

CURRICULUM VITAE

DATE PREPARED: April 1, 2015

PART I: General Information

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Place of Birth:

New York, New York

Education:

1985 B.A., Harvard University

1991 M.D., Harvard Medical School

Postdoctoral Training:

07/91-06/92 Intern in Medicine, Beth Israel Hospital

07/92-06/94 Resident in Neurology, Massachusetts General Hospital

06/94-07/95 Chief Resident in Neurology, Massachusetts General Hospital

07/95-06/96 Critical Care Fellow, Gray Surgical & Respiratory and NeuroScience Intensive Care Units,
Massachusetts General Hospital

Licensure and Certification:

1992 National Board of Medical Examiners
1995- Advanced Cardiac Life Support
1995- Massachusetts Medical License
1995-2004 Advanced Trauma Life Support
1996-2006 Neurology Diplomat #42922, American Board of Psychiatry and Neurology
1998- Adult and Pediatric Neurosonology, American Society of Neuroimaging
2005 MGPO Physician Leadership Development Course
2006- Neurology Diplomat (Recertification), American Board of Psychiatry and Neurology
2007- Maine Medical License
2007- New Hampshire Medical License
2008- Vascular Neurology, American Board of Psychiatry and Neurology
2008- NeuroCritical Care, United Council for Neurologic Subspecialties

Academic Appointments:

07/91-06/92 Clinical Fellow in Medicine, Harvard Medical School, Boston, MA
07/92-06/96 Clinical Fellow in Neurology, Harvard Medical School, Boston, MA
07/96-06/98 Instructor in Neurology, Harvard Medical School, Boston, MA
1997- 2014 Member of the Affiliated Faculty, Harvard-MIT Division of Health Sciences and Technology
07/98-08/98 Assistant Professor of Clinical Neurology, Harvard Medical School, Boston, MA
09/98-011/02 Assistant Professor of Neurology, Harvard Medical School, Boston, MA
2002- Scholar, the Academy, Harvard Medical School, Boston, MA
12/02-10/09 Associate Professor of Neurology, Harvard Medical School, Boston, MA
10/09- Professor of Neurology, Harvard Medical School, Boston, MA

Institution Appointments:

01/95-12/95 Clinical Assistant in Neurology, Massachusetts General Hospital, Boston, MA
01/96-1/99 Assistant in Neurology, Massachusetts General Hospital, Boston, MA
01/96-11/08 Associate Neurologist, Brigham and Women's Hospital, Boston, MA
01/96-12/96 Assistant Neurologist, McLean Hospital, Belmont, MA
01/96-12/99 Graduate Assistant in Emergency Medicine, Massachusetts General Hospital, Boston, MA
01/99-12/03 Assistant Neurologist, Massachusetts General Hospital, Boston, MA
01/03-9/09 Associate Neurologist, Massachusetts General Hospital, Boston, MA
01/07-10/12 Vice Chairman, Department of Neurology, Massachusetts General Hospital, Boston, MA
09/09- Neurologist, Massachusetts General Hospital, Boston, MA
10/11- C. Miller Fisher Endowed Chair in Neurology, Massachusetts General Hospital, Boston, MA
10/12- Executive Vice Chairman, Dept of Neurology, Massachusetts General Hospital, Boston, MA

Other Professional Positions and Major Visiting Appointments:

1999 Local Consulting Neurologist, Women's World Cup Soccer Championship
2000-2006 Expert Consultant, STOP Stroke Act, Senator Edward Kennedy of Massachusetts
2001-2002 Expert Consultant, Department of Defense, Telemedicine and Advanced Technologies Research Center
2002- Stroke Director, Boston Fire, Police and Emergency Medical Services, City of Boston

- 2005-2010 External Scientific Review, for Canadian Stroke Network, Boston, MA
- 2005-2010 Expert, External Scientific Reviewer, NORTH TeleStroke Network and the Canadian Stroke Network, Ontario, Canada
- 2006- Consultant, Stroke Systems Development, Massachusetts Department of Public Health, Boston, MA
- 2010 Expert consultant, TASC - Telemedical Acute Stroke Care, a government funded research project to determine the economics of TeleStroke care implementation in Europe. PI: Dr. Stephan Theiss, University of Magdeburg, Germany
- 2010- Ad hoc expert reviewer, NINDS Clinical Trials (NSD-K) Study Section
- 2010-2012 Subgroup Chair, Stroke Common Data Elements Committee, NINDS
- 2012- Member, Oversight Committee, Stroke Common Data Elements Committee, NINDS

Hospital and Health Care Organization Clinical Service Responsibilities:

- 1995- Attending Neurologist, Stroke Service and Inpatient and Outpatient Neurology Units, Massachusetts General Hospital
- 1995- Attending Neurocritical Care Physician, Neuroscience Intensive Care Unit, Massachusetts General Hospital
- 1998-2008 Attending Neurologist, Brigham & Women’s Hospital, Boston, MA

TeleStroke Consultation Appointments

- 2003- Telestroke Consultant, Martha’s Vineyard Hospital, MA
- 2005- Telestroke Consultant, Cambridge Health Alliance (Cambridge, Somerville, Whidden Memorial Hospital) Cambridge, MA
- 2005- Telestroke Consultant, Jordan Hospital, Plymouth MA
- 2005- Telestroke Consultant, Harrington Memorial Hospital, Sturbridge, MA
- 2005- Telestroke Consultant, North Adams Regional Hospital, North Adams, MA
- 2006- Telestroke Consultant, Charlton Memorial Hospital, Fall River, MA
- 2006- Telestroke Consultant, Falmouth Hospital, Falmouth, MA
- 2006- Telestroke Consultant, Nantucket Cottage Hospital, Nantucket MA
- 2006- Telestroke Consultant, Nashoba Valley Medical Center Hospital. Ayer, MA
- 2006- Telestroke Consultant, Tobey Hospital, Fall River, MA
- 2007- Telestroke Consultant, St. Luke’s Hospitals, Fall River, MA
- 2007- Telestroke Consultant, Milton Hospital, Milton, MA
- 2007- Telestroke Consultant, York Hospital, York, ME
- 2008- Telestroke Consultant, Mercy Hospital, Portland, ME
- 2008- Telestroke Consultant, Holy Family, Methuen, MA
- 2008- Telestroke Consultant, Cape Cod Hospital, MA
- 2008- Telestroke Consultant, Elliot Hospital, Manchester, NH
- 2008- Telestroke Consultant, Exeter Hospital, Exeter, NH
- 2008- Telestroke Consultant, Newton-Wellesley Hospital, Newton MA
- 2009- Telestroke Consultant, Milford Hospital, Milford, MA
- 2009- Telestroke Consultant, Saint Anne’s Hospital, Fall River, MA
- 2009- Telestroke Consultant, Hubbard Regional Hospital, Webster, MA
- 2009- Telestroke Consultant, Caritas Carney Hospital, Dorchester MA
- 2009- Telestroke Consultant, Southern New Hampshire Medical Center, Nashua NH
- 2009- Telestroke Consultant, Wentworth-Douglass Hospital, Dover NH
- 2011- Telestroke Consultant, Central Maine Medical Center, Lewiston ME
- 2011- Telestroke Consultant, Bridgton Hospital, Bridgton ME
- 2011- Telestroke Consultant, Parkview Adventist Medical Center, Brunswick ME

2011- Telestroke Consultant, Rumford Hospital, Rumford ME
 2011- Telestroke Consultant, Cooley Dickinson Hospital, Northampton MA
 2011- Telestroke Consultant, Maine General Health (Augusta and Thayer Hospitals), ME
 2011- Telestroke Consultant, Concord Hospital, Concord, NH
 2011- Telestroke Consultant, Good Samaritan Medical Center, Brockton, MA
 2014- Telestroke Consultant, Lakes Region General Hospital, Laconia, NH
 2014- Telestroke Consultant, Franklin Regional Hospital, Franklin, NH

Major Administrative Responsibilities:

1997-1998 Assistant Director, Acute Stroke Services, Massachusetts General Hospital
 1997-2000 Associate Program Director, Clinical Research Center, Massachusetts Institute of Technology
 1999-2004 Associate Director, Acute Stroke Service, Massachusetts General Hospital
 2000-2002 Director, National Stroke Program, Center for Integration of Medicine and Innovative Technology (CIMIT), Massachusetts General Hospital
 2004-2012 Director, Acute Stroke Services, Massachusetts General Hospital
 2004-2012 Director, Acute Stroke Quality Taskforce, Massachusetts General Hospital
 2005-2012 Site Director, MGH/Partners TeleStroke Center, Massachusetts General Hospital
 2005- Director, Partners TeleStroke Center and National TeleStroke Network, Partners Healthcare
 2007- Director, Neurology Quality Leaders, Partners Healthcare System
 2007-2011 Director, Partners Stroke Service, Partners Healthcare System
 2007-2012 Vice Chairman, Department of Neurology
 2007-2008 Chair, Vascular Center Executive Committee, Massachusetts General Hospital
 2008-2012 Member, Board of Trustees, Partners Continuing Care, Partners Healthcare Inc.
 2008 Chair, Neurology Department Leadership Committee, Massachusetts General Hospital
 2008- Member, Quality Oversight Committee, Massachusetts General Hospital
 2008-2012 Member, Executive Committee, Critical Care Center, Massachusetts General Hospital
 2009-2013 Chair, Bi-annual Acute Stroke Symposium. A multidepartmental review of data and practices of the MGH Acute Stroke Service, Massachusetts General Hospital
 2010- Team Leader, Partners Stroke Care Redesign Team, Partners Healthcare System
 2010-2013 Team Leader, MGH Stroke Care Redesign Team, Massachusetts General Hospital
 2011- Medical Director, MGH TeleHealth, Massachusetts General Hospital, Boston MA
 2012- Executive Vice Chairman, Department of Neurology
 2011- Member, Leadership Council, Institute for Heart, Vascular and Stroke Care, Massachusetts General Hospital, Boston MA
 2011- Member, Neurology Leadership Council, Massachusetts General Hospital, Boston, MA.
 2011- Member, Diversity Committee, Massachusetts General Hospital, Boston, MA
 2011- Member, Heart, Vascular and Stroke Philanthropy Steering Committee. Massachusetts General Hospital, Boston, MA
 Chair, Carotid Artery Disease Work Group, Institute for Heart, Vascular and Stroke Care, Massachusetts General Hospital , Boston MA
 2011-2012 Member, Research Information Systems Steering Committee and Research Advisory Subcommittee, Partners Healthcare, Boston, MA
 2012 Member, Clinical Referral Management System and Guidelines for Appropriate Carotid Decision Making Subcommittee, Institute for Heart, Vascular and Stroke Care, Massachusetts General Hospital , Boston MA
 2013- Director, Deane Institute, Massachusetts General Hospital
 2013 Member, Search Committee, Chief of Emergency Medicine, Massachusetts General Hospital, Boston, MA
 2013- Co-Chair, General Neurology Search Committee, Massachusetts General Hospital, Boston, MA

Major Committee Assignments:

Harvard Medical School

1988-1990 Member of Curriculum Design, Office of Educational Development
1994 Member, Neuroscience Section, Harvard Medical School Education Review,
1998 Member of Risk Management Foundation Internet Medicine Focus Group,
2000 Member of Curriculum Committee, Health Sciences and Technology Program
2009-2012 Member, Harvard Catalyst PCIR Scientific and Resource Review Committee
2010- Member, Ad Hoc Committees, Professorial Appointments, Harvard Medical School

Affiliated Institutions

1993-1994 Member, Residency Selection Committee, Department of Neurology, Massachusetts General Hospital
1994-1995 Member of Electronic Medical Record Project, Massachusetts General Hospital
1994-1995 Member of Ambulatory Clinic Directors Committee, Department of Neurology, Massachusetts General Hospital
1994-2002 Member, Optimum Care Committee, Massachusetts General Hospital
1995-1996 Member, Operations Improvement, Neuroscience Team, Massachusetts General Hospital
1996-1998 Member, Subcommittee on Chronic Ventilator Management, Massachusetts General Hospital
1996-2000 Member, Telemedicine Committee, Massachusetts General Hospital
1996-2000 Member, World Wide Web Committee, Massachusetts General Hospital
1997-2005 Invited Member, Scientific Advisory Committee, Mallinckrodt General Clinical Research Center, Massachusetts General Hospital
1997-2005 Invited Member, Scientific Advisory Committee, Clinical Research Center, Massachusetts Institute of Technology
1997-2000 Invited Member, Faculty Committee, Health Sciences and Technology Program, Massachusetts Institute of Technology
1997-2000 Member, Medical Executive Committee, Medical Department, Massachusetts Institute of Technology
1999-2000 Invited Member, Admissions Committee, Health Sciences and Technology MD program, Massachusetts Institute of Technology
1998- Member, Critical Care Committee, Massachusetts General Hospital
1999-2002 Invited Member, Stroke Executive Committee and Scientific Stroke Group, CIMIT, Massachusetts General Hospital
2000-2002 Member, Executive Group of the CPM Anticoagulation Committee, Massachusetts General Hospital
2005 Member, Longitudinal Medical Record Advisory Committee, Partners Healthcare System
2005 Member, Partners Neurology Quality Management Committee, Partners Healthcare System
2005-2006 Member, MGPO Wireless Charge Capture Pilot, Massachusetts General Hospital
2005-2006 Member, Integrated Outcomes Platform Working Group, Massachusetts General Hospital
2006 Member, Partners Telemedicine Symposium Planning Committee, Partners Healthcare
2006 Invited Participant, Quality and Safety Executive Retreat, Harvard Business School and Massachusetts General Hospital
2007 Member, Executive Committee on Teaching and Education (ECOTE) Hand-off's Committee, Massachusetts General Hospital

2007-2008 Member, Acute Care Documentation Committee, Physician Committee, Massachusetts General Hospital

2007-2012 Member, Quality and Safety Measurement Steering Committee, Massachusetts General Hospital
2007 Chair, Search Committee, Neuro-Science Intensive Care Unit Director, Massachusetts General Hospital

2008-2012 Member, Patient Care, Quality and Compliance Subcommittee, Board of Trustees, Partners Continuing Care, Partners Healthcare Inc.

2008-9 Member, Search Committee, Director of Critical Care Institute, Massachusetts General Hospital, Boston, MA

Regional

1999-2000 Chair, Operation Stroke Medical Subcommittee, American Heart Association

2002-2004 Member, Medical Advisory Board, Boston Med flight.

2002-2004 Elected Member, Board of Directors, American Heart Association Northeast Affiliate

2002-2004 Member, Stroke Advisory Group, Division of Healthcare Quality, Massachusetts Department of Public Health

2004-2007 Invited Member, Primary Stroke Service Medical Advisory Committee, Division of Healthcare Quality, Massachusetts Department of Public Health.

2005-2008 Member, Partnership for a Heart Healthy and Stroke Free Mass, Division of Family and Community Medicine, Massachusetts Department of Public Health.

2005-2007 Invited Member, Tele-Radiology Credentialing Task Force, Commonwealth of Massachusetts Board of Registration in Medicine.

2005-2010 Chair, Professional Education Symposium Committee, American Stroke Association New England Affiliate, Annual Stroke Luncheon, Boston, MA

2006- Consultant, Stroke Systems Development, Massachusetts Department of Public Health

2006-2010 Founder and Inaugural Chair, Northeast Cerebrovascular Consortium (NECC)

2007-2012 Invited Member, Stroke Hospital Care Advisory Committee, Massachusetts Department of Public Health Heart Disease and Stroke Control and Prevention

2008 Invited Member, EMS Stroke Quality Performance Measures Review Panel, Massachusetts Department of Public Health Heart Disease and Stroke Control and Prevention

2010 Invited Member, Stroke Systems of Care Planning Grant Measures Review Panel, Massachusetts Department of Public Health Heart Disease and Stroke Control and Prevention

2010-2012 Immediate Past Chair, Northeast Cerebrovascular Consortium (NECC)

National

2000-2002 Chair, Stroke Expert Panel, Get with the Guidelines, American Stroke Association

2001-2004 Co-Chair, Get with the Guidelines-Stroke Pilot, American Heart Association

2002 Invited Member, Task Force on Provider Support Systems in Acute Ischemic Stroke, National Institutes of Neurological Disorders and Stroke Symposium

2002- Invited Member, Primary Stroke Center Advisory Committee, Joint Commission on Accreditation Hospital Organization and American Stroke Association

2002- Invited Member, Steering Committee, Get with the Guidelines, American Heart Association

2002-2004 Elected Member, Board of Directors, American Stroke Association

2004- Invited Member, Secondary Prevention Standing Writing Committee, Stroke Council, American Heart Association

2004- Invited Member, Executive Committee, Get with the Guidelines, American Heart Association

2004-2008 Invited Member, National Advocacy Coordinating Committee, American Heart Association

2004-2007 Founder and Chair, Northeast Stroke Taskforce, American Heart Association

2005- Invited Member, Comprehensive Stroke Center Advisory Committee, American Stroke

Association

2005 Co-Chair, Writing Group, Recommendations for the Implementation of Telemedicine within Stroke Systems of Care, American Heart Association

2006-2008 Co-Chair, Emergency Neurovascular Care Committee, Stroke Council of the American Heart Association

2006 Invited Member, Technical Advisory Panel, Stroke Performance Measure Set, CMS Physician Quality Reporting Initiative (PQRI), National Quality Forum

2006-2010 Chair, TeleStroke Committee, Stroke Council of the American Heart Association

2007-2010 Invited Member, Policies & Procedures Technical Work Group, Paul Coverdell National Acute Stroke Registry, Centers for Disease Control & Prevention

2007-2010 Member, Primary Stroke Certification Advisory Working Group, American Heart Association and Joint Commission

2007- Chair, Planning Committee, Stroke Track at the Quality of Care and Outcomes Research Annual Meeting, American Heart Association

2007- Invited Member, Steering Committee, Quality of Care and Outcomes Research Working Group, American Heart Association

2007 Invited Member, Advanced Neuroimaging and Acute Stroke Conference. National Institutes of Health, Washington DC

2007-8 Expert Consultant, TeleStroke Implementation, Northern Ireland Ministry of Health

2007-2008 Co-Chair, Writing Group, Levels of Evidence Supporting Telemedicine with Stroke Systems of Care, American Heart Association

2007-2009 Chair, National Consensus Panel Stroke Performance Measures for the American Heart Association, Center for Disease Control & Prevention, and the Joint Commission on Healthcare Accreditation

2007- Chair, Partners National TeleStroke Network: Hubs at University of Virginia, Charlotte VA, Integris Health Systems, Oklahoma City, OK, Yale New Haven Hospital, New Haven CT, Virginia Mason, Seattle WA, Geisinger Health Systems, Danville, PA.

2007-2008 Invited Member, Stroke Collaborative – Joint Member Advisory Group of the American Academy of Neurology, American Heart Association/American Stroke Association, and American College of Emergency Physicians

2007- Invited Member, Stroke Imaging Repository (STIR) Task Force

2008 External Scientific Review, Stroke Quality Improvement Proposal, Salford Royal Hospital NHS

2008 Invited Expert Panel member, Center for Disease Control & Prevention, Division for Heart Disease and Stroke Prevention to review evaluation indicators to assess state progress toward heart disease and stroke goals

2008 Member, External Advisory Board, Consortium of Oral Health Research Informatics (COHRI) of the Schools of Dentistry and Oral Health

2008 Chair Elect, National Steering Committee, Get with the Guidelines, American Heart Association

2008- Invited Member, Nominating Committee, Quality of Care and Outcomes Research Working Group, American Heart Association

2008 Chair, Technical Expert Panel, Center for Medicare and Medicaid Services, Outpatient Hospital Measures for Hospital Outpatient Departments and Ambulatory Surgical Centers Measures

2008 Invited Member, Expert Panel to Determine Stroke Outcomes, Paul Coverdell National Acute Stroke Registry, - Centers for Disease Control & Prevention

2009 Invited Member, Expanding the Time Window of Reperfusion Therapy in Acute Ischemic Stroke: Opportunities and Challenges. National Institutes of Neurological Diseases and Stroke

2009-2012 Chair, National Steering Committee, Get with the Guidelines, American Heart Association

2009-2010 Organizer, Stroke Quality Improvement Telemedicine Lecture Series, King Edward VII Memorial Hospital. Bermuda Hospitals Board. Bermuda Foundation Trust

2009-2010 Invited Member, Ambulatory Care Registry Advisory Working Group, American Heart Association

2009-2010 Invited Member, Cultural Competency Working Group, American Heart Association

2009-2012 Invited Member, Quality Improvement Committee, American Heart Association Get With the Guidelines

2009-2012 Invited Member, Heart Failure Working Group, American Heart Association Get With the Guidelines

2009-2011 Chair, Stroke Presentation Subgroup, Common Data Elements Committee of the National Institute of Neurological Disease & Stroke

2009-2011 Invited Member, Acute Stroke Treatment Subgroup, Common Data Elements Committee of the National Institute of Neurological Disease & Stroke

2009-2010 Invited Member, Health Information Technology Standards Panel (HITSP), Quality Measures Tiger Team (Stroke Performance Measures)

2009 Invited member, Stroke Outcomes Measures Working Group. Yale-New Haven Hospital Center for Outcomes Research and Evaluation under contract from CMS

2010- Invited Member, The Guideline Advantage Steering Committee, American Heart Association

2009-2012 Invited Member, Stroke Council Scientific Statements Oversight Committee, American Heart Association

2010- Invited Member, Consumer Health and Quality Coordinating Committee, American Heart Association

2010- Member, Get With the Guidelines (GWTG)-Stroke Science Working Group, American Heart Association

2010 Chair, Emergency Neurovascular Care Committee, Stroke Council, American Heart Association

2011 Expert Consultant, Hyper Acute Stroke Care Redesign Project, University College London School of Medicine, London, England

2011 Expert Consultant, China National Stroke Registry and Golden Bridge Stroke Clinical Improvement Project, Beijing China

2011- Invited Member, Measure Maintenance Workshop-Stroke Measure Maintenance Technical Advisory Panel, Joint Commission

2011- Invited Member, Stroke Performance Measures Oversight Writing Committee. American Heart Association

2011 Stakeholder, Duke University Evidence-based Practice Center, Agency for Healthcare Research and Quality (AHRQ)/Duke University: Cardiovascular Topic Identification.

2011- Chair, Target: Stroke Committee. American Heart Association

2012-13 Invited Member, Impact of Registries Legislation on Statewide Systems of Care Writing Group. American Heart Association

2012 Expert Consultant, Joint Commission Stroke Measures Submission, National Quality Forum.

2012 Invited Member, Writing Committee “Synthesizing Get With the Guidelines”. American Heart Association

2012 Member, Technology Advisory Committee, Journal of Stroke & Cerebrovascular Disease

2013-2015 Vice Chairperson, Hospital Accreditation Science Committee, American Heart Association

2013 Member, Disease-Specific Care: Primary Stroke Center Certification Program Technical Advisory Panel, American Heart Association

2013- Invited Member, Telemedicine Work Group, American Academy of Neurology

2013-2014 Invited Member, Scientific Sessions Initiative Steering Committee, American Heart Association

2013- Invited Member, Stroke Validation and Clinical Benchmarking Steering Committee, University Health Consortium

2013- Invited Member, Quality Initiative, Federal Advocacy Committee, American Heart Association

2014- Invited Member, Mission:Lifeline Advisory Working Group, American Heart Association

2013- Expert Consultant, DEVOTE Trial, Data Safety Monitoring Committee. Novo Nordisk, Bagsvaerd, Denmark

2013- Invited Member, Comprehensive Stroke Measures Technical Advisory Panel, Joint Commission

- 2014- Invited Member, Acute Stroke Ready Certification Program Technical Advisory Panel, Joint Commission
- 2014 Co-Chair, Writing Group, TeleStroke Quality Metrics, American Heart Association
- 2014 Chair, Writing Group, Telehealth in Cardiovascular and Cerebrovascular Care, American Heart Association

National or International Research Committee Assignments

- 2005-2010 External Reviewer, Scientific Review Committee, Canadian Stroke Network, Ontario, Canada
- 2005 External Reviewer, NORTH Telestroke Network of the Canadian Stroke Network, Ontario, Canada
- 2005-2010 External Reviewer, Scientific Review Committee, Canadian Stroke Network, Ontario, Canada
- 2005 External Reviewer, NORTH Telestroke Network of the Canadian Stroke Network, Ontario, Canada
- 2006 Member, Clinical Events Committee Adjudicator for Neurologic Events: CLARITY-TIMI 28 and OPUS-TIMI 16. Thrombolysis in Myocardial Infarction (TIMI) Study Group, Boston, MA
- 2010-2013 Member, Steering Committee, Mechanical Retrieval and Recanalization of Stroke Clots Using Embolectomy (MR RESCUE). (<http://clinicaltrials.gov/ct2/show/NCT00389467>)
- 2011- Invited Member, Steering Committee, Mild and Rapidly Improving Stroke Study, University of
- 2012- Member, Steering Committee, Evaluation of the Phased Radio Frequency Ablation System (VICTORY AF), Medtronic (<http://clinicaltrials.gov/ct2/show/NCT01693120>)
- 2012 Associate Partner, Steering Committee, “WakeUp Stroke” Consortium Multicenter Trial (<http://clinicaltrials.gov/ct2/show/NCT01525290>)
Miami, Genentech, Inc (<http://clinicaltrials.gov/ct2/show/NCT02072681>)
- 2013- Member, Data Safety Monitoring Board and Clinical Events Committee, A Randomized, Concurrent Controlled Trial to Assess the Safety and Effectiveness of the Separator 3D as a Component of the Penumbra System in the Revascularization of Large Vessel Occlusion in Acute Ischemic Stroke (<http://clinicaltrials.gov/ct2/show/NCT01584609>)
- 2013 Expert Reviewer, Patient –Centered Outcomes Research Institute (PCORI). Improving Healthcare Systems. PCORI Cycle II Merit Review
- 2014 Expert Reviewer, Patient –Centered Outcomes Research Institute (PCORI). Improving Healthcare Systems. PCORI Cycle III Merit Review
- 2014- Invited Member, Steering Committee, TREAT with RESOLVE Study (PI: Spertus).
- 2014- Project Leader. Stroke Outcome Measure Set Development. International Consortium for Health Outcomes Measurement (www.ICHOM.org) Harvard Business School. Boston, MA.

Professional Societies:

- 1988-1989 American Medical Student Association, Board of Trustees, Member,
- 1992- American Academy of Neurology, Member
(1998-) Critical Care and Emergency Neurology Section
(2007-2013) Telemedicine Working Group
- 1992-1995 Boston Society of Neurology and Psychiatry, Member
- 1994-1998 National Stroke Association, Member
- 1996-2007 American Society of Neuroimaging, Member
- 1997- American Heart Association
(1997-) Stroke Council, Member,
American Stroke Association, Member
(2002-) Advisory Working Group for Stroke Performance Measures, Invited Member
(2002-) Get with the Guidelines Science Sub-Committee, Invited Member

- (2006) Writing Group, Gaps/Barriers/Implications, S-T Elevation Myocardial Infarction (STEMI) Systems of Care Workshop, Invited Member
- (2006-) Elected Fellow, American Heart Association
- (2006-7) Diabetes Expert Panel, Member
- (2005-2007) Stroke Volunteer Forum, Member
- (2005) Stroke Team Development Symposium Planning Committee, International Stroke Conference, Invited Member
- (2005-) Quality of Care and Outcomes Research, Abstract grading committee, Annual Meeting
- (2007) Moderator, In Hospital Stroke, Oral Abstracts Section, 2008 International Stroke Conference
- (2008-) Abstract grading committee, Annual International Stroke Conference
- (2008) Writing Group, Measuring Cardiovascular Health Improvements and Reductions in Cardiovascular and Stroke Mortality to 2020
- (2009) Moderator, Ethical Debate on the Use of approved but unproven therapies in Acute Stroke. 2009 International Stroke Conference
- Moderator, Invited Symposium on Telestroke. 2009 International Stroke Conference
- (2009) Participant, Fellow and Early Career: Stroke Leader Luncheon

- 2000- NeuroCritical Care Society
- (2000-) Editorial Board member, "Neurocritical Care"
- 2006- American Neurological Association, Elected Member
- (2006) Abstract grading committee, Annual Meeting
- (2011-) Public Policy Committee
- (2013-) Fellow of the ANA (FANA)

Community Service Related to Professional Work:

- 1996 Speaker, the Dana Alliance for Brain Initiatives. Museum of Science, Boston, MA.
- 1997 Speaker, Society for Neuroscience and the Dana Alliance for Brain Initiatives. Museum of Science, Boston,
- 2004- National Spokesperson, American Heart Association
- 2007- Media Expert, American Academy of Neurology
- 2007- Advocacy efforts with AHA staff to members of the State legislature and Governor for increased funding for stroke education and care delivery
- 2009 Advocacy efforts with AHA to urge the Center for Medicare and Medicaid Services (CMS) to include individual stroke measures into the Inpatient Prospective Payment System update, which is the set of reported measures tracked by CMS.
- 2010 Invited Speaker, STOP Stroke Lobby Day, MA State House
- 2010 Master of Ceremonies, Heart of Our Mission Awards Reception, Greater Boston Board, American Heart Association
- 2011- American Neurological Association, Public Policy Committee
- 2014 Host/Organizer of the TeleHealth Track, "Healthcare's Grand Hackfest" Hackathon, Massachusetts Institute of Technology Media Lab, Cambridge MA,
<http://hackingmedicine.mit.edu/>

ABC News

November 07, 2001

"Underutilized" Drug Proves Key to Victim's Survival

<http://www.thebostonchannel.comhealth/2663902/detail/html>

ABC News

February 21, 2002

Telemedicine Offers Hope for Stroke Sufferers

<http://abcnews.go.com/Health/story?id=116975&page=1#.T5RTsqv2JBk>

ABC News

May 30, 2002

Stroke Certification System for Hospitals Updated

<http://www.thebostonchannel.com/health/1487954/detail/html>

ABC News

May 31, 2002

Device Lets Doctors Examine Patients Miles Away

<http://www.thebostonchannel.com/health/1489501/1487954/detail/html>

ABC News

November 25, 2003

Program Helps Hospitals Better Treat Stroke Patients

<http://www.thebostonchannel.com/health/9842399/detail/html>

ABC News

January 21, 2005

Recognizing Stroke Warning Signs Could Mean Life or Death

<http://www.thebostonchannel.com/health/4108863/detail/html>

CBS News

Feb. 6, 2005

Sloppy Stroke Care In The U.S.

<http://wbztv.com/health/Sloppy.Stroke.Care.2.248778.html>

Proto

Fall 2005

Why Strokes Still Kill

<http://protomag.com/assets/why-strokes-still-kill>

CBS News

Jan. 10, 2006

Medically Induced Coma Helps Brain Recover

<http://wbztv.com/health/West.Virginia.Coma.2.262029.html>

Boston Business Journal

February 6, 2006

Brain trust: New firm bets on neurological expertise

<http://www.bizjournals.com/boston/stories/2006/02/06/story6.html?page=all>

Boston Globe

April 3, 2006

Going the distance in stroke treatment

Remote care approach widens in state's hospitals

http://www.boston.com/yourlife/health/diseases/articles/2006/04/03/going_the_distance_in_stroke_treatment/?page=full

ABC News

September 13, 2006

Chiropractic Technique May Pose Stroke Risk

<http://www.thebostonchannel.com/health/2666217/detail/html>

TheHeart.org

October 24, 2006

Stroke projected to become leading cause of death

<http://www.theheart.org/article/749039.do>

CBS News

January 3, 2007

Timing Is Key In Stroke Treatment

<http://wbztv.com/health/stroke.brain.cells.2.278707.html>

CBS News

January 26, 2007

Study: Traditional Scans Miss About 75% of Strokes

<http://wbztv.com/topstories/stroke.MRI.CT.2.277940.html>

CBS News

February 2, 2007

Ted Johnson Says Patriots Ignored His Concussions

http://wbztv.com/sports/local_story_033073829...

DocNews Diabetes

February 7, 2007

Stroke Patients Don't Manage Diabetes Risk

<http://docnews.diabetesjournals.org/content/4/5/7.full>

CBS News

September 12, 2007

Hypothermia Used to Preserve Patient's Mobility

http://wbztv.com/health/local_story_255141525...

CBS News

February 21, 2008

Chiropractor Visit Can Cause Rare Strokes

<http://wbztv.com/specialreports/chiropractor.and.strokes.2.659998.html>

CBS News

February 24, 2008

Health: Risk of Chiropractic Treatment

<http://cbs3.com/health/Risk.of.Chiropractic.2.661491.html>

FOX News

Feb 24, 2008

Chiropractic Stroke Awareness

<http://www.myfoxboston.com/myfox/pages/Home/Detail?contentId=5869524&version=1&locale=EN-US&layoutCode=VSTY&pageId=1.1.1>

USA Today

May 21, 2008

Kennedy family reels from 'curveball'

http://www.usatoday.com/news/washington/2008-05-21-kennedy-family_N.htm

Lubbock Avalanche Journal

September 25, 2008

Extending time of stroke drug treatment OK

http://lubbockonline.com/stories/092508/liv_336631269.shtml

New Hampshire Business Review

November 21, 2008

Technology brings stroke experts to Exeter

<http://www.nhbr.com/business/healthcare/464332-276/story.html>

FOX News

May 5, 2009

Stroke Awareness

http://www.myfoxboston.com/dpp/on_tv/news_at_5/050609_Stroke_awareness

JAMA medical news

JAMA. 2009;302(1):20-21.

July 1, 2009

Groups Back Telemedicine for Stroke Care

<http://jama.ama-assn.org/content/302/1/20.full.pdf>

HealthImaging

July 8, 2009

Telemedicine touted for stroke patients, adoption obstacles remain

http://www.healthimaging.com/index.php?option=com_articles&view=article&id=17968:telemedicine-touted-for-stroke-patients-adoption-obstacles-remain

Healthcare Finance News

CMS to focus on stroke care in U.S. hospitals

August 28, 2009

<http://www.healthcarefinancenews.com/press-release/cms-focus-stroke-care-us-hospitals>

NPR National Public Radio Morning Edition

December 14, 2009

Drug Can Stop Strokes, But Most Patients Don't Get It

Stroke Awareness followed by a live web chat answering listener questions

<http://www.npr.org/templates/story/story.php?storyId=121032269>

The Hospitalist

December 2009

Benefits of the telestroke center at Massachusetts General Hospital

http://www.the-hospitalist.org/details/article/479429/ONLINE_EXCLUSIVE_Audio_interview_with_Lee_H_Schwamm_MD.html

The Hospitalist

December 2009

Boston-based TeleStroke Hub Builds Relationships with Hospital Partners

http://www.the-hospitalist.org/details/article/482699/ONLINE_EXCLUSIVE_Hub_and_Spoke_For_Stroke.html

Lubbock Avalanche Journal

February 25, 2010

Fat in cookies, pastries increases risk of strokes for women

http://lubbockonline.com/stories/022510/nat_567339453.shtml

Medscape Medical News

February 25, 2010

Hemorrhagic Transformation With tPA Not Increased in Unwitnessed Strokes

<http://www.medscape.com/viewarticle/717599>

Lubbock Avalanche Journal

February 27, 2010

Neck stents may become option to prevent strokes

http://lubbockonline.com/stories/022710/hea_568388241.shtml

National Grid News

March 2, 2010

National Grid Employee's Quick Response Saves City Inspector's Life

http://www.nationalgridus.com/aboutus/a3-1_news2.asp?document=4943

Medscape Medical News

March 4, 2010

Decade of Efforts Helps AHA/ASA Meet Goal of 25% Reduction in Stroke, CV Events

http://www.ednf.org/index.php?option=com_content&task=view&id=1884&Itemid=88889049

Good Morning America

April 26, 2010

Poison Singer Suffers Brain Hemorrhage

<http://abcnews.go.com/GMA/video/bret-michaels-condition-after-brain-hemorrhage-10475920>

Physicians Weekly

January 10, 2011

Making the Case for Statins

<http://www.physiciansweekly.com/making-the-case-for-statins/>

Sun Journal, Lewiston, Maine

January 21, 2011

CMMC, affiliates to offer emergency neuro-consults

<http://www.pharmacynews.eu/hospital-industry/cmmc-affiliates-to-offer-emergency-neuro-consults-sun-journal-lewiston-maine>

WebMD Health news

February 9, 2011

Stroke Rates Are Rising for Young Americans

<http://www.rxlist.com/script/main/art.asp?articlekey=125797>

HealthLeaders Media

February 13, 2011

A Telestroke of Genius.

<http://www.healthleadersmedia.com/content/MAG-262228/A-Telestroke-of-Genius.html>

AHA/ASA

March 2011

Target: Stroke Video Interviews

<http://www.youtube.com/user/AHAASATargetStroke>

InformationWeek Healthcare

April 28, 2011

Vidyo, Massachusetts Hospital Partner On Telemedicine

<http://www.informationweek.com/news/healthcare/interoperability/229402378>

AHA Science News

May 14, 2011

Disparities in Carotid Imaging for Acute Ischemic Stroke - QCOR 2011

<http://www.youtube.com/watch?v=u77qLF6IxRs>

The Boston Globe

May 16, 2011

UMass Memorial study finds telemedicine improved ICU care

http://www.boston.com/news/health/blog/2011/05/umass_memorial_5.html?rss_id=Most+Popular

eMedicine Health

February 1, 2012

Sleep Apnea Linked to Silent Strokes

<http://www.emedicinehealth.com/script/main/art.asp?articlekey=154316>

MedPage Today

February 1, 2012

Sleep Apnea Common in Stroke

<http://www.medpagetoday.com/MeetingCoverage/ASAMeeting/30973>

IMNG Medical News

February 8, 2012

Clot-Busters Safely Treat Wake-Up Strokes

<http://www.youtube.com/watch?v=zMyezCUWWCY>

Wall Street Journal

January 24, 2012

An Energy Shot for the Brain

<http://online.wsj.com/article/SB10001424052970203806504577178970931093522.html>

Wall Street Journal

January 5, 2012

Stricken Senator Makes Progress

<http://online.wsj.com/article/SB10001424052970204624204577181343531378230.html>

Elsevier Global Medical News

Telestroke Triage Comes of Age

March 26, 2012

<http://infoviewer.biz/infodisplay/story/imn032620121541230887.html?APP=7&CU=imn5804>

Neurology Today

April 5, 2012

Novel Clot Retrieval Device Outperforms Merci for Acute Ischemic Stroke

http://journals.lww.com/neurotodayonline/Fulltext/2012/04050/News_from_the_International_Stroke_Conference_3.aspx

Neurology Today

December 20th, 2012

A Mobile Stroke CT Unit Cuts tPA Administration Times By One-Third: Would it Work in the US?

http://journals.lww.com/neurotodayonline/Fulltext/2012/12200/A_Mobile_Stroke_CT_Unit_Cuts_tPA_Administration.3.aspx

The Times

January 3rd, 2013

Chelsea's tears fuel speculation about mother's health.

<http://www.thetimes.co.uk/tto/news/world/americas/article3646523.ece>

Inside Health Policy

August 5, 2013

CMS Plans to Change Stroke Measures

<http://insidehealthpolicy.com/201307242441789/Health-Daily-News/Daily-News/cms-stroke-measures-surprise-medical-groups-lawmakers-step-in/menu-id-933.html>

Chicago Tribune

September 29, 2013

News Brief: How to cope with the neurologist shortage.

http://articles.chicagotribune.com/2013-09-29/lifestyle/sns-201306191950--tms--harvhtl69i0713n-20130619_1_neurologist-news-briefs-chronic-diseases

CBS.News.com

November 6, 2013

TIA "mini stroke" may increase risk for serious stroke

<http://www.cbsnews.com/news/tia-mini-stroke-may-increase-risk-for-serious-stroke/>

Neurology Today

November 7th, 2013

Systemic Changes Mark Quality Improvement Initiative in Stroke Care

http://journals.lww.com/neurotodayonline/Fulltext/2013/11070/A_QUALITY_IMPROVEMENT_INITIATIVE_Systemic_Changes.13.aspx

National Public Radio

April 1, 2014

As Stroke Risk Rises Among Younger Adults, So Does Early Death

<http://www.npr.org/blogs/health/2013/04/05/175682963/as-stroke-risk-rises-among-younger-adults-so-does-early-death>

Editorial Boards:

1988-1989 Editorial Board Member, Harvard Medical School Alumni Bulletin
1996- Ad-Hoc Reviewer, Neurology
1997- Ad-Hoc Reviewer, New England Journal of Medicine
1997- Ad-Hoc Reviewer, Stroke
1998-2000 Ad-Hoc Reviewer, Journal of Nuclear Medicine
2000- Ad-Hoc Reviewer, Journal of Neuroimaging
2000-2002 Physician Advisor, Weekly Briefings, New England Journal of Medicine
2002- Editorial Board Member, Neurocritical Care: A Journal of Acute and Emergency Care
2003- Ad-Hoc Reviewer, British Medical Journal
2004- Ad-Hoc Reviewer, Circulation
2006- Ad-Hoc Reviewer, Journal of the American Board of Family Medicine
2007- Ad-Hoc Reviewer, Lancet Neurology
2008- Ad-Hoc Reviewer, Annals of Neurology
2008- Ad-Hoc Reviewer, Journal of the American Medical Association
2008- Ad-Hoc Reviewer, Archives of Internal Medicine
2010- Editorial Board Member, Stroke
2010- Editorial Board Member, Circulation: Cardiovascular Quality and Outcomes
2012- Editorial Board Member, Harvard Medical School Health Newsletter, Harvard University

Awards and Honors:

1985 John Harvard Scholar, Harvard College
1999 Computerworld Program Laureate for Innovation in Healthcare (Partners Telemedicine), Smithsonian Institution, Washington, D.C.
2000 Moby Award in Education, Advances in Mobile Technology, Other
2000 Partners in Excellence Award for Innovation and Leadership (Individual), Partners Healthcare System
2002 Volunteer Leadership and Commitment Award, American Heart Association
2002 Partners in Excellence Award for Quality Treatment and Service (Team), Anticoagulation Committee, Partners Healthcare System
2002 Partners in Excellence Award for Innovation and Leadership (Team Leader), TeleStroke Program, Partners Healthcare System
2002 Volunteer of the Year, American Heart Association Northeast Affiliate
2002 Volunteer Leadership and Commitment, Operation Stroke Chairperson, American Heart Association Northeast Affiliate
2005 Partners in Excellence Award for Leadership and Innovation (Team Leader), Warfarin Dose Adjuster, Partners Healthcare System
2005 Partners in Excellence Award for Teamwork (Team Leader), Acute Stroke Quality Taskforce, Partners Healthcare System
2005 Partners in Excellence Award for Leadership and Innovation (Team Leader) TeleStroke, Partners Healthcare System

- 2005 Partners in Excellence Award for Teamwork, (Team Leader), Partners Neurology Stroke Network Team, Partners Healthcare System
- 2005 Nesson Award for Innovation, for the development of the Acute Stroke Service Web Portal and Partners TeleStroke Center, Partners Community Healthcare
- 2006 Bowditch Prize for Clinical Innovation, Recipient, Board of Trustees, Massachusetts General Hospital
- 2006 Partners in Excellence Award for Teamwork (Team Leader). TeleStroke, Partners Healthcare Systems
- 2007 Excellence in Improving Cardiovascular Health Systems, American Heart Association Northeast Affiliate
- 2008 Partners in Excellence Award for Outstanding Performance and Commitment to Excellence, (Team Leader). Blake 12 Inpatient Stroke, Partners Healthcare Systems
- 2009 C. Miller Fisher Award, American Heart Association, Northeast Affiliate
- 2009 Bowditch Prize for Clinical Innovation, Finalist, Board of Trustees, Massachusetts General Hospital
- 2011 Community Choice Award for Excellence and Innovation in Sharing Knowledge, Quantia MD
- 2011-2012 Abstract Selected as among the Top 10 Percent of the Accepted Abstracts, American Heart Association Specialty Conferences
- 2012 Recipient, “Leader in the Field Award” at Cerebrovascular Special Interest Symposium, American Neurological Association
- 2012 Silversides Visiting Professor, University of Toronto
- 2013 Best of AHA Specialty Conferences Award (Author), for 2 individual abstracts
- 2013 Recipient, “Appreciation for dedicated service” as a Member of the Telemedicine Working Group, American Academy of Neurology
- 2014 Finalist, Nathaniel Bowditch Award in recognition of significant contributions to improving quality of care while reducing costs, Massachusetts General Hospital
- 2014 Annual “Semester Lecturer”, Charite Hospital, Berlin
- 2015 Recipient, Clinical Research Forum’s Top 10 Research Achievements for 2015 (See Reference #208)
- 2015 Establishment of the Schwamm-Marriott Endowed Fellowship in Clinical Care Research, supported by a generous gift from the Marriott Foundation

Part II: Research, Teaching, and Clinical Contributions

A. Narrative report of Research, Teaching, and Clinical Contributions

I am a vascular neurologist who is recognized as a clinical leader and pioneer in the treatment of patients with acute ischemic stroke. I have developed new technologies and applied them to patient care in two major areas: real-time interactive telemedicine consultation, and the use of web-enabled diagnostic and treatment tools and algorithms to improve care delivery. I have devoted myself to teaching and training new generations of Harvard Medical Students, MGH and Partners Neurology residents, vascular neurology and neurocritical care fellows, and junior faculty in the art and science of neurology and cerebrovascular disease. I teach the management of neurologic disease at the bedside, in the classroom and over the internet or via videoconferencing to physicians around the world. I derive great joy from attending on the inpatient Neurology and Neurocritical Care Services, and actively mentoring trainees and faculty for careers in academic medicine. I now lead an effort to re-engineer stroke care across the 6 hospital Partners Healthcare landscape, including hospitals, rehabilitation facilities, nursing homes and home-based care. Within this rich clinical and research environment, I encourage

trainees to probe the boundaries of their knowledge, to formulate critical questions, and to design the methods by which they can address those questions.

At the national level, I have chaired committees developing guidelines for stroke care delivery and the use of telemedicine in stroke care, and for measuring stroke care quality. I have consulted for or provided expert advice to all the major US organizations involved in healthcare delivery including the Centers for Disease Control and Prevention, National Quality Forum, Joint Commission, American Heart Association, National Institutes of Health, Agency for Healthcare Research and Quality, Health Resources and Services Administration, and the Centers for Medicare and Medicaid Services. I led the development of the “Get with the Guidelines-Stroke” Program for the AHA, which is now the largest stroke registry in the world with over 2.5 million case records from over 2000 US hospitals.

From its inception, my clinical research and innovation have focused on cerebrovascular disease and the use of novel diagnostic or therapeutic modalities. I have been most interested in the 4th translational block in clinical research, namely the application of emerging or proven interventions to actual clinical practice. My work with diffusion weighted imaging in acute stroke, at the time a novel imaging sequence, was one of the first to describe the natural history of cerebral infarction using this MRI technique that is now a standard part of the evaluation for acute ischemic stroke. As director of MGH Stroke Services, I have been the principal investigator neurologist on many studies and clinical trials investigating the role of noninvasive CT or MR vascular imaging in improving patient selection for reperfusion therapy in acute stroke, and currently lead an NIH funded multicenter clinical trial of MR-guided thrombolysis. My research has been funded by the NIH, HRSA, CDC and other foundations and organizations.

I have been recognized as a national leader in the development of statewide systems of care for acute stroke and a pioneer in the use of telemedicine-enabled acute stroke care and registry-based strategies for stroke secondary prevention and quality improvement. I am the stroke systems consultant to the Massachusetts Department of Public Health, architect of our statewide stroke center certification program, and founder/director of the national Partners TeleStroke Program that provides acute stroke care via telemedicine in 7 states.

I have avidly pursued research collaboration without respect to traditional academic or institutional boundaries. Through my former leadership role at the NIH Clinical Research Center at MIT, I worked to build a bridge between bioengineers at MIT and physician scientists at MGH. By focusing on ideas, individuals and resources rather than affiliations, I have helped facilitate novel research programs for many investigators. I have pursued cross-disciplinary collaborations with other academic departments, institutions, industry partners and non-profit healthcare organizations to promote improvements in stroke healthcare delivery. As the Executive Vice Chair of Neurology, I now mentor an expanding number of faculty, and seek to inspire them in their pursuit of careers in academic medicine.

B. Funding Information

Original Research, Education or Clinical Applications

PAST

1994 Center for Imaging and Pharmaceutical Research, Massachusetts General Hospital: PI (Eng Lo); MR diffusion abnormalities and novel neuroprotective agents in a suture occlusion model of

focal ischemia in the rat; Competitively Awarded Institutional Funding; Role: Laboratory Investigator

1997-2002 National Institutes of Health, National Center for Research Resources: PI (Martha Gray); General Clinical Research Center at Massachusetts Institute of Technology; Grant Type: Cooperative Agreement; Role: Associate Program Director

1997-1999 Partners Telemedicine Center: PI (**Schwamm**/clinical research), Emergency Evaluation of Patients with Acute Stroke for Thrombolytic Therapy via Remote Telemedicine Consultation; Grant Type: Competitively Awarded Institutional Funding.

1998-2000 Department of Defense, Center for Integration of Medicine and Innovative Technology: PI (**Schwamm**/clinical research); Monitoring Cerebral Ischemia using Continuous Oximetry of Cerebral Venous Drainage via Jugular Bulb Catheterization; Grant Type: Competitively Awarded Institutional Funding

1998-2001 Harvard Medical School: PI (**Schwamm**/education); WEB-MED: Web-Enabled Bidirectional Medical Education Device; Grant Type: Competitively Awarded Institutional Funding

1999-2001 Center for Integration of Medicine and Innovative Technology: PI (**Schwamm**/clinical application); Remote Stroke Videoconferencing Project; Grant Type: Competitively Awarded Institutional Funding

1999-2002 Dana Foundation: PI (**Bizzi**/clinical research); Learning by Imitation: motor learning in stroke patients. A study of augmented physical therapy in a computer-generated, virtual-reality, training environment; Role: MGH PI. Grant Type: Competitively Awarded Foundation Funding

2000-2002 Center for Integration of Medicine and Innovative Technology, International: PI (**Schwamm**/clinical application); International TeleStroke Collaborative, King Faisal Specialist Hospital Jeddah, Saudi Arabia; Grant Type: Competitively Awarded Institutional Funding

2000-2003 Aetna Foundation: PI (**Schwamm**/clinical research); WEB-THINRR: Web-Enabled Bidirectional Therapeutics for Human INR Regulation; Grant Type: Competitively Awarded Foundation Funding

2001-2003 Harvard Medical School: PI (**Schwamm**/education); WEB-MED2: Core Curriculum Development; Grant Type: Competitively Awarded Institutional Funding

2001-2004 National Institutes of Health: PI (**Bizzi**/clinical research); Telerehabilitation for Motor Retraining in Patients with Stroke; Grant Type: R01; Role: Co-PI.

2001-2004 Centers for Disease Control & Prevention: PI (**LaBresh**/clinical research); Paul Coverdell National Acute Stroke Registry Pilot; Grant Type: Cooperative Agreement; Role: Co-PI.

2002-2008 National Institutes of Health, National Center for Research Resources: PI (Peter Slavin); General Clinical Research Center at Massachusetts General Hospital-Massachusetts Institute of Technology; Grant Type: Cooperative Agreement; Role: Assistant Program Director

2003-2004 Harvard University: PI (**Schwamm**/education); WEB-MED3: Core Curriculum Development; Grant Type: Competitively Awarded Institutional Funding "Provost Innovation Fund"

2006-2008 Partners Healthcare Information Systems Research Council: PI (**Schwamm**/clinical application); Stroke Patient Specific Quality Dashboard; Grant Type: Competitively Awarded Institutional Funding

2007-2010 Centers for Disease Control & Prevention: PI (**Schwamm**/education); Grant Type: Conference Development Grant. This grant funds the Northeast Cerebrovascular Consortium, an 8 state consortium I founded to improve stroke care across the Northeast

2006-2010 National Institutes of Health, National Institute of Neurologic Diseases and Stroke: PI (Broderick/clinical research); Interventional Management of Stroke-III; Grant Type: R01; Role: Site-PI

2006-2010 National Institutes of Health, National Institute of Neurologic Diseases and Stroke, Specialized Program of Translational Research in Acute Stroke (SPOTRIAS): PI (Koroshetz;Furie/clinical research); Multicenter acute stroke study evaluating the safety and efficacy of hyperoxia, the utility of CTP in predicting outcome, and predictive power of blood markers of oxidative stress; Grant Type: Program Project; Role: Other Significant Personnel

- 2007-2013 National Institutes of Health, National Institute of Neurologic Diseases and Stroke: PI (Kidwell/clinical research); Mechanical Retrieval and Recanalization of Stroke Clots Using Embolectomy (MR RESCUE); Grant Type: R01; Role: Site-PI
- 2008-2013 National Institutes of Health, National Center for Research Resources; Clinical and Translational Science Awards (CTSA): PI (L. Nadler); Harvard Clinical and Translational Science Center at Massachusetts Institute of Technology; Grant Type: Cooperative Agreement; Role: Other Personnel
- 2009-2010 Health and Human Services, Health Resources and Services Administration (HRSA): PI (Schwamm); Stroke and Traumatic Brain Injury Telehealth Services: An environmental scan to assess the adoption of telehealth programs for management of brain trauma and stroke across the US; Grant Type: Contract; Role: PI
- 2010-2012 Duke Clinical Research Center/Agency For Healthcare Research And Quality: Centers for Education and Research on Therapeutics (CERTs) Research Center on cardiovascular disease (PI: Peterson); Evaluation of hospital level factors associated with top 10% of US hospitals delivering intravenous thrombolysis within 60 minutes of hospital arrival in GWTG-Stroke registry. Role: Co-investigator
- 2011-2012 National Institute of Biomedical Imaging and Bioengineering, National Institute of Health, U-of-C Point-of-Care Center (“POC-CENT”): Electrical Impedance Spectroscopy - Technical Development and Clinical Feasibility Trial (PI: Lev) U54-EB007954 Our goal is to develop, validate and ultimately commercialize a portable “EKG for the brain” that can provide rapid point-of-care detection, assessment, and monitoring of acute stroke and other forms of acute brain injury. Role: Co-Investigator
- 2011 – 2012 University of Illinois at Chicago: Evaluating the Efficacy and Safety of Desmoteplase in Subjects with Acute Ischemic Stroke. The major goals of this project are to test the idea that regional organization of hospitals into a hub and spoke network can substantially increase enrollment into third party clinical trials. The PI will support the MGH Hub and coordinate his efforts with the spokes in the Northeast region. Role: Co-investigator
- 2011–2013 National Institute of Neurological Disorders and Stroke. Indo-US Collaborative Stroke Registry and Infrastructure Development R21NS077442 (PI: Singhal)The major goal if this project is to develop a parallel user-driven web-based registry for stroke patients in 5 high-volume centers in India. This platform will enable researchers in both countries to share and compare multi-ethnic data, and accelerate the pace of stroke clinical, genetic and imaging research around the world. Role: Co-Investigator

CURRENT

- 2005- Massachusetts Department of Public Health: PI (**Schwamm**/clinical application); Stroke Systems Development Consultant for Massachusetts Paul Coverdell National Acute Stroke Registry
- 2010-2015 National Institutes of Health, National Institute of Neurologic Diseases and Stroke, Specialized Program of Translational Research in Acute Stroke (SPOTRIAS)-II: Overall Program Project PI (Furie/clinical research). Grant Type: Program Project, P50; Role: PI (**Schwamm**) Access Core
- 2011-2015 National Institutes of Health, National Institute of Neurologic Diseases and Stroke, Specialized Program of Translational Research in Acute Stroke (SPOTRIAS)-II: Overall Program Project PI (Furie/clinical research); Grant Type: Program Project P50; Project Type: Clinical Trial; MR

WITNESS: Multicenter acute stroke study evaluating the safety and efficacy of MRI-based selection of patients for thrombolysis beyond the 4.5 hour window; Role: Co-PI
(Schwamm/Wu): A Phase IIa Safety Study of Intravenous Thrombolysis with Alteplase in MRI-Selected Patients. Schwamm, LH. Registration at Clinicaltrials.gov NCT01282242 (January 2011)

- 2011–2016 National Institute of Neurological Disorders and Stroke. Network for Excellence in Neuroscience Clinical Trials, or NeuroNEXT.(PI: Cudkowicz)TheNeuroNEXT was created to conduct studies of treatments for neurological diseases through partnerships with academia, private foundations, and industry. The network is designed to expand the National Institute of Neurological Disorders and Stroke's (NINDS) capability to test promising new therapies, increase the efficiency of clinical trials before embarking on larger studies, and respond quickly as new opportunities arise to test promising treatments for people with neurological disorders. Role: CCC Telemedicine Specialist and MGH Site Co-PI
- 2013-2018 New England Regional Coordinating Center for the NINDS Stroke Trials Network- StrokeNet. (Role: PI). This is an integrated team of hospitals and EMS agencies in Boston and Western Massachusetts that will develop new translational science and successfully execute the NINDS Stroke Trials Network Phase 1, 2 and 3 studies.
- 2013-2016 Patient-centered Research into Outcomes Stroke patients Prefer and Effectiveness Research (PROSPER), Patient Centered Outcomes Research Institute (PCORI) (Role: Co-I). The goal is to address gaps and develop the requested data on the range of clinical outcomes that may be experienced by stroke survivors.
- 2014-2015 Scalable Collaborative Infrastructure for a Learning Healthcare System (SCILHS), Patient Centered Outcomes Research Institute (PCORI) (Role: Co-I). The goal is to create a national-scale clinical data research network to support patient centered outcomes research
- 2015- Improving care transitions for acute stroke patients through a patient-centered home based case management program. Patient Centered Outcomes Research Institute (PCORI) (Role: Co-I). The goal of the proposed study is to test whether a home based personalized case management program delivered by a Social Work Bridge Coordinator (SWBC) with the addition of Virtual Stroke Support Portal, (VSSP), an online communication, information, and support resource would produce sustainable, additive benefits over usual care to improve care transitions.
- 2015- Carotid Revascularization for Primary Prevention of Stroke (CREST-2), NINDS, (Role: Site PI) Carotid revascularization for primary prevention of stroke is two independent multicenter, randomized controlled trials of carotid revascularization and intensive medical management versus medical management alone in patients with asymptomatic high-grade carotid stenosis. One trial will randomize patients in a 1:1 ratio to endarterectomy versus no endarterectomy and another will randomize patients in a 1:1 ratio to carotid stenting with embolic protection versus no stenting. Medical management will be uniform for all randomized treatment groups and will be centrally directed. <http://clinicaltrials.gov/ct2/show/NCT02089217>

PENDING

Clinical Investigator, Industry Funded Clinical Trials

PAST

- 1998 Scios, Inc: Site Co-Investigator; Fiblast: Randomized, double-blind trial of basic fibroblast growth factor in acute stroke
- 1995 Upjohn and National Institute of Neurological Disorders and Stroke, NIH: Site Co-Investigator; Randomized Trial of Tirilazad Mesylate in Acute Stroke
- 1996 Parke-Davis, Inc: Site Co-Investigator; Multicenter Study to Evaluate the Safety and Efficacy of Intravenous Fosphenytoin in Patients with Acute Ischemic Stroke
- 1995-1997 Pfizer, Inc: Site PI; Serial Magnetic Resonance Imaging in Stroke Patients (PI): Diffusion and Hemodynamically weighted MR imaging study of conventionally treated acute stroke.
- 1997 Boehringer Ingelheim Pharmaceuticals Inc: Site Co-Investigator; Aptiganel Acute Stroke Trial
- 1998 Leukosite: Site PI; A Study to Assess the Usefulness of Imaging Modalities as Pharmacodynamic Endpoints in Patients with Acute Ischemic Stroke
- 1998-2000 Bristol-Myers Squibb Co: PI (single site study); Safety, Pharmacokinetics and Pharmacodynamics of BMS-204352 in Subjects with Stable Cerebrovascular Disease
- 1998-2000 Ferrer Group: PI (single site study) Citicoline After Stroke Treatment: a randomized double-blind placebo controlled study of the effects of citicoline on cognitive recovery following ischemic stroke
- 2005-2007 Forest Laboratories, Inc: Site PI; Desmoteplase in Acute Ischemic Stroke-2
- 2006-2009 CoAxia Inc: National Steering Committee and Site Co-Investigator; Flo24
- 2007-2009 Bristol-Myers Squibb Co and Duke Clinical Research Institute: National Steering Committee Member and Site PI; Adherence Evaluation after Ischemic Stroke Longitudinal Registry
- 2009-2012 Medtronic: Tailored Treatment of Permanent Atrial Fibrillation (TTOP-AF); Role: independent expert review of stroke events in this study of catheter ablation for termination of AF.

CURRENT

- 2009- Lundbeck Inc: Desmoteplase in Acute Stroke (DIAS) 3-4 trials. Role: International Steering Committee Member and Site PI
- 2014- Medtronic, Inc: VICTORY-AF Steering Committee and REACT-AF Co-Chair Steering Committee
- 2014- Novo Nordisk: DeVOTE Trial International Steering Committee
- 2013- Penumbra, Inc: DSMB member Penumbra 3D Separator Trial

C. Report of Other (Non-Funded) Activities

Development of a Wireless, Mobile Videoconferencing Platforms for Medical Use in Various Medical Environments (Simulation, Ambulance, Emergency Dept, Rehabilitation Facility, Nursing Home, etc)
Role: Co-investigator

Development of a system-wide, integrated telemedicine platform for accessing specialty expertise in acute care, inpatient consultation, outpatient follow-up and home care and for obtaining patient reported functional outcomes and satisfaction.
Role: Clinical leader in collaboration with MGH/PHS Information Systems, the Center for Connected Health, MGH Physicians Organization

Multimodality Monitoring to detect cerebral ischemia. Use of Near Infrared Spectroscopy and Electrical Impedance Spectroscopy to detect human cerebral ischemia at the bedside. Role: Develop philanthropic support and supervise junior faculty to lead a multidisciplinary group of engineers, clinicians and allied health professionals to deploy novel optical imaging technology into the ICU environment

CT angiography and Multimodal MRI to detect human cerebral ischemia and predict response to thrombolysis
Role: Co-investigator on multiple projects to analyze acute stroke imaging parameters

Quality Improvement in Stroke Management

Role: National clinical leader for multiple organizations (CDC, AHA, NQF, Canadian Stroke Network, The Joint Commission) to develop and implement quality improvement tools and interventions in stroke. Chair of the National Steering Committee for the AHA Get with the Guidelines program, overseeing the organization's major quality improvement programs for coronary heart disease, heart failure, stroke, resuscitation and diabetes. Leader of one of 6 condition specific Partners Healthcare system-wide efforts to redesign an integrated stroke care delivery model across all 6 hospitals.

D. Report of Teaching

1. Local contributions

a. Medical School Courses

Harvard Medical School & Massachusetts Institute of Technology

- 1992-1995 Introduction to Clinical Medicine
Role: Preceptor; Audience: 25 Medical Students; Contact time: 3 hrs/yr for 3 yrs; Prep time: 1 hr each yr
- 1995 Introduction to Clinical Medicine
Role: Examiner; Audience: 2 Medical Students; Contact time: 3 hrs/yr for 1 yrs; Prep time: 0
- 1998 Pharmacology and Experimental Therapeutics, HST 350
Role: Lecturer; Audience: 25 Medical Students; Contact time: 1 hrs/yr for 1 yrs; Prep time: 4 hr
- 1999 Office of Educational Development
Role: Mentor; Audience: 1 Medical Student; Contact time: 6 hrs/yr for 1 yrs; Prep time: 4 hr
Served as mentor to a visiting foreign in a sponsored medical student exchange program
- 2002 Introduction to Clinical Investigation, HST Seminar
Role: Lecturer; Audience: 10 Medical Students; Contact time: 1 hrs/yr for 1 yrs; Prep time: 1 hr
- 2004- Challenges in Clinical Research: Designing an acute stroke study. Introduction to Human Clinical Investigation. Annual lecture.
Role: Lecturer; Audience: 10-18 MIT Undergraduate Students; Contact time: 1 hrs/yr for 4 yrs; Prep time: 2 hr/yr
- 2008 Near Infrared Spectroscopy: Assessment of Dynamic Cerebral Autoregulation in Ischemic Stroke.
Role: Lecturer; Audience: 15 MIT Undergraduates; Contact time: 1 hrs/yr for 1 yrs; Prep time: 2 hr
- 2008- Neurobiology of Disease, HMS NB 713.0 Applied clinical neurology experience: examination of stroke patients at MGH
Role: Lecturer; Audience: 20 Harvard Graduate and Undergraduates; Contact time: 4 hrs/yr annually ongoing; Prep time: 4 hr
- 2009 Exploring new Clinical and Financial models of Stroke Care. Clinical Experience Course, Biomedical Enterprise Program (BEP) HST.211
Role: Lecturer; Audience: 8 MIT Sloan School/HST Graduate students; Contact time: 4 hrs/yr for 1 yrs; Prep time: 4 hr

b. Graduate Medical Courses

- 1995-1998 Topics in NeuroCritical Care:
Massachusetts General Hospital
Lecturer: 5-10 residents, 16 hours contact time per year,
16 hours prep time per year.
- 1995 Summerstock Lectures: Raised Intracranial Pressure and Neurologic Localization in the
Critically Ill Patient
Massachusetts General Hospital
Lecturer: 24 participants, 1 hour contact time per year,
2 hours prep time per year.
- 1995 The Use of Transcranial Doppler Ultrasound to Assess the Degree of
Stenosis in Critical Anterior Circulation Disease,
Massachusetts General Hospital
Lecturer: 24 participants, 1 hour contact time per year, 2 hours prep time per year
- 1995 Jugular Venous Oxygen Saturation and Traumatic Brain Injury,
Massachusetts General Hospital
Lecturer: 10 participants, 1 hour contact time per year, no prep time reported.
- 1996 Neurologic and Pulmonary Interactions, Massachusetts General Hospital
Lecturer: 24 participants, 1 hour contact time per year,
2 hours prep time per year.
- 1996 Traumatic Dissection of the Carotid Arteries, Massachusetts General Hospital
Lecturer: 24 participants, 1 hour contact time per year,
2 hours prep time per year.
- 1996 Traumatic Dissection of the Vertebral Arteries, Massachusetts General
Hospital
Lecturer: 24 participants, 1 hour contact time per year,
2 hours prep time per year.
- 1995-1999 Morning Report Case Conference
Massachusetts General Hospital
Lecturer: 5-10 residents, 10 hours contact time per year,
0 hours prep time per year.
- 1995-1998 Summerstock Lectures: Management of Increased Intracranial Pressure
Massachusetts General Hospital
Lecturer: 15 residents, 1 hour contact time per year,
4 hours prep time per year
- 2000 Summerstock Lectures: Management of Acute Cerebral Ischemia
Massachusetts General Hospital
Lecturer: 15 residents, 1 hour contact time per year,
4 hours prep time per year
- 2000 Resident Lecture Series: NeuroCritical Care,
Beth Israel Deaconess Medical Center (East)
Lecturer: 24 participants, 1 hour contact time per year,
2 hours prep time per year
- 2000 Summerstock Lectures: NeuroCritical Care
Massachusetts General Hospital
Lecturer: 15 residents, 1 hour contact time per year,
4 hours prep time per year
- 2002 NeuroCritical Care Fellows Lecture: Intravascular volume status and blood pressure
management
Massachusetts General Hospital
Lecturer: 5 fellows, 1 hour contact time per year,
4 hours prep time per year

- 2002 NeuroCritical Care Fellows Lecture: Traumatic Brain Injury Management
Massachusetts General Hospital
Lecturer: 5 fellows, 1 hour contact time per year,
4 hours prep time per year
- 2003-2005 Summerstock Lectures: Principles of NeuroCritical Care
Massachusetts General Hospital
Lecturer: 15 residents, 1 hour contact time per year,
4 hours prep time per year
- 2001-2009 Evaluation of Altered Mental State, Massachusetts General Hospital
Lecturer: 52 participants, 1 hour contact time per year,
2 hours prep time per year.
- 2005 Stroke Service Lecture Series: Imaging of cerebral blood flow
Massachusetts General Hospital
Lecturer: 5 residents, 4 fellows, 8 Post-doc 1 hour contact time per year,
4 hours prep time per year
- 2008 Stroke Service Lecture Series: Acute Stroke Thrombolysis
Massachusetts General Hospital
Lecturer: 5 residents, 4 fellows, 8 Post-doc 1 hour contact time per year,
4 hours prep time per year
- 2006- Summerstock Lectures: Management of Acute Cerebral Ischemia
Massachusetts General Hospital
Lecturer: 15-30 residents, 1 hour contact time per year,
3-4 hours prep time per year
- 2009- Weekly ED Neurology Resident Report
Massachusetts General Hospital
Case Review and Teaching: 2-3 residents, 50 hour contact time per year,
25 hours prep time per year
- 2010 Neuroscience Nursing Teaching Rounds:
Diagnosis and Management of Atrial Fibrillation in Acute Stroke
Massachusetts General Hospital
Case Review and Teaching: 10-20 nurses, 1 hour contact time,
2 hours prep time
- 2012 NeuroCritical Care Fellows Lecture:
Malignant edema in acute ischemic stroke: diagnosis and management
Massachusetts General Hospital
Lecturer: 5-8 fellows, 1 hour contact time
2 hours prep time
- 2013 Acute Stroke & Thrombolysis. Fellowship Educational Conference, Department of Neurology,
Massachusetts General Hospital. Boston, MA. *[Invited Lecture]*

c. Local Invited Presentations

- 1996 Intracranial Hypertension and Osmotic Therapy: Role of Cerebral Autoregulation. Anesthesia
Grand Rounds, Brigham and Women's Hospital, Boston, MA *[Invited Lecture]*
- 1996 Surgical Treatment of Dystonia. Neurosurgery Department Case Presentation, Massachusetts
General Hospital *[Invited Presentation]*
- 1997 Unusual Vascular Disease: Carotid Artery Dissection in Ehlers-Danlos Type IV, Massachusetts
General Hospital. *[Invited Lecture]*
- 1997 Serial Diffusion and Perfusion MR Imaging in Acute Stroke, Neurology Grand Rounds,
Massachusetts General Hospital *[Invited Lecture]*

- 1997 Clinical Management of Acute Stroke, Massachusetts General Hospital
- 1997 Identifying Ischemia: MR imaging and cerebral oxygenation, Department of Radiology, Massachusetts General Hospital
- 1998 Role of Telemedicine in the management of acute stroke. Health Ministry of India, Partners Telemedicine, Boston, MA [*Invited Lecture*]
- 1998 Use of Telemedicine and Teleradiology in novel healthcare delivery. French Medical Delegation, Partners Telemedicine, Boston, MA [*Invited Lecture*]
- 1998 Remote Stroke Videoconferencing Project: Implications for a Public Health system. Visit of HRH Prince Andrew, Duke of York. Partners Telemedicine, Boston, MA [*Invited Lecture*]
- 1999 Detection of Clinically Significant Vasospasm, Neurosurgery Resident lecture, Massachusetts General Hospital. [*Invited Lecture*]
- 1999 Remote Stroke Management: a paradigm for "Teleneurology", Neurology Grand Rounds, Massachusetts General Hospital [*Invited Lecture*]
- 2000 Stroke Service 2000: New tools for stroke neurologists, Neurology Grand Rounds, Massachusetts General Hospital [*Invited Lecture*]
- 2000 Telestroke: A paradigm for Teleneurology, McLean Hospital, Belmont, MA [*Invited Lecture*]
- 2001 Acute Stroke Diagnosis and Management, Massachusetts General Hospital
- 2001 Telemedicine-enabled acute stroke care. Presentation to a 10-member delegation. Malaysian Ministry of Health, Boston, MA [*Invited Lecture*]
- 2002 Thrombolytic therapy and Hemicraniectomy in Acute Ischemic Stroke, Massachusetts General Hospital [*Invited Lecture*]
- 2003 A National Health Care Systems Approach to Acute Stroke Care Delivery. Representatives to the British National Health Service Trust, Hosted by the Harvard Graduate School of Design [*Invited Lecture*]
- 2005 Stroke Care in the New Millennium: The end of therapeutic nihilism. Cardiology Grand Rounds. Massachusetts General Hospital [*Invited Lecture*]
- 2005 Prehospital Treatment of Stroke, Massachusetts General Hospital [*Invited Lecture*]
- 2005 Spreading the Gospel: Using technology and legislation to improve acute stroke care at the local, state and federal level, Massachusetts General Hospital [*Invited Lecture*]
- 2005 Anesthesia Grand Rounds, Acute Stroke Update, Massachusetts General Hospital [*Invited Lecture*]
- 2006 Provider Education and TeleMentoring: New tools to support stroke education for EMS, Emergency Physicians and Allied Health Professionals. Center for Connected Health Annual Conference [*Invited Lecture*]
- 2006 History of TeleStroke. Center for Connected Health Annual Conference [*Invited Lecture*]
- 2007 Clinical Management and Advanced Treatment for Closed Head Injury Civilian Trauma: Acute Clinical Management-NeuroIntensive care. CIMT- Traumatic Brain Injury Symposium, Boston, MA [*Invited Lecture*]
- 2007 Traumatic Brain Injury: Miraculous Recoveries and Long Term Strategies. CIMT- Traumatic Brain Injury Symposium, Boston, MA [*Invited Lecture*]
- 2007 TeleStroke for Stroke Systems of Care. Center for Connected Health, Harvard Medical School [*Invited Lecture*]
- 2007 Stroke Update: Leveraging Technology and Policy to Improve Stroke Care
Global Clinic 2008, Healthcare Management for Physician Executives. Partners International Medical Services [*Invited Lecture*]
- 2011 MGH Neurology: Past History. TeleStroke and Acute Stroke Services. MGH Bicentennial Celebration, Boston, MA
- 2013 From Hippocrates to "Aspirin please": The latest developments in stroke treatment and prevention. Phillips Society Luncheon. Massachusetts General Hospital. Boston MA. [*Invited Lecture*]

Seminars

- 1995 Diagnosis and Emergent Management of Acute Cerebellar Hemorrhage, Massachusetts General Hospital
Lecturer: 24 participants, 1 hour contact time per year, 2 hours prep time per year.
- 1995 Treatment of Intracranial Hypertension, Massachusetts General Hospital
Lecturer: 24 participants, 1 hour contact time per year, 2 hours prep time per year.
- 1995 Recognition and Treatment of Acute Intracranial Injury Massachusetts General Hospital
Lecturer: 24 participants, 1 hour contact time per year, 2 hours prep time per year.
- 1995 Thymoma and Myasthenia Gravis, Clinical Features and Critical Care, Massachusetts General Hospital
Lecturer: 24 participants, 1 hour contact time per year, 2 hours prep time per year.
- 1995 Jugular Venous Catheters: Clinical Indications and Cerebral Physiology Massachusetts General Hospital
Lecturer: 24 participants, 1 hour contact time per year, 2 hours prep time per year.
- 1995 Jugular Venous Oxygen Saturation as a Measure of Critical Vasoconstriction in the Management of Raised Intracranial Pressure Massachusetts General Hospital
Lecturer: 24 participants, 1 hour contact time per year, 2 hours prep time per year
- 1996 Recognition and Treatment of Status Epilepticus, Massachusetts General Hospital
Lecturer: 24 participants, 1 hour contact time per year, 2 hours prep time per year.
- 1996 Acute Stroke Management, Massachusetts General Hospital
Lecturer: 24 participants, 1 hour contact time per year, 2 hours prep time per year.
- 1996 Hereditary Sensory Motor Polyneuropathies, Massachusetts General Hospital
Lecturer: 24 participants, 1 hour contact time per year, 2 hours prep time per year.
- 1996 Stroke Syndromes without Motor or Sensory Symptoms, Massachusetts General Hospital
Lecturer: 24 participants, 1 hour contact time per year, 2 hours prep time per year.
- 1996 Intractable Headache: Differential Diagnosis and Management, Massachusetts General Hospital
Lecturer: 24 participants, 1 hour contact time per year, 2 hours prep time per year.
- 1996 The Role of Imaging in NeuroCritical Care, Massachusetts General Hospital
Lecturer: 24 participants, 1 hour contact time per year, 2 hours prep time per year.
- 1996 Diagnostic and Therapeutic Pulmonary Contributions to Intracranial Hypertension, Massachusetts General Hospital.
Lecturer: 24 participants, 1 hour contact time per year, 2 hours prep time per year.
- 1996 Complications of Anticonvulsant Usage: Phenytoin Cardiotoxicity, Massachusetts General Hospital
Lecturer: 24 participants, 1 hour contact time per year,

- 2 hours prep time per year.
- 1996 Reperfusion Injury in Carotid Stroke,
Massachusetts General Hospital
Lecturer: 24 participants, 1 hour contact time per year,
2 hours prep time per year.
- 1997 Evaluation of Sub-acute Cognitive Disturbances,
Massachusetts General Hospital
Lecturer: 24 participants, 1 hour contact time per year,
2 hours prep time per year.
- 1997 Auto-regulation of Cerebral Blood Flow: Effects of Intracranial Hypertension
Massachusetts General Hospital
Lecturer: 24 participants, 1 hour contact time per year,
2 hours prep time per year.
- 1997 Emergency Management of Acute Stroke,
Brigham and Women's Hospital.
Lecturer: 24 participants, 1 hour contact time per year,
2 hours prep time per year.
- 1998 Neurologic Emergencies,
Massachusetts General Hospital
Lecturer: 24 participants, 1 hour contact time per year,
2 hours prep time per year.
- 1998 Paradoxical Brain Embolism,
Massachusetts General Hospital
Lecturer: 52 participants, 1 hour contact time per year,
2 hours prep time per year.
- 1998 Recognition and Treatment of Non-convulsive Status Epilepticus,
Massachusetts General Hospital.
Lecturer: 52 participants, 1 hour contact time per year,
2 hours prep time per year.
- 1998 Management of Intracranial Hypertension,
Massachusetts General Hospital
Lecturer: 24 participants, 1 hour contact time per year,
2 hours prep time per year.
- 1999 Status Epilepticus and Seizures,
Massachusetts General Hospital
Lecturer: 52 participants, 1 hour contact time per year,
2 hours prep time per year.
- 1999 Acute Spinal Cord Injury: Diagnosis and Management
Massachusetts General Hospital
Lecturer: 24 participants, 1 hour contact time per year,
2 hours prep time per year
- 2000 Remote Management of Stroke
Center for Integration of Medicine and Innovative Technology
Lecturer: 50 participants, 1 hour contact time
2 hours prep time
- 2002 Telerehabilitation in Stroke Patients. NIH site visit, GCRC competitive renewal, Massachusetts
General Hospital, Boston, MA. Lecturer: 40 participants, 1 hour contact time, 4 hours prep time
- 2002 Management of Cerebral Compartment Syndrome. Surgical Intensive Care Unit Conference.
Massachusetts General Hospital, Boston, MA. Lecturer: 20 participants, 1 hour contact time, 2
hours prep time
- 2005 Principles of Cerebral Perfusion,

- Massachusetts General Hospital
Lecturer: 24 participants, 1 hour contact time per year,
2 hours prep time per year.
- 2006 Improving Adherence to In-hospital Secondary Prevention in Ischemic Stroke/TIA:
The Get with the Guidelines-Stroke Experience
Brigham and Women's Hospital
Lecturer: 24 participants, 1 hour contact time per year,
2 hours prep time per year.
- 2006 Measuring the Quality of Acute Stroke Care. Department of Pharmacoepidemiology &
Pharmacoeconomics, Harvard Medical School and Brigham and Women's Hospital
Lecturer: 24 participants, 1 hour contact time. 2 hours prep time
- 2007 Telemedicine 2007: Perspectives from National and International Experiences
Massachusetts General Hospital
Lecturer: 24 participants, 1 hour contact time per year,
2 hours prep time per year.
- 2007 From Proof of Concept to Clinical Practice: Applying Information Technology to Acute Care
Partners Healthcare Systems Information Systems Annual Retreat
Lecturer: 100 participants, 1 hour contact time
2 hours prep time
- 2008 Acute Stroke Care Update
2nd Annual Vascular Center Nursing Conference
MGH Vascular Center
Lecturer: 80 participants, 1 hour contact time
2 hours prep time

d. Continuing Medical Education Courses

- 1996 Minutes Count: Update on New Techniques and Review of Established Principles of
Management of Cerebrovascular Emergencies
Intravenous Thrombolysis in Acute Stroke
Lecturer: 1 hour contact time, 2 hours prep time
- 1997 Comprehensive Review of Neurology: Cerebrovascular Disease
Lecturer: 1 hour contact time, 2 hours prep time
- 1998 Emergency Medicine Update: Acute Stroke Therapy
Lecturer: 1 hour contact time, 2 hours prep time
- 1998 Comprehensive Review of Neurology: Cerebrovascular Disease
Lecturer: 1 hour contact time, 2 hours prep time
- 1998 Sensitivity and Specificity of Monitoring for Vasospasm, Cerebral Aneurysms and Vascular
Malformations: 1998 and beyond, Boston, MA [*Invited Lecture*]
- 1998 Extracranial Carotid Atherosclerotic Occlusive Disease: Evaluation of the Symptomatic Lesion.
Cerebral Aneurysms and Vascular Malformations: 1998 and beyond...Boston, MA. [*Invited
Lecture*]
- 1999 Primary Care Internal Medicine Principles & Practice: The Dizzy Patient
Workshop Lecturer: 1 hour contact time, 2 hours prep time
- 1999 Management of Cerebrovascular Emergencies:
-Intravenous Thrombolysis for Acute Ischemic Stroke: Risks and Efficacy
-Rational Management of Acute Ischemic Stroke
Lecturer: 2 hour contact time, 4 hours prep time
- 1999 Radiology in the 21st Century: A Clinician's Perspective on PACS
Lecturer: 1 hour contact time, 2 hours prep time

- 1999 Comprehensive Review of Neurology: Cerebrovascular Disease
Lecturer: 1 hour contact time, 2 hours prep time
- 1999 Emergency Medicine in the 21st Century: Thrombolysis in Acute Stroke: Pros v. Cons
Lecturer: 1 hour contact time, 2 hours prep time
- 2000 Primary Care Internal Medicine Principles & Practice: The Dizzy Patient
Workshop Lecturer: 1 hour contact time, 2 hours prep time
- 2001 Primary Care Internal Medicine Principles & Practice: The Dizzy Patient
Workshop Lecturer: 1 hour contact time, 2 hours prep time
- 2001 Tackling Telemedicine: Technology, terms and tactics:
Stroke Service 2001: telemedicine tools for stroke neurologists
Lecturer: 1 hour contact time, 2 hours prep time
- 2002 Primary Care Internal Medicine Principles & Practice: The Dizzy Patient
Workshop Lecturer: 1 hour contact time, 2 hours prep time
- 2002 PCHI 2002 Forum for Improvement: Web-based Coumadin Calculator and Managing LWMH
patients transition to warfarin
Lecturer: 1 hour contact time, 2 hours prep time
- 2002 Current management of stroke and intracranial hemorrhage:
Intravenous thrombolysis in acute ischemic stroke
Lecturer: 1 hour contact time, 2 hours prep time
- 2002 Current management of stroke and intracranial hemorrhage:
Intravenous thrombolysis in stroke with telemedicine: Treating stroke patients in communities
without neurologists
Lecturer: 1 hour contact time, 2 hours prep time
- 2003 Primary Care Internal Medicine Principles & Practice: The Dizzy Patient
Workshop Lecturer: 1 hour contact time, 2 hours prep time
- 2004 7th Annual Emergency Medicine Course: Improving Acute Stroke Care: DPH Stroke Licensure
and the Need for QI in the ED
Lecturer: 1 hour contact time, 2 hours prep time
- 2004 Primary Care Internal Medicine Principles & Practice: Stroke Management
Workshop Lecturer: 1 hour contact time, 2 hours prep time
- 2004 Radiology in the 21st Century: A Clinician's Perspective on PACS
Lecturer: 1 hour contact time, 2 hours prep time
- 2005 Spaulding Rehabilitation Hospital: Stroke in the Young:
The Role of Acute Stroke Care Systems in the Care of the Young Stroke Patient
Lecturer: 1 hour contact time, 2 hours prep time
- 2005 Comprehensive Update on Vascular Disease for the Primary Care and Specialty Provider.
Stroke: The Next Major Hurdle: Prevalence, Spectrum, Causes and Burden to Society
Lecturer: 1 hour contact time, 2 hours prep time
- 2005 Primary Care Internal Medicine Principles & Practice: Stroke Management
Workshop Lecturer: 1 hour contact time, 2 hours prep time
- 2005 Intensive Review of Neurology: Principles of Neurocritical Care
Lecturer: 1 hour contact time, 2 hours prep time
- 2006 Harvard Critical Care and Trauma Symposium:
Non-Surgical Management of Severe Head Injury
Lecturer: 1 hour contact time, 2 hours prep time
- 2006 Intensive Review of Neurology: Principles of Neurocritical Care
Lecturer: 1 hour contact time, 2 hours prep time
- 2006 Primary Care Internal Medicine Principles & Practice: Stroke Management
Workshop Lecturer: 1 hour contact time, 2 hours prep time
- 2007 Harvard Critical Care and Trauma Symposium:
Mannitol and Hypertonic Saline: Where is the evidence?

- Lecturer: 1 hour contact time, 2 hours prep time
- 2007 Primary Care Internal Medicine Principles & Practice: Stroke Management
Workshop Lecturer: 1 hour contact time, 2 hours prep time
- 2007 Intensive Review of Neurology: Principles of Neurocritical Care
Lecturer: 1 hour contact time, 2 hours prep time
- 2007 Advanced Neuroimaging: Defining Penumbra in Acute Ischemic stroke
Lecturer: 1 hour contact time, 2 hours prep time
- 2007 MGH Vascular Center Course. Ongoing Trials in Acute Ischemic Stroke: A Critical Review
Lecturer: 1 hour contact time, 2 hours prep time
- 2007 The Design and Development of the Telestroke Program:
Massachusetts General Physician's Organization Leadership Development Course
Lecturer: 40 participants, 2 hour contact time, 2 hours prep time
- 2008 MGH Vascular Summit. Fundamentals of Acute Stroke Evaluation: TeleStroke
Lecturer: 0.5 hour contact time, 2 hours prep time
- 2008 Primary Care Internal Medicine Principles & Practice: Stroke Prevention and Management
Workshop Lecturer: 1 hour contact time, 2 hours prep time
- 2007 Advanced Neuroimaging: Acute stroke imaging
Lecturer: 1 hour contact time, 2 hours prep time
- 2008 MGH Vascular Summit. The Impact of Virtual Management in the Treatment of Acute Stroke
Lecturer: 0.5 hour contact time, 2 hours prep time
- 2010 Ischemic and Hemorrhagic Update: Current Practices and Future Directions.
Risk Factors for Stroke.
Lecturer: 1 hour contact time, 2 hours prep time
- 2014 Management of Asymptomatic Carotid Disease. Division of Vascular and Endovascular
Surgery. Massachusetts General Hospital & Harvard Medical School (4.24.14) [*Invited
Lecture*]

e. Advisory and Supervisory Responsibilities in Clinical or Laboratory Setting

- 2000- Neurocritical Care Attending supervising and mentoring up to 4 fellows per year
100 hrs per year
- 2000- Inpatient General Neurology Attending supervising and mentoring up to 4 residents per year
100 hrs per year
- 2002- Stroke Clinical Research Group Leader directly hiring and supervising 1-2 clinical research
fellows per year
100 hrs per year

f. Teaching leadership roles

- 1996-2006 Director, NeuroCritical Care Conference for the MGH Surgical Intensive Care Unit,
Massachusetts General Hospital
Responsibility: 0-2 medical students, 8-12 anesthesia and surgical residents, 1-2 critical care
fellows, 1-2 ICU attendings. Bi-monthly, 12 months/year.
- 1998-1999 Director, MGH Stroke Preceptor Program., Massachusetts General Hospital
Responsibility: This 2-day course introduces healthcare providers of various degrees of
experience to the recognition and management of acute stroke

- 1999-2012 Associate Director (1994-2004), and Director (2004-), MGH Acute Stroke Services
Responsibility: This includes the development of Acute and Subacute Stroke Care guidelines for MGH, regional hospitals and EMS providers who wish to develop an integrated regional approach to acute stroke therapy. All our protocols have been published on the Internet where they are accessed by thousands of individuals across the world
- 2000-2002 Director, CIMIT National Stroke Program., Massachusetts General Hospital
Responsibility: This program was designed to extend the expertise of MGH in acute stroke management nationally and internationally. As Director, I was in charge of several collaborative relationships with local community hospitals (Martha's Vineyard Hospital, Jordan Hospital) as well as the King Faisal Specialist Hospital in Jeddah, Saudi Arabia.
- 2007-2012 Vice Chairman of Neurology, Massachusetts General Hospital
Responsibility: The Vice Chairman of Neurology works in close collaboration with the Chief of Service, Vice President for Neuroscience and Senior Administrative Director for Neurology to oversee the operations of the Department of Neurology and its Faculty.
- 2007- Director, Partners TeleStroke Center and Partners National TeleStroke Network, Massachusetts General Hospital
Responsibility: Oversee all educational activities of the Center in its outreach to 30+ community hospitals and all the telehealth providers. This includes a monthly TeleStroke Grand Rounds which is streamed live to all sites.
- 2012- Executive Vice Chairman of Neurology, Massachusetts General Hospital
Responsibility: The Executive Vice Chairman of Neurology works in close collaboration with the Chief of Service, Vice President for Neuroscience, Executive Director for Neurology and other Vice Chairs and Directors to oversee the operations of the Department of Neurology and its Faculty. The Executive Vice Chairman runs a bi-monthly Department Leadership Committee of senior faculty members to implement clinical initiatives, review and address quality and safety programs, review staff credentialing and responsibilities, implement a faculty annual performance evaluation and mentoring program, and assist in recruitment and retention of faculty. The Executive Vice Chairman also provides representation as needed on key hospital committees related to the Neurology Service or as a faculty member at large for other hospital-based initiatives at the request of the senior administration or the Massachusetts General Physicians' Organization.

g. Advisees and Trainees

<u>Training Duration</u>	<u>Name</u>	<u>Current Position.</u>
1995-	*Alice Flaherty, MD	Associate Professor of Neurology, HMS
1996-1998	*David Greer, MD	Vice Chairman of Neurology, Yale-New Haven
1995-1999	*#Saad Shafqat, MD PhD	Professor of Neurology and Stroke Director, Agha Kahn University, Karachi, Pakistan
1996-2000	*#Peter Kelly, MD	Consultant, Royal Hospital, Ireland
1996-	*Jonathan Rosand, MD	Professor of Neurology, HMS
1997-1999	*Mustapha Ezzeddine, MD	Associate Professor of Neurology and Radiology, Medical Director of Stroke Service, U of Minnesota
1997-1999	*Alan Segal, MD	Associate Professor of Neurology, Cornell, NY

1998- 1998-2000	#Hakan Ay, MD *Dileep Yavagal, MD	Assistant Professor of Radiology, HMS Assistant Professor of Neurology & Neurosurgery, University of Miami
1998-2000	*Jamary Oliveira-Filho, MD	Associate Professor of Neuroanatomy, Health Sciences Institute, Federal University, Brazil
1999-2006 1999-2002 1999-	#Janet Prvu Bettger, ScD, PhD #William Copen, MD *Raul Nogueira, MD	Assistant Professor, Duke School of Nursing Assistant Professor in Radiology, HMS Associate Professor in Neurology, Emory University
1999-Present 1999-2000 2000-2001 2000-2001	*Eric E. Smith, MD #Asif Sharfuddin, MD #Elizabeth Little, MD *Kim En Lee, MD	Associate Professor of Neurology, U. of Calgary Assistant Professor of Nephrology, Indiana U Radiologist, Kaiser Permanente Medical Group Consultant Neurologist, National Neuroscience Institute, Singapore
2001-2002 2001- 2001 2001-2002	*Cenk Ayata, MD #Iva Petkovska, MD #Clifford Swap, MD *David Huang, MD	Associate Professor of Radiology, HMS Assistant Professor of Radiology, U. of Arizona Clinical Fellow in Medicine, BWH Associate Professor of Neurology, U. of North Carolina, Chief of Stroke and Vascular Neurology
2001-2004 2001-2005	*#Neeraj Badjatia, MD *#Thanh Nguyen, MD	Associate Professor of Neurology, U. of Maryland Director, Interventional Neuroradiology, Boston University School of Medicine
2002-2007 2003- 2003-2005	#Abdul Abdullah, MD #Joshua Goldstein, MD, PhD *Kiwon Lee, MD	Former Medical Director, Memory Pharmaceuticals Associate Professor of Surgery, HMS Associate Professor of Neurology/Neurosurgery, Director of Neurocritical Care, UT Health
2003-2005	*Joshua Levine, MD	Associate Professor of Neurology/Neurosurgery, University of Pennsylvania
2000-2004 2001-2004 2003- 2003-2004	*Leigh Hochberg, MD PhD *Anand Viswanathan, MD PhD *Natalia Rost, MD *Vallabh Janardhan, MD	Senior Lecturer of Neurology HMS , Assistant Professor of Neurology, HMS Associate Professor of Neurology, HMS Assistant Professor of Neurology, Director of TX Stroke Institute, Medical City Dallas Hospital
2004-2007 2004- 2004-	#Elsbeth Kalenderian, DMD *Kevin Sheth, MD *#Eric Rosenthal, MD	Dean for Clinical Affairs, Harvard Dental School Director, Neurocritical Care, Yale New Haven Instructor in Neurology HMS, Associate Director of the NICU
2004-2006 2005-2007 2005 2006- 2006-2012	*Monisha Kumar, MD *Julius G Latorre, MD, MPH #Deidre Kalenderian, BS #Zainab Magdon-Ismail, MPH *Bradford Thompson, MD	Assistant Professor of Neurology, U. Penn Associate Professor, Upstate Medical Center, NY Graduate, Syracuse University VP, Quality Improvement, AHA Assistant Professor of Neurology and Neurosurgery, Brown University
2006-2012 2006-2011 2006- 2006- 2006-8 2006- 2007-10	*#Soojin Park, MD *#Susanne Muehlschlegel, MD #Shihab Masrur, MD *Scott Silverman, MD #Maxine Power, PhD #Muhammad Pervez, MD *Wolfgang Leesch, MD	Assistant Professor, Columbia Univeristy Assistant Professor, U. Mass Medical School Medical Resident, Berkshire Med Center, MA Instructor in Neurology, HMS Director, NHS Northwest, Salford, England Assistant Professor, Temple U. School of Medicine Interventional Neurology, Beth Israel Medical Center, NY

2007-	*Dorothea Strozyk, MD	Interventional Neurologist, Columbia Presbyterian Medical Center, NY
2007-	#Rhuchira Jha, MD	Neurocritical Care Fellow, BWH/MGH
2008-	*# Gisele Silva	Department of Neurology and Neurosurgery, Federal University of São Paulo
2010-	*#Adam B. Cohen, MD	Inpatient Medical Director, MGH
2011-	#Syed Faizan Ali, MD	Medical Resident, University of Arkansas
2010-	*#Ilana Ruff, MD	Assistant Professor in Neurology, Northwestern U.
2013-	#Farrah Mateen, MD	Instructor in Neurology, MGH
2013- 2014	#Urooba Faheem, MD	Medical Resident, University of Arizona
2014-	#K.. Ahmer Siddiqui, MD	Clinical Research Fellow, MGH

* indicates clinical supervision during residency and/or Neurocritical care or Acute Stroke fellowship training, and/or continued career mentoring

indicates research training and mentorship on a specific project(s)

2. Regional, national, or international contributions

a. Invited Presentations

Regional

- 1995 Central Nervous System Response to Injury: Lessons from stroke recovery, The Fernald School, Belmont, MA *Invited Lecture*
- 1995 Brain Attack: Strategies in Cerebral Protection. Medical Grand Rounds, Salem Hospital, Salem, MA *Invited Lecture*
- 1996 Anticoagulation in Acute Stroke Management. Medical Grand Rounds, Melrose-Wakefield Hospital, Melrose, MA *Invited Lecture*
- 1996 Controversies in Acute Stroke Management. Medical Grand Rounds, Emerson Hospital, Concord, MA *Invited Lecture*
- 1996 The Need for Prehospital Notification in Acute Stroke Care. Emergency Medical Services Conference, Leonard-Morris Hospital, Natick, MA *Invited Lecture*
- 1996 Emerging Therapy for Acute Stroke, Medflight Emergency Medical Services, Boston, MA *Invited Lecture*
- 1997 Recognition and Treatment of Acute Stroke Syndromes, Norwood Hospital, Norwood, MA *Invited Lecture*
- 1997 Stroke Syndromes: Management in the Modern Era, Lawrence Memorial Hospital, Medford, MA *Invited Lecture*
- 1998 Thrombolytic Treatment in Acute Stroke, Columbia-MetroWest Hospital, Framingham, MA *Invited Lecture*
- 1998 Treat of Acute Ischemic Stroke: Recent Advances, Deaconess-Nashoba Hospital, Ayer, MA *Invited Lecture*

- 1998 Acute Stroke Management in the Modern Era. Medical Grand Rounds, Malden Hospital, Malden, MA[*Invited Lecture*]
- 1998 Brain Attack. Current Management of the Critical Care Patient, New England ICU consortium, Boston, MA[*Invited Lecture*]
- 1999 Thrombolytic Therapy in Acute Ischemic Stroke. MIT Seminars on Aging Successfully, Massachusetts Institute of Technology, Cambridge, MA[*Invited Lecture*]
- 1999 New Frontiers in the Treatment of Acute Ischemic Stroke. MIT Seminars on Aging Successfully, MIT[*Invited Lecture*]
- 2002 Overcoming the barriers to t-PA administration for stroke, Rhode Island Department of Health and Quality Improvement Program Conference, Providence, RI [*Invited Lecture*]
- 2002 Stroke Care for All: Massachusetts Initiative. 2002 Stroke Awards Luncheon, American Heart Association, Newton, MA[*Invited Lecture*]
- 2003 Projecting Stroke Expertise into the Community: A regional systems approach to improving acute stroke care, University of Massachusetts Medical Center[*Invited Lecture*]
- 2004 Improving Acute Stroke Care: Acute Treatment and Secondary Prevention. Brockton Hospital[*Invited Lecture*]
- 2004 The Politics of Stroke, Massachusetts Neurological Association[*Invited Lecture*]
- 2004 Extending the Reach of Acute Stroke Expertise: The MGH TeleStroke Program. Massachusetts State Legislative Day. Boston, MA. [*Invited Lecture*]
- 2005 Extending the Reach of Acute Stroke Expertise, Norwood Hospital[*Invited Lecture*]
- 2005 Extending the Reach of Acute Stroke Expertise: IV tPA in the community, Tobey Hospital, Wareham, MA[*Invited Lecture*]
- 2005 Extending the Reach of Acute Stroke Expertise: Implementing Primary Stroke Services in the Community, Nashoba Valley Medical Center[*Invited Lecture*]
- 2005 Extending the Reach of Acute Stroke Expertise: Implementing Primary Stroke Services in the Community. Franklin Medical Center, Greenfield, MA[*Invited Lecture*]
- 2005 The Next Step in Stroke Prevention: Establishing Stroke systems of Care, Boston Medical Center, Boston, MA[*Invited Lecture*]
- 2005 Extending the Reach of Acute Stroke Expertise: Implementing Primary Stroke Services in the Community, Heywood Hospital, Gardner, MA[*Invited Lecture*]
- 2005 Extending the Reach of Acute Stroke Expertise: The TeleStroke Paradigm, Rhode Island Hospital, Providence, RI[*Invited Lecture*]
- 2005 Introduction to Stroke Pathophysiology. MA Department of Public Health [*Invited Lecture*]

- 2005 Understanding the Primary Stroke Service Regulations. Massachusetts Hospital Association [*Invited Lecture*]
- 2006 Decreasing Door to CT and Door to Needle Times: Overcoming Barriers. Stroke Collaborative Reaching for Excellence (SCORE). MA Department of Public Health American Stroke Association, MA [*Invited Lecture*]
- 2006 Identifying and Overcoming Barriers to Successful IV tPA Delivery. Stroke Collaborative Reaching for Excellence (SCORE). MA Department of Public Health American Stroke Association, MA [*Invited Lecture*]
- 2006 State of the State Stroke Update, 2006 Making the Stroke Connection, Stroke Awareness Awards Luncheon, American Stroke Association [*Invited Lecture*]
- 2006 Guidelines for Prevention of Stroke in Patients with Ischemic Stroke or Transient Ischemic Attack from the Stroke Council of the AHA Making the Stroke Connection, Stroke Awareness Awards Luncheon, American Stroke Association [*Invited Lecture*]
- 2006 Implementation of a Stroke Systems of Care Model in Massachusetts and the Northeast, Miriam Hospital, Providence, RI [*Invited Named Lecture*]
- 2007 TeleStroke for Clinical Trials. MGH TeleStroke Grand Rounds. Broadcast to all 17 affiliated TeleStroke Hospitals. [*Invited Lecture*]
- 2007 Regional implementation of acute stroke care. Elliot Hospital, Elliot, NH. [*Invited Lecture*]
- 2007 From Feasibility to Statewide Implementation: TeleStroke. Northeast Telehealth Resource Center and Maine Telemedicine Seminar [*Keynote Lecture*]
- 2007 Stroke Care in Maine
Maine Department of Public Health and Healthy Maine Partnerships [*Keynote Lecture*]
- 2008 Stroke Coding Issues. Stroke Collaborative Reaching for Excellence (SCORE). MA Department of Public Health and American Stroke Association, MA [*Invited Lecture*]
- 2008 Your Stroke Report Card: Public reporting of stroke care quality in Massachusetts. Stroke Collaborative Reaching for Excellence (SCORE). MA Department of Public Health and American Stroke Association, MA [*Invited Lecture*]
- 2009 Science Plenary: tPA beyond 3 hours. Stroke Collaborative Reaching for Excellence (SCORE). MA Department of Public Health American Stroke Association, MA [*Invited Lecture*]
- 2009 An update to changes in the Patient Management Tool and coding instructions for the Get With the Guidelines-Stroke program. Stroke Collaborative Reaching for Excellence (SCORE). MA Department of Public Health American Stroke Association, MA [*Invited Lecture*]
- 2009 Extending the tPA Window: Treatment beyond 3 hours. MGH TeleStroke Grand Rounds. Broadcast to all 17 affiliated TeleStroke Hospitals. [*Invited Lecture*]

- 2009 Impact of Gender and Race on Stroke Care Quality: An analysis of the Get with the Guidelines – Stroke database. Boston University Medical Center Neurology Grand Rounds. *[Invited Lecture]*
- 2009 Update to the Patient Management Tool: Stroke Data Quality Improvement. Stroke Collaborative Reaching for Excellence (SCORE). MA Department of Public Health American Stroke Association, MA *[Invited Lecture]*
- 2009 Expansion for tPA Time Window: What are the implications? Stroke Collaborative Reaching for Excellence (SCORE). MA Department of Public Health American Stroke Association, MA *[Invited Lecture]*
- 2010 Acute Stroke Care: Management challenges of the inpatient stroke. Cambridge Hospital Neurology Grand Rounds. Cambridge MA. *[Invited Lecture]*
- 2011 Interfacility Transport of Stroke Post Thrombolytic Therapy. Boston Medflight Crew Lecture Series in Hanscom Air Force Base, MA *[Invited Lecture]*
- 2012 Telestroke: The High Seas of Acute Stroke Care. Neuroscience Grand Rounds at Tufts Medical Center, Boston MA *[Invited Lecture]*
- 2012 Data Jeopardy. Stroke Collaborative Reaching for Excellence (SCORE) Learning Session #24 MA Department of Public Health, American Stroke Association, Westborough, MA *[Invited Lecture]*
- 2012 Improving Acute Stroke Care Delivery: Door to Needle Times. National Institute of Health, Specialized Program of Translational Research in Acute Stroke (SPOTRIAS) Webinar Series *[Invited Webinar]*
- 2012 Telestroke. Neurology Grand Rounds at State University of New York (SUNY) Downstate, Brooklyn, NY *[Invited Lecture]*
- 2013 Selecting the right patient for thrombolysis: where do we stand? 8th Annual Summit. The NorthEast Cerebrovascular Consortium (NECC). Boston, MA *[Invited Lecture]*
- 2013 Hospital Tiering to Improve Care. Stroke Systems of Care Learning Session. MA Department of Public Health. Westborough, MA. *[Invited Lecture]*
- 2013 From Bitstream to Mainstream: Transforming TeleStroke from Disruptive Innovation to Sustainable Practice. 10th Annual Center for Connected Health Symposium: Collaborations and Innovations to Engage Patients and Elevate Care. Boston, MA *[Moderator]*
- 2013 Redesigning & Integrating Patient Care, Heart Center 5 Best Practice Forum, Corrigan and Minehan Heart Center – Department of Cardiology, Massachusetts General Hospital. Boston, MA

National

- 1996 Homodynamic Manipulation in the Neurocritical Care Unit., Critical Care Workshop of the 49th Annual Meeting of the American Academy of Neurology, Boston, MA.

[Invited Lecture].

- 1997 MR Imaging in Stroke, Annual Meeting, American Society of Neuroimaging, Orlando, FL.*[Invited Lecture].*
- 1998 Serial Diffusion and Perfusion MR Imaging in Acute Stroke, Society for Neuroscience, 26th Annual Meeting, Washington, DC*[Invited Lecture]*
- 1999 Surgery of the carotid artery: Indications and Techniques. Clinical manifestations and patient selection, Clinical Case Workshop, Congress of Neurological Surgeons, Boston, MA*[Invited Lecture]*
- 1999 Critical care, initial evaluation and management of the acute stroke patient. Annual Meeting Congress of Neurological Surgeons, Boston, MA*[Invited Lecture]*
- 2000 Role of Telemedicine in Acute Stroke. 5th Annual Meeting, American Telemedicine Association, Phoenix, AZ*[Invited Lecture]*
- 2000 Remote Stroke Management: Feasibility and Utility. 25th Annual International Stroke Conference. American Stroke Association, New Orleans, LA*[Invited Lecture]*
- 2001 Management of Acute Stroke, American Academy of Neurology, Philadelphia, PA*[Invited Lecture]*
- 2001 WEBTHINNER: Web-Enabled Bi-Directional Human INR Regulation. Academic Medicine and Managed Care, Arlington, VA*[Invited Lecture]*
- 2003 Introduction to Stroke Pathophysiology. Food and Drug Administration, Washington, DC*[Invited Lecture]*
- 2003 Acute Stroke Therapy and Implications for Acute Stroke Trial Design, Food and Drug Administration, Washington, DC*[Invited Lecture]*
- 2004 Projecting Stroke expertise into the Community: A regional systems approach to improving acute stroke care. Neurology Grand Round, Rush Medical College, Chicago, IL*[Invited Lecture]*
- 2004 Stroke Registries: Moving from Pilot Data to Ongoing Quality Improvement. Centers for Disease Control and Prevention, Atlanta, GA*[Invited Lecture]*
- 2005 The Primary Stroke Service Licensure Program in Massachusetts: A State Model for Change, National Stroke Association, Phoenix, AZ*[Invited Lecture]*
- 2005 Implementation of TeleStroke in a Hub and Spoke model. Swedish Medical Center and the Swedish Foundation. Seattle WA. *[Invited Lecture]*
- 2005 Moving from Feasibility to Clinical Equipoise: How to Test the Value of TeleStroke. 30th Annual International Stroke Conference, American Stroke Association, New Orleans, LA*[Invited Lecture]*

- 2006 Get with the Guidelines-Stroke: Initial Findings. American Heart Association National Broadcast Webinar. *[Invited Lecture]*
- 2006 Secrets to improving vascular outcomes at your hospital: Lessons learned from 3 major stroke quality improvement registries. Quality of Care and Outcomes Annual Meeting, American Heart Association, Washington DC*[Invited Lecture]*
- 2006 Telemedicine for Stroke Systems of Care. National Stroke Association, National Broadcast Webinar. *[Invited Lecture]*
- 2006 Overview of the Stroke Systems of Care Model. Inaugural Meeting of The NorthEast Cerebrovascular Consortium: Envisioning an Integrated, Multi-State, Regional Stroke System of Care: Designing the Blueprint, Boston, MA*[Invited Lecture]*
- 2006 TeleStroke for Rural Initiatives. Inaugural Meeting of the NorthEast Cerebrovascular Consortium: Envisioning an Integrated, Multi-State, Regional Stroke System of Care: Designing the Blueprint, Boston, MA*[Invited Lecture]*
- 2006 Get With The Guidelines-Stroke Produces Sustainable Improvements in Hospital-Based Acute Stroke Care. Annual International Stroke Conference, American Stroke Association, Kissimmee, FL*[Invited Lecture]*
- 2007 Neurocritical Care for Ischemic Stroke, American Academy of Neurology Annual Meeting *[Invited Lecture]*
- 2007 Implications for Stroke Systems of Care Implementations. 2nd Annual Summit of the North East Cerebrovascular Consortium: Collaborative Data Collection and Quality Improvement: Accelerating Implementation of Individual State-Based Stroke Systems of Care. New York, NY*[Invited Lecture]*
- 2007 Overview of the Stroke Systems of Care Model. 2nd Annual Summit of the North East Cerebrovascular Consortium: Collaborative Data Collection and Quality Improvement: Accelerating Implementation of Individual State-Based Stroke Systems of Care. New York, NY*[Invited Lecture]*
- 2007 Prevention of Inhospital Complications after Stroke. Annual International Stroke Conference, American Stroke Association, San Francisco, CA*[Invited Lecture]*
- 2007 How Potential Stroke Therapies Become Accepted and Widely Used: A Tribute to Larry Brass Conference: How Measuring Quality Changes Stroke Care, Annual International Stroke Conference, American Stroke Association, San Francisco, CA *[Plenary Presentation]*
- 2007 Creating Consensus in Stroke Performance Measurement (SPM): Proceedings of the SPM Consensus Group, American Heart Association/American *[Invited Lecture]*
- 2007 Impact of Stroke Performance Measures on Acute Stroke Care in the AHA's Get with the Guidelines-Stroke Program, American Heart Association/American Stroke Association *[Invited Lecture]*
- 2007 Implementation of Telemedicine within Stroke Systems of Care American Heart Association National Broadcast Webinar *[Invited Lecture]*

- 2007 The Get with the Guidelines Stroke Consensus Measures American Heart Association National Broadcast Webinar [*Invited Lecture*]
- 2007 Get with the Guidelines Stroke: The latest scientific update from the International Stroke Conference. American Heart Association National Broadcast Webinar [*Invited Lecture*]
- 2007 The Role of TeleStroke in Acute Stroke Care and Clinical Trials: NIH Specialized Program of Translational Research in Acute Stroke (SPOTRIAS) Network Annual Meeting, NY [*Invited Lecture*]
- 2007 Telemedicine in Acute Stroke: 4th New York Symposium on Neurological Emergencies & Neurocritical Care [*Invited Lecture*]
- 2007 Overview of the Stroke Systems of Care Model. The 2nd Annual Summit of The NorthEast Cerebrovascular Consortium (NECC): Collaborative Data Collection and Quality Improvement: Accelerating Implementation of Individual State-Based Stroke Systems of Care, NYC, NY [*Invited Lecture*]
- 2007 Implications for Stroke Systems of Care Implementations. The 2nd Annual Summit of The NorthEast Cerebrovascular Consortium (NECC): Collaborative Data Collection and Quality Improvement: Accelerating Implementation of Individual State-Based Stroke Systems of Care, NYC, NY [*Keynote Lecture*]
- 2008 Future Stroke Treatment and Services. Healthtech National Broadcast Webinar. [*Invited Lecture*]
- 2008 Moving from Feasibility to Clinical Practice: TeleStroke supports a Statewide Stroke Center System. Neurology Grand Rounds, Johns Hopkins Medical Center, Baltimore, MD [*Invited Lecture*]
- 2008 TeleStroke supports a Statewide Stroke Center System. Implications for Wisconsin. Wisconsin Stroke Committee. Madison, WI [*Invited Lecture*]
- 2009 Extending Evidence-Based Treatments of Stroke through TeleStroke. Extending Evidence-Based Stroke Care to Oklahoma Community Hospitals, 3rd Annual Statewide Conference, INTEGRIS Health, Oklahoma City, OK [*Featured Lecture*]
- 2009 Making it Work: Reimbursement, Cost Savings and Benefits of Telemedicine for both Referring and Consulting Teams. Telemedicine and Stroke Care Myths & Barriers Shattered. Missouri Telehealth Network, Columbia, MO [*Invited Lecture*]
- 2009 Improving acute stroke care through the use of stroke centers and telemedicine. New York Hospital Cornell-Weil Medical College. Neurology Grand Rounds. New York, NY [*Invited Lecture*]
- 2010 Regionalizing Acute Stroke Care to Specialized Centers: Help or Hype. Quality of Care and Outcomes Research in Cardiovascular Disease and Stroke 2010 Scientific Sessions. American Heart Association, Washington DC [*Plenary Presentation*]

- 2010 Stroke Systems of Care. In: Systems of Care: The Latest Breakthrough in Treating Cardiovascular Disease. Scientific Sessions 2010. American Heart Association, Chicago IL *[Invited Presentation]*
- 2010 Stroke Centers and Regional Systems of Care. In: Acute Stroke Management 2010. Scientific Sessions 2010. American Heart Association, Chicago IL *[Invited Presentation]*
- 2010 A Decade of Stroke Telemedicine: Cumulative Experience. American Heart Association National Broadcast Webinar *[Invited Lecture]*
- 2010 Target Stroke: The Imperative to Shorten Door to Needle Time in Acute Stroke. Pacific Mountain Affiliate Stroke Symposium American Heart Association National Broadcast Webinar *[Invited Telemedicine Lecture]*
- 2010 Get with the Guidelines-Stroke: An Update on Practice. American Heart Association National Broadcast Webinar *[Invited Lecture]*
- 2011 Improving Stroke Care Through the Use of Registries. Arkansas Stroke Quality Improvement Collaborative. Arkansas Department of Public Health *[Invited Webinar]*
- 2011 Evaluation and Treatment Indicators at Ask the Experts Acute Stroke Management Session at AHA's Scientific Sessions in Orlando, FL *[Invited Lecture]*
- 2011 Translating Evidence into Practice: Improving Door-to-Needle Times in Acute Stroke. AHA's South Carolina Get with the Guidelines Program. South Carolina *[Invited Webinar]*
- 2012 Time is Brain! Targeting Door to Needle Times for Quality Improvement. Afternoon session. AHA's International Stroke Conference in New Orleans, LA *[Invited Lecture]*
- 2012 Stenting versus Aggressive Medical Therapy for Intracranial Stenosis- The SAMMPRIS Trial. NeuroNEXT Webinar CoNEXTion. NINDS NeuroNext Clinical Coordinating Center. *[Invited National Webinar]*
- 2012 Acute Stroke Alert. Leader: Skills Workshop. American Academy of Neurology's 64th Annual Meeting *[Invited Interactive Learning Session Leader]*
- 2012 MR WITNESS Update. Session 1 Collaborative Project Updates:. SPOTRIAS Investigators Meeting, Cincinnati, OH. *[Invited Lecturer]*
- 2012 Get With The Guidelines Stroke 2012 Spring Release. GWTG-Stroke. American Heart Association *[Invited National Webinar]*
- 2012 Using Data to Change Policies and Create New Standards of Care: TeleStroke as a Disruptive Technology & Health Policy. Workshop on the Role of TeleHealth in an Evolving Health Care Environment. Institute of Medicine of the National Academies. Washington DC *[Invited Panelist]*
- 2013 Measuring and Changing the Quality of Care Via National Registries. The Current State and Future of Stroke. 28th Annual Princeton Conference. Cincinnati, OH.

- 2013 Harmonizing stroke process and outcome measures in quality improvement and public reporting Brain Attack Coalition Meeting, Bethesda, Maryland [*Invited Lecture*]
- 2013 Applying Clinical Guidelines to Patient Care. Special Symposium on Quality: Clinical Practice Guidelines. American Society of Hematology. New Orleans, LA. [*Invited Lecture*]
- 2013 Strengthen the Chain: Improving Access to Acute Stroke Therapies. Resuscitation Science Symposium and CV Nursing Clinical Symposium. Scientific Sessions. American Heart Association. Dallas, Texas. [*Moderator*]
- 2013 Get with the Guidelines Stroke Fall Update: Customer Webinar, American Heart Association [*Invited Webinar Lecture*]
- 2013 Selecting the Right Patient for Thrombolysis: Where Do We Stand? Ochsner Clinic Grand Rounds. New Orleans, LA. [*Invited Lecture*]
- 2014 Comprehensive Stroke Systems of Care. Society of Neurointerventional Surgery (SNIS) Annual Meeting. Las Vegas Nevada.. [*Invited Telemedicine Lecture*]
- 2014 Disruptive Innovation in Stroke Care: Using Telehealth and registry-based measurement to impact adherence to evidence based care. Grand Rounds, Department of Neurology, University of Miami [*Invited Speaker*]
- 2014 Translating the Science of Quality Measurement and Improvement into the Development of a Telestroke Quality Measures and Reporting Frame. Telestroke 2.0: Developing Evidence-based Measures of Quality and Outcomes for Remote Stroke Management, International Stroke Conference, American Heart Association, San Diego, CA [*Invited Speaker*]
- 2014 TeleStroke Increases Access to Acute Stroke Care. The Institute for Heart, Vascular and Stroke Care. International Stroke Conference Satellite Event. San Diego, CA [*Invited Speaker and Organizer*]
- 2014 Stroke and Carotid Artery Disease: The Basic Facts. Holy Cross Hospital and Massachusetts General Hospital Vascular Center Symposium. Fort Lauderdale, FL [*Invited Lecture*]
- 2014 Target Stroke: Identifying the Winning Strategies that drive improvement in thrombolysis treatment. Session B, Quality of Care Outcomes Research Scientific Sessions, American Heart Association, Baltimore, MD [*Moderator, Live streaming event to 600+ participants*]
- 2014 TeleStroke 3.0: Expanding the Role for TeleHealth in Stroke and Neurological Care. Contemporary Clinical Issues Plenary Session American Academy of Neurology 66th Annual Meeting, Philadelphia, PA, April 30, 2014 [*Invited Speaker*]
- 2014 TeleStroke 3.0: Defining the Expanding Role for TeleHealth in Cerebrovascular Care. Neurology Grand Rounds, University of Rochester School of Medicine, Rochester, NY [*Invited Lecture*]
- 2014 TeleStroke 3.0: Defining the Expanding Role for TeleHealth in Cerebrovascular Care. STAR 3rd Regional Stroke Management Symposium. Rochester, NY [*Invited Lecture*]

- 2014 What is TeleHealth? Where and how is it used? Early Evidence, Future Promise of Connected Health. Health Affairs Briefing, Washington DC [*Invited Telemedicine Lecture*]
- 2014 Does Technology Keep Patients Out of Hospitals? The New ‘Complex’ Patient: The Shifting Locus of Care and Cost; ECRI Institute, National Academy of Sciences, Washington DC. [*Invited Telemedicine Lecture*]
- 2014 Charting the Course for Stroke Systems of Care: The Design and Implementation of Comprehensive Stroke Centers in the US. Geisinger Health Systems Stroke Symposium [*Invited Telemedicine Lecture*]
- 2014 Get Me to the Church on Time. GWTC-Stroke Comprehensive Stroke Center Grand Rounds. International Stroke Conference, American Heart Association, San Diego, CA [*Invited Speaker*]
- 2014 Current Stroke System Implementation in the US. Annual Primary Stroke Centers/ Comprehensive Stroke Centers Luncheon. American Heart Association/American Stroke Association & Joint Commission. International Stroke Conference, American Heart Association, San Diego, CA [*Invited Speaker*]
- 2014 A 49-year-old woman with aphasia and hemiplegia on a transatlantic airline flight. Case Records of the Massachusetts General Hospital Clinicopathological Conference Neurology Grand Rounds. Boston, MA [*Invited Discussant and Organizer*]

International

- 1999 Role of Telemedicine in the Management of Acute Ischemic Stroke. Stroke Workshop.1999 Annual Meeting. American Academy of Neurology, Toronto, Canada.[*Invited Lecture*].
- 2001 Acute Stroke Management. 3-day conference/tutorial in stroke care.Remote Videoconferencing Project. King Faisal Specialist Hospital, Jeddah, SA[*Telemedicine Seminar*]
- 2005 Moving from Feasibility to Clinical Practice: TeleStroke supports a Statewide Stroke Center System. European Stroke Conference, Bologna, Italy[*Invited Lecture*]
- 2005 TeleStroke Experience in the USA. Telemedicine Symposium of the TEMPiS Network, Bavaria, Germany[*Invited Telemedicine Lecture*]
- 2007 Feasibility of TeleStroke to Increase Access to Specialty Care: Implications for Ireland. Annual Conference of Neurology Trainees across Ireland.[*Invited Telemedicine Lecture*]
- 2007 Feasibility of TeleStroke to Increase Access to Specialty Care: Implications for International Health. Delegation from the Libyan Ministry of Health, Boston, MA.[*Invited Lecture*]
- 2008 Acute Stroke Care and the role of TeleStroke. King Edward VII Memorial Hospital. Bermuda Hospitals Board. Bermuda[*Invited Telemedicine Lecture*]
- 2008 Stroke Prevention in the Community: Recognizing risk factors and warning signs. King Edward VII Memorial Hospital. Bermuda Hospitals Board. Bermuda[*Invited Telemedicine Lecture*]

- 2009 Stroke Prevention in the Community: Risk Factor Control. King Edward VII Memorial Hospital. Bermuda Hospitals Board. Bermuda [*Invited Telemedicine Lecture*]
- 2009 The initial workup of acute ischemic stroke: in-hospital diagnosis and treatment. King Edward VII Memorial Hospital. Bermuda Hospitals Board. Bermuda [*Invited Telemedicine Lecture*]
- 2009 Acute Stroke: IV tPA Beyond 3 hrs. King Edward VII Memorial Hospital. Bermuda Hospitals Board. Bermuda [*Invited Telemedicine Lecture*]
- 2010 Neurology Skills Pavilion: Acute Stroke Alert. Telestroke for acute stroke care: a hands on workshop. American Academy of Neurology Annual Meeting, Toronto CA.
- 2010 Design and validation of a dysphagia screening tool in acute stroke care: The MGH experience. King Edward VII Memorial Hospital. Bermuda Hospitals Board. Bermuda [*Invited Telemedicine Lecture*]
- 2010 Expanding the role of telemedicine-enabled care: Implementing remote care centers in Singapore and East Asia. National Delegation from the Singapore Ministry of Health and Healthcare Delegation led by SPRING Singapore, statutory board of Ministry of Trade and Industry. Boston MA [*Invited Presentation*]
- 2011 Telestroke: Implications for health information systems. National Delegation from Hamad Medical Center Leadership, State of Qatar Health Ministry, MGH, Boston MA. [*Invited Presentation*]
- 2012 It's Getting Better all the Time: The Use of Disease-Focused Registries to Improve the Delivery of Care to Patients Hospitalized with Stroke. Annual Royal College Lecture. Silversides Visiting Professor. Toronto, Canada. [*Invited Presentation*]
- 2012 Master and Commander: Navigating the High Seas of Acute Stroke Care. Krembil Neuroscience rounds. Toronto Western Hospital. Silversides Visiting Professor. Toronto, Canada. [*Invited Presentation*]
- 2013 Stroke Telemedicine: Expanding the Frontier of Stroke Systems of Care. Simposio Internacional de Atualizaçao em Neurologia Vasculuar. Hospital Moinhos De Vento, Instituto de Educaçao e Pesquisa. Teleconference to Brazil. [*Invited Telemedicine Lecture*]
- 2013 Telestroke for Acute Stroke Care in Under-resourced Environments .University College of London (UCL) Partners, London, England. [*Invited Presentation*]
- 2014 Stroke Telemedicine: Expanding the Frontier of Stroke Systems of Care. Simposio Internacional de Atualizaçao em Neurologia Vasculuar. Hospital Moinhos De Vento, Instituto de Educaçao e Pesquisa. Teleconference to Brazil. [*Invited Telemedicine Lecture*]
- 2014 Translating Evidence into Practice: Leveraging Technology and Policy to Improve Stroke Care Delivery in the US. Semester Lecturer, Charite Hospital, Berlin. [*Invited Speaker*]
- 2014 Nothing Else Matters: Improving Treatment Delivery. Thrombolysis in the USA in GWTG-

Stroke: The Target Stroke Campaigns. The Third TTST – Thrombolysis, Thrombectomy and Acute Stroke Treatment Symposium. Mannheim, Germany. *[Invited Speaker]*

2014 “If You Build it, They will Come” Lessons Learned from Telestroke Experiences. Telemedicine and Teleneurology Session. World Stroke Conference. Istanbul, Turkey *[Invited Speaker]*

3. Description of Teaching Award(s) Received

1999 Excellence in Workshop Leadership Teaching Award
Primary Care Internal Medicine Principles & Practice Conference, Boston, MA

2000 Excellence in Workshop Leadership Teaching Award
Primary Care Internal Medicine Principles & Practice Conference, Boston, MA

4. Description of major curriculum offerings, teaching cases or innovative educational programs

1997 Innovative Educational Program
PI/Inventor. TeleStroke Program using case-based teaching of community ED physicians in actual patients as well as a monthly live CME program offered since 2006 in acute stroke management.

1998-2007 Innovative Educational Program
PI/Inventor-WEBMED. "Web-enabled bi-directional medical education device," an innovative neurology teaching program with multi-media content for neurology via a PDA and intranet. This project was an early pilot in collaboration with John Halamka in the use of PDAs in medical education at HMS.

2000-2002 Innovative Educational Program
PI/Inventor-WEBTHINNER: Web-based method for initiating anti-coagulation in acute care setting and the STAT (Safe Transitions in Anticoagulation Therapy) pathway for transition to early outpatient discharge. This program helped revolutionize how anticoagulation management at MGH was delivered.

2000- Innovative Educational Program
Creator- <http://www.acutestroke.com> a multimedia website featuring stroke provider and public education, provider tools and decision support for acute stroke and neurocritical care

2002- Innovative Educational Program
Creator- <http://www.telestrokecenter.com> a multimedia website that supports our multi-state TeleStroke 17 hospital network

2006-2008 Innovative Educational Program
Creator – The Patient-Specific Quality Dashboard, an online tool integrated with computerized physician order entry to assess adherence to 10 quality indicators in real-time and act to increase likelihood of adherence to secondary prevention at hospital discharge

E. Report of Clinical Activities

Clinical Practice: My primary areas of expertise are in cerebrovascular disease, neurocritical care and applied technology in healthcare.

As one of 8 full-time staff neurointensivists who attend regularly in the NeuroCritical Care Unit, I spend my time caring for patients with all types of acute brain or spinal cord injury due to traumatic, vascular, metabolic, infectious, epileptic or other causes. This includes direct clinical supervision of 8-12 neurocritical care or vascular neurology clinical fellows and 1-4 neurology house officers 6-8 weeks per year, including performance of typical invasive procedures (e.g., central venous or pulmonary artery catheterization, intubation, bronchoscopy, lumbar puncture) as well as transcranial Doppler ultrasound. I am consulted frequently regarding management and diagnosis of neurological syndromes across the hospital. As an attending on the inpatient Neurology Service, I also care for a broad array of patients with less immediately life-threatening forms of injury to the nervous system 2-4 weeks per year, supervising 4-8 neurology house officers and medical students.

As Director of MGH Stroke Services, I supervise a clinical team of 14 acute stroke trained staff members, and provide back-up on-call attending coverage and periodic weekend coverage for acute stroke care within the hospital and across our telestroke network. This involves the emergency management of patients with ischemic and hemorrhagic stroke, and patients with cardiac arrest with neurologic impairment. This management includes administration of intravenous thrombolytics, selection of patients for catheter-based reperfusion, and interpretation of advanced CT and MR imaging. As Director of the MGH and Partners TeleStroke Center, I supervise an expanded team of physicians in the performance of TeleStroke consultations at 30+referring hospitals in New England: i.e., acute stroke consultation using videoconferencing for patient examination and history, and remote review of brain imaging to determine eligibility for thrombolysis or clinical trials.

As an attending in the Stroke Service and Outpatient Neurology Unit, I supervise neurology house officers; see patients one-half day per week with a concentration in cerebrovascular disease, and as requested by colleagues.

Patient Load: 40-50/week inpatient, High Complexity; 6-8/week outpatient Moderate to High Complexity
Clinical Contributions: Through my work with applied technology in healthcare, I have introduced several new methods of diagnosis, care delivery and quality improvement to the field of stroke neurology. I have been a pioneer in the field of telemedicine for acute stroke care, and my model of care delivery has been emulated across the US and Europe. My development and implementation of a web-based tool for initiating low molecular weight heparin and individualized loading of warfarin has won awards for innovation and catalyzed a change in the MGH practice of anticoagulation management. Other Relevant Information: I have been the recipient of several awards for innovation in clinical care and teaching. My leadership role as a teacher has been recognized with induction as a Scholar in the Academy at HMS.

Original Articles

1. Schwamm LH, Van Dyke C, Kiernan RJ, Merrin EL, Mueller J. The Neurobehavioral Cognitive Status Examination: comparison with the Cognitive Capacity Screening Examination and the Mini-Mental State Examination in a neurosurgical population. *Ann Intern Med.* 1987;107(4):486-91.
2. Sorensen AG, Buonanno FS, Gonzalez RG, Schwamm LH, Lev MH, Huang-Hellinger FR, Reese TG, Weisskoff RM, Davis TL, Suwanwela N, Can U, Moreira JA, Copen WA, Look RB, Finklestein SP, Rosen BR, Koroshetz WJ. Hyperacute stroke: evaluation with combined multisection diffusion-weighted and hemodynamically weighted echo-planar MR imaging. *Radiology.* 1996;199(2):391-401.
3. Rordorf G, Cramer SC, Efird JT, Schwamm LH, Buonanno F, Koroshetz WJ. Pharmacological elevation of blood pressure in acute stroke. Clinical effects and safety. *Stroke.* 1997;28(11):2133-8.
4. Hunter GJ, Hamberg LM, Ponzio JA, Huang-Hellinger FR, Morris PP, Rabinov J, Farkas J, Lev MH, Schaefer PW, Ogilvy CS, Schwamm L, Buonanno FS, Koroshetz WJ, Wolf GL, González RG. Assessment of cerebral perfusion and arterial anatomy in hyperacute stroke with three-dimensional functional CT: early clinical results. *AJNR Am J Neuroradiol.* 1998;19(1):29-37.
5. Manno EM, Gress DR, Schwamm LH, Diringer MN, Ogilvy CS. Effects of induced hypertension on transcranial Doppler ultrasound velocities in patients after subarachnoid hemorrhage. *Stroke.* 1998;29(2):422-8.
6. Rordorf G, Koroshetz WJ, Copen WA, Cramer SC, Schaefer PW, Budzik RF, Schwamm LH, Buonanno F, Sorensen AG, Gonzalez G. Regional ischemia and ischemic injury in patients with acute middle cerebral artery stroke as defined by early diffusion-weighted and perfusion-weighted MRI. *Stroke.* 1998;29(5):939-43.
7. Cramer SC, Rordorf G, Kaufman JA, Buonanno F, Koroshetz WJ, Schwamm L. Clinically occult pelvic-vein thrombosis in cryptogenic stroke. *Lancet.* 1998;351(9120):1927-8.
8. Polidori MC, Frei B, Cherubini A, Nelles G, Rordorf G, Keaney JF, Schwamm L, Mecocci P, Koroshetz WJ, Beal MF. Increased plasma levels of lipid hydroperoxides in patients with ischemic stroke. *Free Radic Biol Med.* 1998;25(4-5):561-7.
9. Schwamm LH, Koroshetz WJ, Sorensen AG, Wang B, Copen WA, Budzik R, Rordorf G, Buonanno FS, Schaefer PW, Gonzalez RG. Time course of lesion development in patients with acute stroke: serial diffusion- and hemodynamic-weighted magnetic resonance imaging. *Stroke.* 1998;29(11):2268-76.
10. González RG, Schaefer PW, Buonanno FS, Schwamm LH, Budzik RF, Rordorf G, Wang B, Sorensen AG, Koroshetz WJ. Diffusion-weighted MR imaging: diagnostic accuracy in patients imaged within 6 hours of stroke symptom onset. *Radiology.* 1999;210(1):155-62.
11. Sorensen AG, Copen WA, Ostergaard L, Buonanno FS, Gonzalez RG, Rordorf G, Rosen BR, Schwamm LH, Weisskoff RM, Koroshetz WJ. Hyperacute stroke: simultaneous measurement of relative cerebral blood volume, relative cerebral blood flow, and mean tissue transit time. *Radiology.* 1999;210(2):519-27.
12. Rordorf G, Koroshetz WJ, Copen WA, Gonzalez G, Yamada K, Schaefer PW, Schwamm LH, Ogilvy CS, Sorensen AG. Diffusion- and perfusion-weighted imaging in vasospasm after subarachnoid hemorrhage. *Stroke.* 1999;30(3):599-605.
13. Ay H, Buonanno FS, Rordorf G, Schaefer PW, Schwamm LH, Wu O, Gonzalez RG, Yamada K, Sorensen GA, Koroshetz WJ. Normal diffusion-weighted MRI during stroke-like deficits. *Neurology.* 1999;52(9):1784-92.
14. Shafqat S, Kvedar JC, Guani MM, Chang Y, Schwamm LH. Role for telemedicine in acute stroke. Feasibility and reliability of remote administration of the NIH stroke scale. *Stroke.* 1999;30(10):2141-5.
15. Ay H, Oliveira-Filho J, Buonanno FS, Ezzeddine M, Schaefer PW, Rordorf G, Schwamm LH, Gonzalez RG, Koroshetz WJ. Diffusion-weighted imaging identifies a subset of lacunar infarction associated with embolic source. *Stroke.* 1999;30(12):2644-50.
16. Lev MH, Farkas J, Rodriguez VR, Schwamm LH, Hunter GJ, Putnam CM, Rordorf GA, Buonanno FS, Budzik R, Koroshetz WJ, Gonzalez RG. CT angiography in the rapid triage of patients with hyperacute

- stroke to intraarterial thrombolysis: accuracy in the detection of large vessel thrombus. *J Comput Assist Tomogr.* 2001;25(4):520-8.
17. Wu O, Koroshetz WJ, Ostergaard L, Buonanno FS, Copen WA, Gonzalez RG, Rordorf G, Rosen BR, **Schwamm** LH, Weisskoff RM, Sorensen AG. Predicting tissue outcome in acute human cerebral ischemia using combined diffusion- and perfusion-weighted MR imaging. *Stroke.* 2001;32(4):933-42.
 18. Oliveira-Filho J, Ezzeddine MA, Segal AZ, Buonanno FS, Chang Y, Ogilvy CS, Rordorf G, **Schwamm** LH, Koroshetz WJ, McDonald CT. Fever in subarachnoid hemorrhage: relationship to vasospasm and outcome. *Neurology.* 2001;56(10):1299-304.
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