for Law, Brain and Behavior, Massachusetts General Hospital, Boston, MA, USA

Introduction

The U.S. Supreme Court’s recent decision in Roper v. Simmons [1] and the amicus briefs submitted in support of abolishing the death penalty for juveniles suggests that neuroscientific evidence will play an increasingly important role in shaping legal concepts of culpability [2]. As we saw in Chapter 9, neuroscience is already beginning to play an important role in insanity defense proceedings. In addition, when mental conditions do not meet the stringent standards required for acquittal on insanity grounds, they might still be relevant to culpability, either because they influenced the defendant’s mental state at the time of the offense (diminished capacity) or because they reduce the blameworthiness of the defendant for sentencing purposes (mitigation).

Neuroimaging in these contexts may shed light on the mental state of the accused at the time of the offense in order to help judges and juries determine the defendant’s quality of thought or level of culpability. In these instances, neuroimaging evidence is relevant to the “mens rea” element of the criminal offense, as explained below.
CLBB | Project Timeline

**Clarity**
- Scholarly Reviews of Key Topics
- Selecting World-class Faculty from MGH, Harvard, MIT, McLean Hospital
- Panel Events
- Online Forum
- Surveys of Lawyers, Judges & the General Public

**Research**
- Measure Mental States Predict Behavior Judge Capacity
- Assess Existing Clinical Techniques & Psychological Instruments
- Develop Psychological & Biobehavioral Instruments
- Assess Incremental Benefits of Biological Markers: -- Genetics Studies
  -- Brain Imaging Studies
- Studies to Influence Criminal Behavior

**Translation**
- Teaching/Translation:
  - Continuing Legal Education
  - ABA meetings
  - Judicial conferences
  - Law School Teaching
- Judicial Process Change:
  - Jury Instructions
  - Misdemeanor Hearings
  - Diversionary Courts
- Law & Policy Change:
  - Lobby state & federal gov’ts
  - Engage with national orgs. (AALS, NSF, etc.)

Defining the Right Questions
Performing Targeted Projects
Influencing Legal Mechanisms
“Too often we fail to recognize and pay tribute to the creative spirit. It is the spirit that creates our jobs.... There has to be this pioneer. The individual who has the courage, the ambition to overcome the obstacles that always develop when one tries to do something worthwhile, especially when it is new and different.”

~Alfred P. Sloan Jr., 1941


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