

DEFINING DEATH

Organ transplantation and the 50-year legacy of the Harvard report on brain death

APRIL 11-13, 2018





If one subject in health law and bioethics can be said to be at once well settled and persistently unresolved, it is how to determine that death has occurred.”

—Alexander M. Capron, LL.B.,
Executive Director, President's Commission 1981, *New England Journal of Medicine* (2001) 344:1244.



2018 Conference Planning Committee

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Christine Mitchell, RN, MS, MTS
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Conference Materials & Digital Connections

Selected video recordings from the conference will be available at bioethics.hms.harvard.edu

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Defining Death: *Organ transplantation and the 50-year legacy of the Harvard report on brain death*

A Message from the 2018 Conference Planning Committee Chair



The first heart transplant in late 1967 brought the promise of a revolutionary new approach to saving the lives of patients with irreversible organ failure. At the same time, rapid advances in the development of life-sustaining treatments raised questions about when the use of these technologies was no longer saving lives but merely prolonging death.

Under the auspices of the Dean of Harvard Medical School and the leadership of Dr. Henry K. Beecher, in 1968 a Harvard committee suggested a solution for both of these problems, proposing a new definition of death – brain death – which would apply to “comatose individuals who have no discernable central nervous system activity.”

This new approach to defining death promised not only to relieve the burden of hopeless treatment from patients, families, and hospitals, but also to eliminate “controversy in obtaining organs for transplantation” by assuring that the organs would not be removed before the patient was dead. Over the next decade these ideas gained traction, and in 1981 the concept was endorsed by a President’s Commission and incorporated into the Uniform Definition of Death Act, a version of which has been adopted into law by all 50 states.

This conference will look back on the legacy of the Harvard report, examining both its tremendous success in creating a social consensus around defining death by neurological criteria, as well as the persistent controversies that have questioned the philosophical, theological, legal,

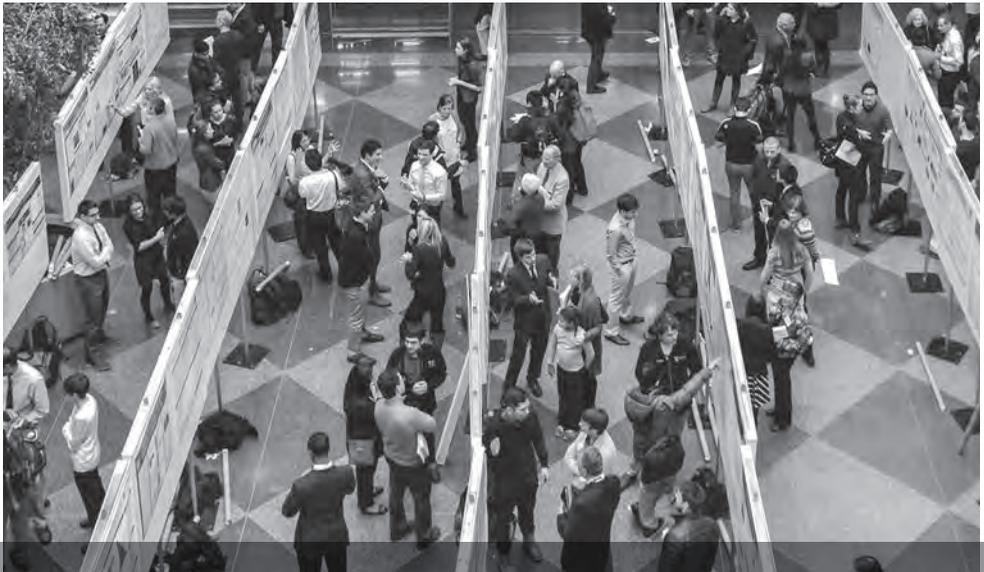
Perhaps the full legacy of the Harvard

and empirical claims that it assumes. Finally, we will look to the future, and examine how new developments in gene-editing and other technologies may eliminate the need to procure organs from human donors at all, rendering the most important *raison d'être* for the concept obsolete. In this light, perhaps the full legacy of the Harvard report is a story that remains to be told.

I am grateful to the members of the planning committee, who were essential in developing a program that we hope will be seen as both comprehensive and balanced, to the speakers, all of whom are international authorities in this field and, in many cases, important protagonists in the history itself. And finally, none of this would be possible without my colleagues at Harvard Medical School's Center for Bioethics and our dedicated and professional staff. My hope is that this conference will helpfully advance our thinking around how we, as a society, define death.

Robert D. Truog, MD, MA

Director, Center for Bioethics, Harvard Medical School



report is a story that remains to be told.

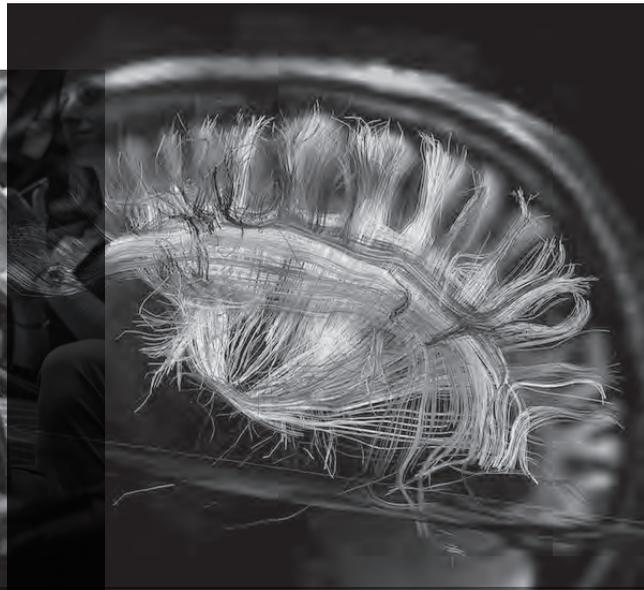
About the Conference

The Conference Mission

The Harvard Medical School Annual Bioethics Conference (ABC) convenes leaders in the field to explore ethical questions and concerns in healthcare. Held each April, the conference facilitates conversations among experts and supports members of ethics committees, health care professionals, bioethicists, administrators, attorneys, and others who are interested in addressing ethical issues.

Poster Session

Poster sessions offer participants the opportunity to learn from the research findings and field work of bioethics students, researchers, and clinicians. This year's call for abstracts went out to the community in February 2018. The Conference Planning Committee selected posters for presentation.

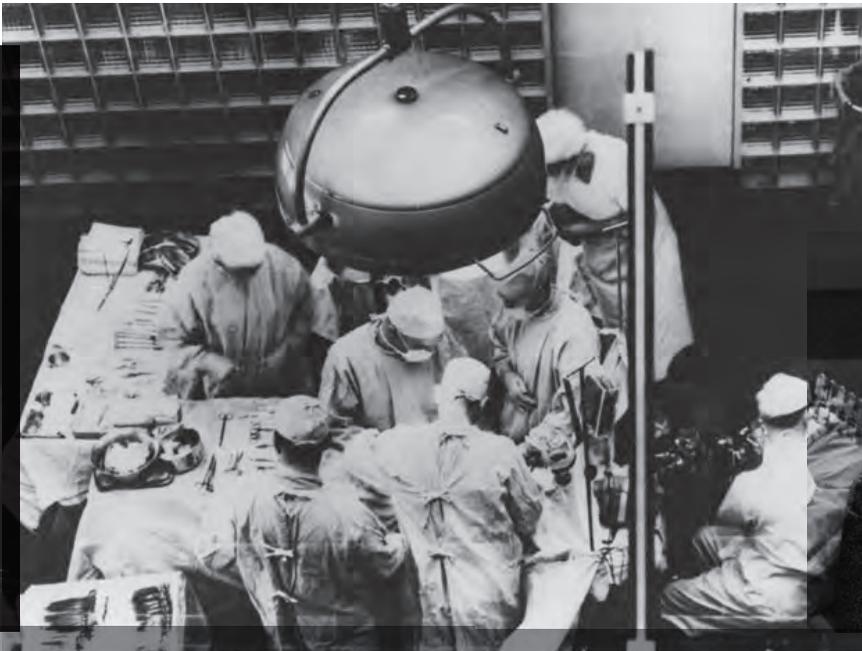


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he Center for Bioethics prepares professionals to address the

April 2019 Annual Bioethics Conference:
Controlling Death? Ethics, Law, and the Health Professions

Across the U.S. to Canada and beyond, citizens and health care professionals are engaged in a profound moral debate about the scope of our freedom to choose the timing and manner of death. A growing minority of states have legalized some form of physician-assisted death and outside the US euthanasia is now legally permissible in several countries. The 2019 Annual Bioethics Conference will explore the ethical, legal, and clinical aspects of seeking to control when and how one dies. It will assess and engage the current landscape of assisting dying and anticipate future directions including distinctions between death and suicide in the setting of mental illness.



profound moral questions raised by advances in the life sciences.

About the Sponsors

The Center for Bioethics at Harvard Medical School

The Center for Bioethics brings together the rich intellectual resources of Harvard Medical School (HMS)—the largest biomedical research community in the world—including sixteen affiliated hospitals and research institutions; the expertise of more than twelve thousand HMS faculty members, physicians, and research scientists; and partnerships across Harvard University’s schools and academic departments.

Based in Boston, a global epicenter of biomedical research and innovation, the Center’s resources are designed to integrate ethics, scientific discovery, and clinical care more closely than ever before.

Professionals from around the world participate in the Center’s many programs, including a master of bioethics degree program, fellowship in bioethics, and professional and public education conferences and lectureships that address health care and social justice issues at the intersection of bioethics, law, and public policy. For more information, see **bioethics.hms.harvard.edu**.

The Petrie-Flom Center at Harvard Law School

The Petrie-Flom Center for Health Law Policy, Biotechnology, and Bioethics is a leading research program dedicated to the unbiased legal and ethical analysis of pressing questions facing health policymakers, medical professionals, patients, families, and others who influence and are influenced by the health care system.

The Petrie-Flom Center hosts public events and conferences, publishes the Bill of Health blog (<http://blogs.harvard.edu/billofhealth>), co-edits the *Journal of Law and Biosciences*, runs various fellowship programs, conducts sponsored research, hosts collaborations and produces independent scholarship on a range of topics under the umbrellas of health law policy, biotechnology, and bioethics. For more information, see **petrieflom.law.harvard.edu**.



ur primary purpose is to define irreversible coma as a new

The Hastings Center

The Hastings Center addresses fundamental ethical and social issues in health care, science, and technology. Through our scholars' writing and speaking, and through the work of the many other people who participate in our projects or submit articles to our publications, we shape ideas that influence key opinion leaders, including health policy-makers, regulators, lawyers, legislators, and judges. Our analyses also deeply influence professional practice: from end-of-life care to psychiatric practice to immigrant health care, we have helped to shape the standards of practice adopted by physicians, nurses, and lawyers. Founded in 1969 by philosopher Daniel Callahan and psychoanalyst Willard Gaylin, The Hastings Center is the oldest independent, nonpartisan, interdisciplinary research institute of its kind in the world. For more information, see thehastingscenter.org.

Public Forum Site Sponsor: MCPHS University

Founded in 1823 as the second-oldest pharmacy college in the U.S. and now a state-of-the-art university for health sciences, MCPHS University (formerly known as Massachusetts College of Pharmacy and Health Sciences) is focused on shaping healthcare and bettering the field one generation at a time. Our flagship campus is located in the heart of Boston's Longwood Medical and Academic Area, a world-class center for healthcare innovation. With additional campuses in Worcester and Manchester, NH, MCPHS enrolls more than 7,000 students in more than 100 graduate, professional, and undergraduate health sciences programs. In addition to physical campuses, MCPHS offers online degree programs designed to empower healthcare professionals to balance career advancement with the rest of their busy lives. For more information, see mcphs.edu.

SCHEDULE OF EVENTS

WED



Wednesday, April 11, 2018

LOCATION: MCPHS University, 179 Longwood Avenue

5 – 7 pm | Stoklosa Hall

Brain Death and the Controversial Case of Jahi McMath

A Summary of the Case | Robert Truog, moderator

Jahi McMath was diagnosed as brain-dead following complications from a tonsillectomy at the age of 13. Although she has been legally dead for over four years, she continues to grow and develop, supported with tube feedings and a ventilator. The panelists in this public bioethics forum will examine the neurological, bioethical, and social implications of this controversial case.

A Social Scientist's View | Michele Bratcher Goodwin

What are the socio-legal and cultural implications of brain death? This presentation will examine the cultural, political, and racial tensions associated with understanding and acceding to brain death.

A Neurologist's View | D. Alan Shewmon

In December 2013, Jahi McMath fulfilled the diagnostic criteria and statutory definition of death; her subsequent course raises doubts that she currently fulfills either.

A Bioethicist's View | Arthur L. Caplan

What ought the future be in understanding and utilizing brain death in the wake of the McMath case and other developments in understanding severe brain damage?

Questions and Discussion

7:00 pm | Reception in White Hall

Special thanks to

MCPHS University for providing the lecture and reception rooms for Wednesday's public bioethics form. The conference planning committee would like to acknowledge MCPHS University leadership, faculty, and staff, including:

Charles F. Monahan, Jr., ScD (Hon.), President; Caroline S. Zeind, PharmD, Interim Vice President for Academic Affairs/Provost; Delia Anderson, PhD, Associate Provost for Undergraduate Education; Dien Ho, PhD, Associate Professor of Philosophy and Healthcare Ethics; Kenneth Richman, PhD, Professor of Philosophy and Healthcare Ethics; Justin Benson, Director of IT Client Services; Matthew Calvin, IT Classroom Support Technician; and Joanne D'Amico, Executive Director of Operations, Academic Affairs.

SCHEDULE OF EVENTS

THURS



Thursday, April 12, 2018

7:45 - 8:30 am | Lobby

Registration and Breakfast

LOCATION: Joseph B. Martin Conference Center, 77 Ave. Louis Pasteur

Welcome and Introductions

Robert Truog, Conference Planning Committee Chair

The Clinical Diagnosis of Brain Death | **Galen Vincent Henderson**

How does a practicing neurologist make the diagnosis of brain death in a patient with severe neurological injury?

8:50 – 10:15 am

The Harvard Report: 1968

Introduction | **Mildred Z. Solomon, moderator**

Historical Reflections on the Harvard Committee | **Gary Belkin**

What motivated the work of the Harvard Committee and what should we learn from it? Bioethicists commonly assume that the Committee was focused on the goal of facilitating and expanding transplantation, but historical analysis suggests a more nuanced answer that challenges both the self-understanding of bioethics and how we approach healthcare and public health as a moral enterprise.

Comments from Invited Guests

The Harvard Beecher Archives | **Scott Podolsky**

History serves as a powerful tool for understanding the evolution of medical science and bioethics alike. The Center for the History of Medicine at the Countway Medical Library is a resource for exploring the original correspondence and draft reports related to the Ad Hoc Committee of the Harvard Medical School to Examine the Definition of Brain Death.

10:15 – 10:30 am | Break

THURSDAY, APRIL 12, 2018

ALL sessions will be in the Joseph B. Martin Conference Center, 77 Avenue Louis Pasteur. Time is allotted for questions and discussion after presentations.

Thursday, April 12, 2018

10:30 – noon

Brain Death: 1968-2018

Christine Mitchell, moderator

The 1981 President's Commission and the UDDA

Alexander M. Capron | The Uniform Determination of Death Act of 1981 (UDDA) sought to address many of the concerns raised by the 1968 Harvard committee report. The wide acceptance of the UDDA — and the medical guidelines for its implementation — stand in contrast to renewed skepticism about brain death.

Daniel Wikler | The President's Commission report on brain death provided a rationale for the UDDA that was and remains deeply flawed. How should philosophers serving on public commissions think about their obligations to conceptual clarity versus their obligations to support and promote societal goods like organ transplantation?

Brain Death: Historical and philosophical reflections | **Robert M. Veatch**

As a graduate student at Harvard in the late 1960's, Robert Veatch recalls that the Committee was not clear about why they were seeking to redefine death. Fifty years later, Veatch believes no reasonable person would accept the early formulation of the brain-based definition of death.

Noon – 1 pm | Lobby

Lunch: Pick up tote lunch outside the amphitheater.

Presentations: Posters will be displayed in the lobby during lunch (see page 21 for poster details).

1 – 2:30 pm

Point-Counterpoint: Is brain death a coherent and justified concept for determining death?

Summary | **Lainie Friedman Ross**, moderator

James L. Bernat | The conceptual basis for the equivalence of brain death and human death is the cessation of functioning of the organism as a whole. Although many parts of the brain-dead patient obviously remain alive by technological support, the patient is dead because those parts no longer constitute a living whole.

D. Alan Shewmon | Brain death was introduced in the 1960s, not as a coherent concept but as a useful one. It is not the permanent cessation of functioning of the organism as a whole and remains a conclusion in search of a justification.

Thursday, April 12, 2018

2:30 - 2:45 pm | Break

2:45 – 4:15 pm

Brain Death and the Law

Rebecca Brendel, moderator

Hard Cases and Legal Challenges

Thaddeus Mason Pope | Brain death is facing three distinct types of court challenges. Those contesting the legal status of brain death assert: (1) that prevailing medical criteria fail to measure what the law requires, (2) that clinicians need family consent to administer examinations like the apnea test, and (3) that clinicians must indefinitely accommodate religious objections.

Brain Death and the Law: International perspectives

Pablo de Lora | How has the neurological criterion of death been adopted across different legal systems? Has such incorporation prompted significant legal challenges? An examination of the legal status of brain death across a selected sample of relevant countries will help to answer these questions.

Separating Determination from Declaration

Robert Tasker | Two words — determination, the process of establishing a condition, and declaration, a formal announcement of that condition — have a history in the key documents about “brain death” (1968 to 2011). One act is grounded in medicine, the other in law. The “brain death” narrative started with a clear separation in these acts that has largely disappeared. Would re-establishing the separation have conceptual and practical advantages?

4:15 – 5 pm

Point-Counterpoint: Is informed consent necessary before brain death testing?

David M. Greer | Informed consent is not required for apnea testing for diagnosing brain death.

Robert Truog | Medical procedures or examinations may not be performed on a patient without their explicit or implied consent. Brain death is no exception.

THURSDAY, APRIL 12, 2018

ALL sessions will be in the Joseph B. Martin Conference Center, 77 Avenue Louis Pasteur. Time is allotted for questions and discussion after presentations.

SCHEDULE OF EVENTS

FRIDAY



Friday, April 13, 2018

7:45 - 8:30 am

Registration and Breakfast | Lobby

LOCATION: Joseph B. Martin Conference Center, 77 Ave. Louis Pasteur

8:30 – 9:30 am | Amphitheater

Using the Other Half of the UDDA: Determining death by circulatory criteria

Mildred Z. Solomon, moderator

Determining Death: Scientific aspects | **Sam D. Shemie**

What do we know about the scientific relationship between circulatory arrest, brain arrest, and death determination?

The Controlled DCD Donor | **Francis L. Delmonico**

Organ donation after using circulatory criteria determination of death is an increasingly important pathway for organ procurement. What does this procedure require, and what has been the impact of this approach on organ transplantation?

The Uncontrolled DCD | **Ivan Ortega-Deballon**

Strategies for procuring transplantable organs following unexpected cardiac arrest are increasingly common in Europe. How are these protocols constructed to mitigate conflicts of interests and other ethical concerns while expanding opportunities for organ donation?

9:30 – 10:30 am

Point-Counterpoint: Are DCD donors dead?

James L. Bernat | Circulatory death organ donors are dead at the time of death declaration following five minutes of apnea and circulatory arrest because they have permanent cessation of circulation and respiration. Permanent cessation is consistent with prevailing standards of death declaration in medical practice and avoids the unnecessary and harmful consequences of demanding proof of irreversible cessation.

Ari Joffe | Despite claims of an international consensus, four arguments show that permanent cessation of circulation is not sufficient for death, which must be irreversible. DCD donors are not dead.

10:30 – 10:45 am | Break

ALL sessions will be in the Joseph B. Martin Conference Center, 77 Avenue Louis Pasteur. Time is allotted for questions and discussion after speaker presentations.

Friday, April 13, 2018

10:45 – 12:15 pm

Defining Death and Public Policy

Robert Truog, moderator

Individual Choice in Definitions of Death | **Lainie Friedman Ross**

Different jurisdictions use different definitions by which to determine if a person is dead. Ross argues that individuals, within reason, should have the authority to decide which definitions are used.

Death as a “Legal Fiction” | **Seema Shah**

A legal fictions approach to brain death is intended as a temporary approach to reconcile current organ donation practices with the law by acknowledging that brain death is not the same as biological death, but can be treated as such for purposes of permitting—with individual or proxy consent—organ donation.

Religious Views on the Definition of Death | **Courtney S. Campbell**

What significance do religious convictions have in developing policy and law on the determination of death? Examination of recently litigated cases shows (1) the possibility of an overlapping consensus between religious and secular values on some aspects of public policy, and (2) the policy necessity of providing accommodations or exemptions for religious views that dissent from neurological-based criteria for death.

12:15 – 1:15 pm | Lobby

Lunch: Pick up tote lunch outside the amphitheater.

Presentations: Posters will be displayed in the lobby during lunch (see page 21 for poster details).

1:15 – 2:45 pm

The Dead Donor Rule

Lainie Friedman Ross, moderator

The Dead Donor Rule: A pragmatic defense | **David Magnus**

Current law and policy on euthanasia makes abandoning the Dead Donor Rule impracticable.

The Dead Donor Rule Is a Failed Firewall | **David Rodríguez-Arias**

The dead donor rule (DDR) functions as a symbolic firewall to protect potential donors from harm (including the harm of being killed by organ procurement), to assure donors are treated with respect, and to foster uncontroversial organ procurement. It has been imperfect in fulfilling these functions; in fact, it may be counterproductive to these goals.

Friday, April 13, 2018

The Dead Donor Rule: Public perceptions and attitude | **Michael Nair-Collins**

Results from a large national survey in the U.S. suggest that there may be public support for abandoning the dead donor rule in certain circumstances. Given that empirical data cannot be translated directly into normative conclusions, what role should empirical data on public attitudes play in the academic and policy debates on organ transplantation and the dead donor rule?

2:45 – 3 pm | Break

3 – 4:30 pm

The Future of Transplantation: Organs without human donors

Robert Truog, moderator

Genetically Modified Organs from Pigs and Human Stem Cells | **George M. Church**

As we transition from preindustrial diseases (infectious, inherited, nutritional) to postindustrial (heart, diabetes, aging), transplantation medicine will demand higher quality and more equitable distribution. Recent progress in engineering universal donor cells and organs may address these issues and raise new ones.

The Other Animal of Transplant's Future | **Lesley A. Sharp**

Xenotransplantation—where parts are derived from “source animals” or “donor species”—has long been heralded as transplant's future, potentially eliminating the need for human organs. Nevertheless, immunological challenges have relegated xenoscience to an ever-receding horizon, a reality now challenged by the possibilities of gene-editing. Amidst tentative celebration, how might we imagine, and wrestle with, the bioethics of investing hope in transgenic swine as transplant's “other (non-human) animal”?

Bodies in Transition: Life, Law, and the Human Self | **Sheila Jasanoff**

For more than 50 years, technological advances have been blurring the boundaries between life and death and human and non-human. The latest developments in transplant medicine raise new questions about how to rethink essential features of human integrity and dignity, and law offers societies diverse opportunities for reflecting on these issues.

Discussion and Closing Remarks | **Robert Truog**

FRIDAY, APRIL 13, 2018

ALL sessions will be in the Joseph B. Martin Conference Center, 77 Avenue Louis Pasteur. Time is allotted for questions and discussion after presentations.

POSTER PRESENTATIONS

2018



Poster Presentations | Thursday, April 12

LOCATION: Joseph B. Martin Conference Center, Lobby, 77 Ave. Louis Pasteur

A Liberal Decision by a Conservative Scholar: The Early Organ Transplantation Discussion in the Muslim World

Presenter: Abdullah Aljoudi, MBBS

Chairman of Ethics Committee

King Fahd Hospital of the University

Imama Abdulrahman Bin Faisal University, Saudi Arabia

Brain Death and Organ Donation: Ethical Conflicts Lived by Families of Donors in Decision Making

Presenter: Leonardo Barros e Silva, MD

Coordinator, Organ Procurement Organization

Clinics Hospital, School of Medicine

University of São Paulo, Brazil

Brain Stem Death: From Heart Transplants to Therapeutic Pain Research—Expanding the Role of Donated Tissues

Presenter: Mair Crouch, BSc, MSc, PhD, LLB

Lecturer in Bioethics

University of Glasgow, Scotland

Defining Death Debate within Roman Catholicism

Presenter: Jason Eberl, PhD

Professor of Health Care Ethics

Albert Gnaegi Center for Health Care Ethics, St. Louis, Missouri

Ethical and Juridical Aspects about Organ Procurement: Should We Have An “Opt-In” or “Opt-Out” System?

Presenter: Matteo Gulino, PhD

Post-Doctoral Researcher

Department of Medico-Surgical Sciences and Biotechnologies

Sapienza University of Rome, Italy

Presenters and posters are different on Thursday and Friday.

Investigation of Public Perception of Brain Death Using the Internet

Presenter: Amy Jones, MD

Pediatric Critical Care Medicine Fellow
Children's National Medical Center, Washington DC

Determination of Death: A Case for Kenya

Presenter: Marion Mutugi, PhD

Deputy Vice Chancellor of Planning, Research and Development
University of Kabianga, Kenya

Ethical Implications of Medical Crowdfunding: The Case of Jahi McMath

Presenters: Sarah Kelly, BSc

MBE Candidate
Harvard Medical School

Gabrielle Dressler, BA

MBE Candidate
Harvard Medical School, Boston, Mass.

Taking Sides: Organ Bazaar and Buddha's Four Noble Truths

Presenter: Suchana Sova

PhD candidate
Centre for Bioethics, Monash University, Australia
Assistant Professor, Jagannath University, Bangladesh

Presenter: Farid Ahmed , PhD

Professor
Department of Philosophy, Jahangirnagar University, Bangladesh

Defining Cancer-Specific Death

Presenter: Divya Yerramilli, MD, MBE

Resident Physician
Department of Radiation Oncology, Massachusetts General Hospital, Boston, Mass.

Poster Presentations | Friday, April 13

Organ Transplantation (Donation): Perspective of Multi Religions in Indonesia

Presenter: Syaefudin Ali Akhmad, MD

Senior Researcher in Bioethics and Biochemistry
*Center for Islamic Bioethics and Islamic Health Law
Faculty of Medicine, Islamic University of Indonesia, Indonesia*

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The Dead-Donor Rule and a Death with Dignity

Presenter: Miguel Dorante, BS

MBE Candidate
Center for Bioethics, Harvard Medical School, Boston, Mass.

.....
Thinking Anew About Death: Presenting the Rationale for an Australian Study of Health Professional and Public Attitudes on Death and Organ Donation

Presenter: Cynthia Forlini, BSc, MA, PhD

Research Fellow
*Sydney Health Ethics
School of Public Health, University of Sydney, Australia*

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Shortcomings in the Management of Public Health Imply a Low Rate of Transplantation in a Brazilian Northeast Province

Presenter: Rosamaria Gomes, MD

Professor of Medical Skills
CESMAC Medical School, Brazil

.....
Negotiating Marginal States in Life and Death: A Case of a Six-Week Fetus and a Brain Dead Boy

Presenter: Margaret Hayden, MPhil

Medical Student
Harvard Medical School, Boston, Mass.

FRIDAY, APRIL 13, 2018

Presenters and posters are different on Thursday and Friday.

The Ethics of Professional Collaboration with Chinese Transplant Professionals

Presenter: David Matas, BCL

Barrister and Solicitor

Canadian Council on International Law, Ottawa, Ontario, Canada

Epidemiology and Changing Trends of Pediatric Brain Death in Australasian ICUs

Presenter: Katie Moynihan, MBBS

Senior Fellow

Boston Children's Hospital, Boston, Mass.

Brain Death and Posthumous Harm

Presenter: J. Bradley Segal, MBE

Medical Student

Harvard Medical School, Boston, Mass.

How Do Implantable Brain Devices Affect the Determination of Brain Death?

Presenter: ZaeV Suskin, BA

MBE Candidate

Harvard Medical School, Boston, Mass.

The Sanctity of Death: Respect for Persons Supersedes Fideism

Presenter: Melinda Wilding, DBE

Instructor

University of Colorado at Denver and Anschutz Medical Campuses

PRESENTER BIOS



Gary Belkin, MD, PhD, MPH

Executive Deputy Commissioner, NYC Department of Health and Mental Hygiene



Gary Belkin is the executive deputy commissioner of mental hygiene in the New York City Department of Health and Mental Hygiene. The Division of Mental Hygiene has driven the framework and implementation of a city-wide approach to innovate mental health services called ThriveNYC, which is reframing mental health as a public health priority. Belkin manages policy, planning, services development, and implementation for prevention, promotion and treatment efforts across NYC. Before his current role, he was the medical director for behavioral health in the Health and Hospitals Corporation of the City of New York, which operates eleven public hospitals in New York City. He has also served as chief of psychiatry (interim) at Bellevue Hospital and has led policy development in urban health settings, with an interest in advancing innovative approaches to public mental health. As an associate professor in the Department of Psychiatry at New York University School of Medicine, he was the founding director of the NYU Program in Global Mental Health.

James L. Bernat, MD

Professor of Neurology and Medicine, Geisel School of Medicine at Dartmouth



James L. Bernat is a neurologist at the Geisel School of Medicine at Dartmouth. Formerly the Louis and Ruth Frank Professor of Neuroscience, currently he is professor of neurology and medicine (active emeritus). Following graduation from Cornell University Medical College, he trained in internal medicine and neurology at the Dartmouth-Hitchcock Medical Center. Bernat has been a Dartmouth faculty member for forty-two years. He is a fellow of the American College of Physicians, the American Academy of Neurology, the American Neurological Association, the Hastings Center, and is a member of the Dana Alliance for Brain Initiatives. His scholarly interests are in ethical and philosophical issues in neurology, particularly brain death and disorders of consciousness. Bernat has authored over 250 articles and chapters on topics in neurology and bioethics. He is the author of *Ethical Issues in Neurology, 3rd ed.* and co-editor of *Ethical and Legal Issues in Neurology*, and *Palliative Care in Neurology*.

Rebecca Weintraub Brendel, MD, JD

Assistant Professor of Psychiatry, Massachusetts General Hospital

Director, Master of Bioethics Program, Center for Bioethics, Harvard Medical School



Rebecca Weintraub Brendel is director of the Master's Degree Program at the Harvard Medical School Center for Bioethics. She is an assistant professor of psychiatry and is director of law and ethics at the Center for Law, Brain, and Behavior at Massachusetts General Hospital. She graduated from University of Chicago Law School and Pritzker School of Medicine, and completed her psychiatry residency at Mass General and McLean Hospital, as well as a forensic psychiatry fellowship at Mass General. Brendel's clinical practice has focused on patients with complex psychosocial problems, including trauma, dementia, mental illness, homelessness, substance abuse, decisional incapacity, lack of community support, and poverty. This broad work has informed her educational efforts and research interests focusing on issues at the interface of psychiatry, medicine, law, ethics, and human rights. At Mass General, she provides medical oversight for the hospital's inpatient guardianship team, and practices clinical and forensic psychiatry. She has served Mass General as medical director of the One Fund Center for Boston Marathon bombing survivors; psychiatrist on the Law & Psychiatry and Consultation Psychiatry Services; clinical director of the Red Sox Foundation/ MGH Home Base Program for post-9/11 service members and their families; and as associate director of the MGH-based Harvard Forensic Psychiatry Fellowship. She is admitted to the Massachusetts Bar and has served on the ethics committees of the Massachusetts Medical and Psychiatric Societies and the American Academy of Psychiatry and the Law. She is a fellow and president-elect of the Academy of Psychosomatic Medicine, which she has also served as chair of the Standards and Ethics Subcommittee. She is a fellow of the American Psychiatric Association and presently parliamentarian to the Board of Trustees, and a consultant to the Ethics Committee.



Courtney S. Campbell, PhD

Hundere Professor of Religion and Culture and Director

Program in Medical Humanities, Oregon State University



Courtney S. Campbell joined the Oregon State University faculty in 1990 and is currently the Hundere Professor in Religion and Culture, and director of the Program in Medicine Humanities. He has previously served as chair of the Philosophy Department and as director of the Program for Ethics, Science, and the Environment. Prior to coming to Oregon State, Campbell was a research associate at The Hastings Center. He received a PhD and master's degree in religious studies from the University of Virginia and a BA from Yale University. He has authored numerous articles on the controversial Oregon Death with Dignity Act and on the Oregon Health Plan. He also authored papers for the National Bioethics Advisory Commission on ethical questions about human cloning and about research on human tissue.

Arthur L. Caplan, PhD

Drs. William F. and Virginia Connolly Mitty Chair and Director

Division of Medical Ethics, New York University School of Medicine



Arthur Caplan is the Drs. William F. and Virginia Connolly Mitty Professor and founding head of the Division of Medical Ethics at NYU School of Medicine in New York City. Prior to NYU, Caplan was the Sidney D. Caplan Professor of Bioethics at the University of Pennsylvania Perelman School of Medicine, where he created the Center for Bioethics and the Department of Medical Ethics. Caplan has also taught at the University of Minnesota, where he founded the Center for Biomedical Ethics, the University of Pittsburgh, and Columbia University. He received his PhD from Columbia University. Caplan is the author or editor of thirty-five books and over 725 papers in peer reviewed journals. He has served on a number of national and international committees including as the chair of the National Cancer Institute Biobanking Ethics Working Group and chair of the Advisory Committee to the United Nations on Human Cloning. He is currently ethics advisor to the U.S. Department of Defense's Defense Advanced Research Projects Agency on synthetic biology, a member of the University of Pennsylvania's External Advisory Committee for its Orphan Disease Center, a member of the Ethics and Ebola Working Group of the World Health Organization, and an advisor to the National Institutes of Health on organ transplantation. Caplan is the recipient of many awards and honors, including the Patricia Price Browne Prize in Biomedical Ethics and the Public Service Award from the National Science Foundation/National Science Board, which honors individuals and groups that have made substantial contributions to increasing public understanding of science and engineering in the United States. He was recognized as one of the ten most influential people in the ethics of biotechnology by the editors of *Nature Biotechnology*, and one of the 100 most influential people in biotechnology by *Scientific American*.



Alexander M. Capron, LLB

University Professor, Vice Dean for Faculty and Academic

Scott H. Bice Chair in Healthcare Law, Policy and Ethics

Professor of Law and Medicine, Keck School of Medicine, University of Southern California



Alexander M. Capron is a University Professor at the University of Southern California, where he occupies the Scott H. Bice Chair in Healthcare Law, Policy and Ethics at the Gould School of Law, is professor of medicine and law at the Keck School of Medicine, and co-directs USC's Pacific Center for Health Policy and Ethics. He previously taught at Yale, Georgetown, and the University of Pennsylvania. He was director of ethics, trade, human rights and health law at the World Health Organization, and executive director of the President's Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research, whose report on Defining Death included the Uniform Determination of Death Act.

George M. Church, PhD

Robert Winthrop Professor of Genetics, Harvard Medical School
Founding Core Faculty & Lead, Synthetic Biology, Wyss Institute, Harvard University



George M. Church is professor of genetics at Harvard Medical School, a founding member of the Wyss Institute, and director of PersonalGenomes.org, the world's only open-access information on human genomic, environmental, and trait data. Church is known for pioneering the fields of personal genomics and synthetic biology. He developed the first methods for the first genome sequence and dramatic cost reductions since then (down from \$3 billion to \$600), contributing to nearly all "next generation sequencing" methods and companies. His team invented CRISPR for human stem cell genome editing and other synthetic biology technologies and applications — including new ways to create organs for transplantation, gene therapies for aging reversal, and gene drives to eliminate Lyme Disease and malaria. Church is director of IARPA & NIH BRAIN Projects and National Institutes of Health Center for Excellence in Genomic Science. He has coauthored 450 papers, 105 patents, and one book, *Regenesis*. His honors include the Franklin Bower Laureate for Achievement in Science, the Time 100, and election to the National Academies of Sciences and Engineering.



Pablo de Lora, PhD

Professor of Law and Legal Philosophy, School of Law,
Universidad Autónoma de Madrid, Spain



Pablo de Lora is professor at the Universidad Autónoma de Madrid, where he received a PhD in legal philosophy, and now teaches legal theory and legal philosophy. His scholarship has dealt with an array of topics at the intersection of legal and political philosophy and bioethics. De Lora has written on animal and human rights, reproduction ethics, distributive justice and health care and organ donation, and the controversies on death determination. His papers have appeared in the *Journal of Medical Ethics*, *The American Journal of Bioethics*, *The Journal of Medicine and Philosophy*, and others. He has been a visiting researcher at the Harvard Medical School Center for Bioethics, Rutgers, and Oxford University.

Francis L. Delmonico, MD, FACS

Chief Medical Officer, *New England Donor Services*

Professor of Surgery, *Harvard Medical School*

Emeritus Director of Renal Transplantation, *Massachusetts General Hospital*



Francis L. Delmonico is an HMS professor of surgery at Massachusetts General Hospital, where he is emeritus director of renal transplantation. He has been a member of the Mass General Department of Surgery for thirty-six years. Delmonico is past-president of The Transplantation Society and was appointed as an advisor to the World Health Organization in matters of organ donation and transplantation. He is the medical director of the New England Organ Bank since 1995, and is the chief medical officer of New England Donor. In 2005, Delmonico was elected president of the United Network for Organ Sharing, the federally designated Organ Procurement Transplant Network that oversees the practice of transplantation in the United States. He is the recipient of numerous awards, including the National Kidney Foundation's David M. Hume Lifetime Achievement Award, the Shumakov Medal from the Moscow Institute of Transplantation, the Gold Medal of the Catalan Transplantation Society, and the American Society of Transplantation Senior Clinician Award. Delmonico was appointed to the Pontifical Academy of Sciences in 2016 and convened a Summit of Professionals at the Vatican in 2017 addressing the topic of organ trafficking and transplant tourism. He has been an invited lecturer and visiting professor in cities and universities throughout the world. He has authored or coauthored more than 300 publications, including in the *New England Journal of Medicine*, *Lancet*, the *Journal of the American Medical Association* and the *New York Times*.

Michele Goodwin, JD

Chancellor's Professor of Law, School of Law

Director, Center for Biotechnology and Global Health Policy, University of California, Irvine



Michele Goodwin holds the Chancellor's Professorship at the University of California, Irvine, with appointments at the School of Law, School of Public Health, and in the Department of Gender and Sexuality Studies. She is the founder and director of the UC Irvine Center for Biotechnology and Global Health Policy and its Reproductive Justice Initiative. Goodwin's research and writing analyzes legal concerns with regard to the human body. She is an acclaimed bioethicist and prolific author. She has published numerous articles in the popular press and is the author of several highly acclaimed books. Her forthcoming book, *Policing The Womb*, chronicles how women's reproduction has become a political scapegoat in Congress and legislatures across the U.S., resulting in the rise of personhood measures — practices that force women to undergo Cesarean births under threat of court order, abuse of prosecutorial discretion that results in the criminalization and punishment of pregnant women for falling down steps, refusing bed rest or attempting suicide — and other policies that dramatically erode reproductive liberty. Goodwin lectures worldwide on issues involving human rights, reproductive justice, bioethics, and health law. She served as a visiting professor at the University of Chicago and as a visiting scholar at the University of California, Berkeley, and Columbia University Law School.

David Greer, MD

Chair, Neurology, Boston Medical Center

Professor of Neurology, Boston University School of Medicine



David Greer is chair of neurology at Boston Medical Center and professor of neurology at BU School of Medicine. Greer received an MA in English literature and MD from University of Florida, and an MA, *privatim*, from Yale. He completed an internship in internal medicine, a residency in neurology, and fellowship training in vascular neurology and neurocritical care, at Massachusetts General Hospital. Previously, he was associate professor of neurology at Harvard Medical School and associate neuroscientist at Mass General. His research interests include predicting recovery from coma after cardiac arrest, brain death, and multiple stroke-related topics, including acute stroke treatment and stroke prevention. He is a leader in the Neurocritical Care Society, the Society of Critical Care Medicine, and the American Stroke Association. He is the recipient of numerous awards including being named one of the Best Doctors in America since 2007, and two Presidential Citations each from the Society of Critical Care Medicine and the Neurocritical Care Society. Greer is the editor-in-chief of both *Neurocritical Care Live* and *Seminars in Neurology*. He serves as a reviewer for several journals, including the *New England Journal of Medicine*, *Annals of Internal Medicine*, *Brain*, *Neurology*, and *Stroke*. He is a fellow of the Society of Critical Care Medicine, American Academy of Neurology, American Heart Association, American Neurological Association and Neurocritical Care Society. He has authored more than 150 peer-reviewed manuscripts, reviews, chapters, guidelines and books.

Galen Vincent Henderson, MD

Director, Neurocritical Care and Neuroscience Intensive Care Unit,

Brigham and Women's Hospital

Assistant Professor of Neurology, Harvard Medical School



Galen Henderson is director of the Neurocritical Care and Neuroscience Intensive Care Unit at Brigham and Women's Hospital and an assistant professor of neurology at Harvard Medical School. His research focuses on clinical trials regarding treatments for stroke and cerebral hemorrhage. Henderson is a founding deputy editor of *Journal Watch Neurology* and is a charter member of the Academy at Harvard Medical School, which comprises the school's elite medical educators. The U.S. Secretary of Health and Human Services has recognized Henderson with an award for national leadership in hospital quality improvement in the areas of organ donation and transplantation. He is the president of the Brown Alumni Association; the association's president is also elected to serve as a trustee for a six-year term. He is a former president of the Brown Medical Alumni Association and former member of the Corporation's Emeriti Executive Committee. Henderson is active on advisory councils for the Brown-Tougaloo Partnership and the Science Center.

Sheila Jasanoff, PhD, JD

Pforzheimer Professor of Science and Technology Studies

John F. Kennedy School of Government, Harvard University



Sheila Jasanoff is Pforzheimer Professor of Science and Technology Studies at the Harvard Kennedy School. Previously, she was founding chair of Cornell University's Department of Science and Technology Studies. At Harvard, she founded and directs the Program on Science, Technology and Society; she also founded and coordinates the Science and Democracy Network. Jasanoff's research centers on the interactions of law, science, and politics in democratic societies. She has written more than 120 articles and book chapters and authored or edited more than 15 books. An edited volume, "Dreamscapes of Modernity," was published in 2015, and her most recent book, *The Ethics of Invention*, appeared in 2016. Jasanoff has held numerous distinguished professorships in the U.S., Europe, Australia, and Japan. She was a Fellow of the Wissenschaftskolleg zu Berlin and Karl W. Deutsch Guest Professor at the Wissenschaftszentrum Berlin. Her awards include a Guggenheim fellowship, the Austrian Government's Ehrenkreuz, the George Sarton Chair of the University of Ghent, the Bernal award of the Society for Social Studies of Science, and others. She is a foreign member of the Royal Danish Academy of Sciences and Letters and a member of the Council on Foreign Relations. She holds an AB in mathematics from Harvard College, a PhD in linguistics from Harvard University, and a JD from Harvard Law School.

Ari Joffe, MD

Clinical Professor of Pediatrics, University of Alberta, Canada



Ari Joffe is a clinical professor in the Department of Pediatrics at the University of Alberta, Edmonton, Alberta, Canada. He obtained his MD at the University of Alberta; pediatrics and pediatric infectious diseases specialty at the Alberta Children's Hospital, University of Calgary; and pediatric critical care medicine specialty at the Hospital for Sick Children, University of Toronto. He has practiced at the Stollery Children's Hospital since 1995. Joffe has many academic publications in critical care, with interests in sepsis, and long-term outcomes. In his role as co-chair of the Complex Pediatric Therapies Follow-up Program, he has published on long-term outcomes after cardiac surgery, extracorporeal life support, and solid-organ transplantation in young children, reporting potentially modifiable predictors of adverse outcomes. With a particular interest in ethics, he has contributed to the debate about whether non-human animal research is permissible (which, he argues, it is not), and whether patients declared dead based on NDD or DCDD meet a coherent definition of death (which, he argues, they do not). He has spoken at conferences internationally on these ethical issues.

David Magnus, PhD

Thomas A. Raffin Professor of Medicine and Biomedical Ethics,

Director, Center for Biomedical Ethics, Stanford University



David Magnus is Thomas A. Raffin Professor of Medicine and Biomedical Ethics and professor of pediatrics and medicine at Stanford University, where he is director of the Stanford Center for Biomedical Ethics and co-chair of the Ethics Committee for the Stanford Hospital. He is the former president of the Association of Bioethics Program Directors, and is the editor in chief of the *American Journal of Bioethics*. He has published articles on a wide range of topics in bioethics, including research ethics, genetics, stem cell research, organ transplantation, end of life and patient communication. He was a member of the Secretary of Agriculture's Advisory Committee on Biotechnology in the 21st Century and currently serves on the California Human Stem Cell Research Advisory Committee. He is the principle editor of a collection of essays entitled *Who Owns Life?* and his publications have appeared in the *New England Journal of Medicine*, *Science*, *Nature Biotechnology*, and the *British Medical Journal*. He frequently appears as on radio and television shows, and in addition to his scholarly work, he has published opinion pieces in the popular press.



Christine Mitchell, RN, MS, MTS, FAAN

Executive Director, Center for Bioethics, Harvard Medical School



Christine Mitchell is executive director of the Harvard Medical School Center for Bioethics. She received her master's degrees in science from Boston University School of Nursing and from Harvard where she majored in philosophical and religious ethics as a Kennedy Fellow in Medical Ethics through the Interfaculty Program at HMS, Harvard Divinity School, and Harvard School of Public Health. Mitchell founded the ethics program at Boston Children's Hospital, directing the ethics consultation service and leading the Ethics Advisory Committee for 30 years. She served as associate director of clinical ethics in HMS's Division of Medical Ethics where she developed the Ethics Leadership Group, the Harvard Clinical Bioethics Course, and an all-volunteer citizen Community Ethics Committee for informed public input on ethical aspects of health care and health policies. She leads the monthly Harvard Clinical Ethics Consortium discussion of ethics cases and teaches in the HMS Medical Ethics Fellowship program. Her research has focused on ethics consultation, and public engagement in policies regarding resource allocation related to major natural disasters or pandemics. Mitchell has served on numerous national committees and commissions, including the American Society for Bioethics and Humanities' Clinical Ethics Consultation Committee and, most recently, the Ethical Legal and Social Aspects Committee for the Human Brain Project. Her published work includes a documentary film, made with Ben Achtenberg, which was nominated for an Academy Award, and a documentary video that received an international Freddie award for medical media. She edits a regular series of ethics cases for *The Journal of Clinical Ethics* and has written on bioethics for the *American Journal of Nursing*, the *New England Journal of Medicine*, and others, as well as in the popular press. She is a fellow of the American Academy of Nurses.

Michael Nair-Collins, PhD

Associate Professor, Behavioral Sciences and Social Medicine,
Florida State University College of Medicine, Tallahassee, Florida



Michael Nair-Collins is associate professor in behavioral sciences and social medicine at Florida State University. A philosopher by training, his research focuses primarily on the nature of death, along with the numerous ethical and public policy questions associated with death and dying, including organ transplantation, medical futility, and others. He examines these issues from multiple perspectives and using several methodologies, including normative and conceptual analysis along with empirical methods from the social and behavioral sciences.



Iván Ortega-Deballon, PhD, LLB, NP

Associate Professor, Faculty of Medicine and Health Sciences, University of Alcalá
Flight Nurse, Madrid Helicopter Emergency Medical Service, Spain



Iván Ortega Deballon is associate professor at University of Alcalá in Spain. He is interested in the complex intersection of pre-mortem lifesaving versus post-mortem organ-preserving intervention. His research seeks a comprehensive management of refractory cardiac arrest, aimed to treat the underlying primary cause of sudden death. Ortega-Deballon wants to benefit selected patients from extracorporeal resuscitation (ECPR) according to best evidence. Only after failed attempts of high-quality resuscitation delivered on a case-by-case approach, he is a supporter of deceased donation option. As emergency nurse practitioner (NP), he works in the Helicopter Emergency Medical Service (HEMS) in Madrid, Spain. He has been participating in uncontrolled DCD since 2000, involved in the care of more than 60 potential donors and their next-of-kin in the most active uDCD program worldwide. He believes trust and transparency should underpin any robust organ donation model and, consequentially, protocols must be consistent with ethics principles and legal framework.

Scott Podolsky, MD

Professor of Global Health and Social Medicine

**Director, Center for the History of Medicine, Francis A. Countway Library of Medicine
Harvard Medical School**



Scott Podolsky is a professor of global health and social medicine at Harvard Medical School, director of the Center for the History of Medicine at the Francis A. Countway Library of Medicine, and a primary care physician at Massachusetts General Hospital. He has coauthored *Generation of Diversity: Clonal Selection Theory and the Rise of Molecular Immunology* (1997), authored *Pneumonia before Antibiotics: Therapeutic Evolution and Evaluation in Twentieth-Century America* (2006), *The Antibiotic Era: Reform, Resistance, and the Pursuit of a Rational Therapeutics* (2015), and co-edited *Oliver Wendell Holmes: Physician and Man of Letters* (2009).



Thaddeus M. Pope, JD, PhD

Director, Health Law Institute,

Professor of Law, Mitchell Hamline School of Law, St. Paul, Minnesota



Thaddeus Mason Pope is director of the Health Law Institute and professor of law at Mitchell Hamline School of Law. He is also adjunct professor at the Australian Centre for Health Law Research, Queensland University of Technology; adjunct associate professor at the Alden March Bioethics Institute, Albany Medical College; and visiting professor of medical jurisprudence at St. Georges University. Pope has over 130 publications in leading medical, nursing, and bioethics journals, as well as law reviews, bar journals, and book chapters. He coauthored the definitive treatise *The Right to Die: The Law of End-of-Life Decision-making*. He runs the *Medical Futility Blog* (with nearly three million page views). Pope works to calibrate the balance between individual liberty and public health in the end-of-life medical treatment context. His research topics have included medical futility, unwanted medical treatment, ethics committees, brain death, advance directives, surrogate decision making, unrepresented patients, aid in dying, and VSED. More recently, Pope has been innovating new legal tools to better assure fair internal dispute resolution mechanisms and adequate informed consent using decision aids for patients. Prior to joining academia, he practiced at Arnold & Porter LLP and clerked on the U.S. Court of Appeals for the Seventh Circuit. Pope earned PhD in philosophy and bioethics and a JD from Georgetown University.

David Rodriguez-Arias, PhD

Researcher in Moral Philosophy and Bioethics, *Department of Philosophy, FiloLab-UGR, University of Granada, Spain*



David Rodríguez-Arias, is a Ramón y Cajal Researcher in moral philosophy at the University of Granada, Spain. He holds a PhD in bioethics from the University of Salamanca and a PhD in medicine from the Université Paris-Descartes. His doctoral dissertation, “Brain death and organ transplantation: international and ethical perspectives” was awarded a national bioethics prize by the Victor Grífols i Lucas Foundation. He has been a visiting fellow of the Hastings Center, Case Western Reserve University Department of Bioethics, Oxford Uehiro Centre for Practical Ethics, and the University of Toronto Joint Center for Bioethics. His research focuses on brain death determination, organ transplantation ethics, and end of life. His work has been published in medical and bioethics journals including the *Lancet*, *American Journal of Bioethics*, *Hastings Center Report*, *American Journal of Emergency Medicine*, and others. He is coeditor of four books including most recently, *Ethical Issues in Pediatric Organ Transplantation*.

Lainie Friedman Ross, MD, PhD

Carolyn and Matthew Bucksbaum Professor of Clinical Medical Ethics
Associate Director, MacLean Center for Clinical Medical Ethics,
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Lainie Friedman Ross is the Carolyn and Matthew Bucksbaum Professor of Clinical Medical Ethics; professor in the Departments of Pediatrics, Medicine, Surgery and the College; and associate director of the MacLean Center for Clinical Medical Ethics. Ross earned her AB from the Woodrow Wilson School of Public and International Affairs at Princeton University, an MD from the University of Pennsylvania School of Medicine, and a PhD in philosophy from Yale University. She did her pediatric residency at the Children’s Hospital of Philadelphia and at Columbia University. Ross was a 2014 recipient of a John Simon Guggenheim Memorial Foundation Fellowship and the 2015 recipient of the William Bartholome Award in Ethical Excellence from the American Academy of Pediatrics. Her research portfolio focuses on ethical and policy issues in organ transplantation, genetics, pediatrics and human subjects protections. Her most recent book, *Defining Death: The Case for Choice*, was co-authored with Robert M. Veatch.

Lesley A. Sharp, PhD

Barbara Chamberlain & Helen Chamberlain Josefsberg '30 Professor of Anthropology
Barnard College, Senior Research Scientist in Sociomedical Sciences
The Mailman School of Public Health, Columbia University



Lesley Sharp is a medical anthropologist by training whose research encompasses such diverse topics as the political economy of affliction in Madagascar to critiques of emergent biotechnologies in the U.S. and elsewhere. Her research interests include body commodification, anthropological interventions in bioethics, and professional and lay moralities concerning human organ transfer, xenotransplants, and organs of mechanical design. Sharp is the author of five books, including *Strange Harvest: Organ Transplants, Denatured Bodies*, and the *Transformed Self*, which won the New Millennium Book Award of the Society for Medical Anthropology; *Bodies, Commodities, and Biotechnologies: Death, Mourning, and Scientific Desire in the Realm of Human Organ Transfer*; and *The Transplant Imaginary: Mechanical Parts, Animal Hearts, and Moral Thinking in Highly Experimental Science*. Her most recent work, *Animal Ethos* (in press) probes the moral underpinnings of human-animal relations in experimental lab research. Sharp is the Barbara Chamberlain and Helen Chamberlain Josefsberg '30 Chair in Anthropology at Barnard College and is a senior research scientist in sociomedical sciences at Columbia University's Mailman School of Public Health.



Seema Shah, JD

Associate Professor of Pediatrics, University of Washington
Faculty, Treuman Katz Center for Pediatric Bioethics, Seattle Children's Research Institute



Seema K. Shah is associate professor of pediatrics at the University of Washington and faculty member in the Treuman Katz Center for Pediatric Bioethics. She is an expert in the fields of pediatrics and global health research ethics, as well as on ethical issues in the determination of death. After attending Stanford University, Shah completed a fellowship in bioethics at the National Institutes of Health (NIH) Clinical Center. She then received legal training at Stanford and in a federal district court clerkship. Before coming to the Seattle Children's, she was faculty at the NIH in the Department of Bioethics, with a joint appointment at the Division of AIDS. Shah has chaired an NIH committee on ethical considerations in conducting Zika virus human challenge trials, and lectured on the ethics of clinical research at conferences run by PRIM&R, ASBH, IAB, ASTMH, and internationally in such locations as Botswana, South Africa, the Netherlands, Vietnam, Japan, Indonesia, Brazil, and Zimbabwe.

Sam D. Shemie, MD

Division of Pediatric Critical Care, Montreal Children's Hospital

McGill University Health Centre and Research Institute

Professor of Pediatrics, McGill University, Montréal, Quebec, Canada

Medical Advisor (Deceased Donation), Organs and Tissues, Canadian Blood Services



Sam D. Shemies is a pediatric critical care physician, ECMO specialist and trauma team leader at the Montreal Children's Hospital, McGill University Health Centre. He is a professor of pediatrics at the Montreal Children's Hospital, McGill University and honorary staff in the Department of Critical Care Medicine, Hospital for Sick Children, University of Toronto. He is medical advisor, deceased organ donation, with Canadian Blood Services. His clinical area of interest is organ replacement during critical illness, and his academic focus is advancing the science and practice of deceased organ donation. His research interests include the clinical and policy impacts of organ failure support technologies, the development and implementation of national ICU-based leading practices in organ donation, and research at the intersection of end-of-life care, death determination, and deceased donation.



D. Alan Shewmon, MD

Professor Emeritus of Pediatrics and Neurology, University of California, Los Angeles



D. Alan Shewmon received his BA from Harvard College, his MD from New York University with a pediatric residency at Children's Hospital, San Francisco, and neurology residency at Loyola University Medical Center in Chicago. After a fellowship at UCLA in 1980, he joined the UCLA Medical School faculty with joint appointments in the Departments of Pediatrics and Neurology. From 1983 to 1999, Shewmon directed UCLA's Pediatric Clinical Neurophysiology Laboratory and played a key role in the emergence of UCLA as one of the leading centers for pediatric epilepsy surgery. In 2000, he moved to Olive View-UCLA Medical Center as director of the Clinical Neurophysiology Laboratory and head of Pediatric Neurology. In 2003, he became chief of the Neurology Department and vice chair of neurology at UCLA. In 2011 he became clinical professor emeritus at UCLA while continuing as chief of neurology at Olive View. Shewmon's research interests include pediatric epilepsy and the interface between neurology and ethics. On the topics of brain death, coma and vegetative state alone, he has authored 38 publications and given 48 international lectures. He is coeditor and chapter author of the book *Brain Death and Disorders of Consciousness*. Shewmon is a member of the American Academy of Neurology, American Clinical Neurophysiology Society, and other professional societies. He is past president of the Western Clinical Neurophysiology Society, served on the Child Neurology Society's Ethics Committee, and consultants for the Multi-Society Task Force on Persistent Vegetative State. His presentation to the President's Council on Bioethics in 2007 greatly influenced its eventual white paper *Controversies in the Determination of Death*, in which his publications are cited more frequently than any other author's.

Mildred Z. Solomon

Director, Fellowship in Bioethics Program, Center for Bioethics
Professor of Anaesthesia, Part-time, Harvard Medical School
President, The Hastings Center



Mildred Z. Solomon is professor of anaesthesia (part-time) and a core faculty member of the Center for Bioethics at Harvard Medical School, where she directs the Fellowship in Bioethics. Solomon is also president of The Hastings Center, an independent research institute in Garrison, NY that explores ethical issues in health, health care and the life sciences. A bioethicist and social science researcher who conducts both normative and empirical ethics research, Solomon's own scholarship has focused on the ethics of end-of-life care for both adults and children, organ transplantation, research ethics, particularly related to oversight of comparative effectiveness and implementation science, as well as professionalism and responsible conduct of research. She has served on committees of the National Academies of Science, on the U.S. Secretary of Health and Human Services' Advisory Committee on Organ Transplantation, and has consulted to numerous foundations and government agencies. Before assuming the leadership of The Hastings Center, she was senior director of implementation science at the Association of American Medical Colleges. There, she was responsible for helping the nation's academic medical centers develop their capacities in comparative effectiveness research and implementation science. Solomon earned her doctorate in educational research methods and adult learning at Harvard University and her BA from Smith College.



Robert C. Tasker MA, MD, MBBS, FRCP

Professor of Neurology and Anaesthesia (Pediatrics), Harvard Medical School
Chair, Pediatric Neurocritical Care, Boston Children's Hospital



Robert Tasker is a senior staff critical care physician at Boston Children's Hospital. After medical education and training in pediatrics, respiratory and sleep medicine, child development and critical care he specialized in pediatric critical care medicine and has had over 25 years' experience as an attending and consultant. As a clinical academic he has worked at Great Ormond Street Hospital for Children (University of London), the Johns Hopkins Hospital, and the Clinical School at Cambridge University (UK). He was appointed to his current position as general pediatric intensivist and chair of the Neurocritical Care Program at Boston Children's Hospital in 2011. In the UK he served on two Royal College of Paediatrics and Child Health ethics and neurocritical care committees that produced guidelines for practitioners: *Withholding or Withdrawing Life-Saving Treatment in Children: A Framework for Practice* (1997); and *The Diagnosis of Death by Neurological Criteria in Infants Less than Two Months Old* (2015).

Robert D. Truog, MD

Frances Glessner Lee Professor of Medical Ethics, Anaesthesia, & Pediatrics

Director, Center for Bioethics, Harvard Medical School

Senior Associate in Critical Care Medicine, Department of Anesthesiology, Critical Care, and Pain Medicine, Boston Children's Hospital



Robert Truog is the Frances Glessner Lee Professor of Medical Ethics, Anaesthesiology & Pediatrics and Director of the Center for Bioethics at Harvard Medical School. He also practices pediatric intensive care medicine at Boston Children's Hospital, where he has served for more than thirty years, including a decade as chief of the Division of Critical Care Medicine. Truog received his medical degree from the University of California, Los Angeles and is board certified in the practices of pediatrics, anesthesiology, and pediatric critical care medicine. He also holds a master's degree in philosophy from Brown University. He has published more than 300 articles in bioethics and related disciplines. In 2013 he was honored with the Spinoza Chair at the University of Amsterdam.

Robert M. Veatch, PhD

Senior Research Scholar and Professor Emeritus of Medical Ethics

Kennedy Institute of Ethics, Georgetown University, Washington DC



Robert M. Veatch is professor of medical ethics, emeritus, and a former director of the Kennedy Institute of Ethics at Georgetown University. He is also a professor in the Philosophy Department and has held appointment as adjunct professor in the Department of Community and Family Medicine at Georgetown's Medical Center. From 1970 to 1979 he was the associate for medical ethics and the staff director of the Death and Dying Task Force at the Hastings Center. He was a consultant on the definition of death to the President's Commission on the Study of Ethics Problems in Medicine and Biomedical and Behavioral Research (1982). He has served six terms on the UNOS Ethics Committee and has been a member of the board of directors of the Washington Regional Transplant Community since 1988. He is the coauthor with Lainie F. Ross of *The Ethics of Transplantation and Defining Death: The Case for Choice*. Veatch served as an ethics consultant and expert witness in over 30 legal cases dealing with issues in bioethics including the legal case of Karen Ann Quinlan, the woman whose parents won the right to forgo life-support (1975-76), and the case of Baby K, the anencephalic infant whose mother insisted on the right of access to ventilatory support. In 2005 he received the Research Career Recognition Award, Georgetown University. In 2008 he received the Lifetime Achievement Award of the American Society of Bioethics and the Humanities. Throughout his career he has been an advocate for the rights and welfare of patients as active decision makers in medicine.

Daniel Wikler, PhD

Mary B. Saltonstall Professor of Ethics and Population Health

Harvard T.H. Chan School of Public Health, Boston, Mass.



Daniel Wikler has been Mary B. Saltonstall Professor of Ethics and Population Health at the Harvard School of Public Health since 2002, where he is also affiliated with University-wide programs including the Harvard Program in Ethics and Health and the Safra Center for Ethics. His public service includes serving as staff philosopher for the President's Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research, and as the first staff ethicist for the World Health Organization, where he remains a consultant to several programs, including its consultative group on ethical dimensions of universal health coverage (2014). He was cofounder and second president of the International Association of Bioethics. Wikler's published work addresses issues in reproduction, transplantation, and end-of-life decision-making. In recent years, he has focused on bioethical issues arising at the population and global levels, including health resource allocation, the measurement of health and the burden of disease; ethical issues arising in health promotion; and the principles governing the use of human subjects in health research. Among his recent works, published with colleagues in the U.S. and abroad, are the World Health Organization's *Casebook on Ethical Issues in International Health Research*, and *Inequalities in Health: Concepts, Measures, Ethics*, published by Oxford University Press in a series coedited by Wikler under the title *Population-Level Bioethics*.

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