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Place of Birth: Boston, MA

Education

1981	BA (6 yr combined BA/MD program) magna cum laude		Boston University
1981	MD Alpha Omega Alpha		Boston University
2004	Clinical Effectiveness Program		Harvard School of Public Health
2004	Leadership Program for Physicians and Scientists		Harvard Medical School
2005	MPH	Clinical Effectiveness	Harvard School of Public Health

Postdoctoral Training

06/81-06/82	Intern	Pediatrics	Massachusetts General Hospital
07/82-06/84	Resident	Pediatrics	Massachusetts General Hospital
01/86-12/88	Resident	Anesthesia	Massachusetts General Hospital
02/88-9/88	Clinical Fellow	Pediatrics	Massachusetts General Hospital

Faculty Academic Appointments

1984-1985	Instructor	Pediatrics	University of Oklahoma Children's Hospital, University of Oklahoma
1986-1988	Clinical Fellow	Anesthesia	Massachusetts General Hospital, Harvard Medical School
1988-1989	Instructor	Anaesthesia	Boston Children's Hospital, Harvard Medical School
1989-1995	Instructor	Anaesthesia (Pediatrics)	Boston Children's Hospital, Harvard Medical School
1995-2001	Clinical Instructor	Anaesthesia (Pediatrics)	Boston Children's Hospital, Harvard Medical School
2001-2011	Assistant Professor	Anaesthesia	Boston Children's Hospital, Harvard Medical School, MA
2011-	Associate Professor	Anaesthesia	Boston Children's Hospital, Harvard Medical School, MA

Appointments at Hospitals/Affiliated Institutions

06/84-12/86	Attending Pediatrician	Brigham and Women's Hospital
06/84-12/86	Attending Pediatrician	Beth Israel Hospital
06/84-12/86	Attending Pediatrician	Milton Hospital
06/84-12/86	Attending Pediatrician	Massachusetts General Hospital
08/84-07/85	Instructor in Pediatrics	University of Oklahoma's Children's Hospital, OKC, Oklahoma
12/88-12/98	Associate in Anesthesia	Boston Children's Hospital
01/99-	Senior Associate in Anesthesia	Boston Children's Hospital
01/08-	Neonatal Intensive Care Privileges	Brigham and Women's Hospital, Boston

Other Professional Positions

07/84-09/84	Private Practice Pediatrician	Milton Pediatrics, Milton, MA
08/84-07/85	Acting Chief of Outpatient Pediatric Clinic	Children's Hospital, OKC, Oklahoma
08/85-12/85	Private Practice Pediatrician	Milton Pediatrics, Milton, MA

Major Administrative Leadership Positions

Local

08/84-07/85	Acting Chief of Outpatient Pediatric Clinic	University of Oklahoma Children's Hospital, OKC, Oklahoma
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08/84-07/85	Course Director: Pediatrics for Physician Assistants	University of Oklahoma Children's Hospital, OKC, Oklahoma
1988-	Infection Control Liaison from Department of Anesthesia to Hospital Infection Control Department	Boston Children's Hospital
2006-	Chief of Spinal Surgery Anesthesia	Boston Children's Hospital
2006-12	Member of the "Hot Topics in Anesthesia",	Boston Children's Hospital
2006-12	Assistant to Director for Mentoring Junior Faculty	Boston Children's Hospital
2009-11	Supervisor of the Clinical Nurse Researchers for the Department of Anesthesia	Boston Children's Hospital

National and International

2008	Vice Chair for the Society of Pediatric Anesthesia Meeting 2009	Winter Meeting in Jacksonville, Florida
2008-	Health Technology Assessment (appointment to the Trial Steering Committee for General Anesthesia vs Spinal (GAS) project)	United Kingdom
2009	Vice Chair for the Society of Pediatric Anesthesia Meeting 2010	Winter Meeting in San Antonio, TX
2010	Chair for the Society of Pediatric Anesthesia Meeting 2011	Winter Meeting in San Diego, Ca
2012	Chair for Practical Aspects of Pediatric Anesthesiology, Critical Care and Pain Medicine review course	Harvard Medical School Boston, Ma
2012-2016	Board Member Society for Pediatric Anesthesia	Society for Pediatric Anesthesia Richmond, Virginia
2014	Chair for Practical Aspects of Pediatric Anesthesiology, Critical Care and Pain	Harvard Medical School Boston, Ma
2015	CoChair for Practical Aspects of Pediatric Anesthesiology, Critical Care and Pain Medicine review course	Harvard Medical School Boston, Ma
2016	CoChair for Practical Aspects of Pediatric Anesthesiology, Critical Care and Pain Medicine review course	Harvard Medical School Boston, Ma

Committee Service

Local

1988-1992	Needlestick Committee	Boston Children's Hospital, Member
2003-2010	Joint Committee on the Status of Women	Harvard Medical School and Harvard School of Dental Medicine Member
2003-2010	Subcommittee for Flexible Career Options and Maternity Leave	JCSW, HMS and HSDM Co-chairperson
2007-2010	Subcommittee on Dean's Award	JCSW, HMS and HSDM Member
2004-	Physician Leadership Council	Member
2005-2006	Center of Excellence in Women's Health; Subcommittee on Flexible Work Options	Harvard Medical School, Member
2005-2007	Operating Room Infection Control and Safety Committee	Boston Children's Hospital, Member
2007-	Program in Patient Safety and Quality-Surgery	Boston Children's Hospital, Member
2007-	Program in Patient Safety and Quality-Anesthesia	Boston Children's Hospital, Member
2007-2008	Anesthesia Hand Hygiene Committee	Boston Children's Hospital, Chairperson
2009-	Anesthesia Research Unit Committee	Physician Member
2010	Anesthesia Scientific Research Review Committee	Member
2010	Focus group on career flexibility at HMS	Harvard Medical School, Invited Member
2011-2012	Catalyst focus group on ADHD	Harvard Medical School, Invited Member
2013-2015	Standardized Clinical Assessment and Management Plans (SCAMPS) Group	Boston Children's Hospital, Member
2013-	Physician's Organization Benefits Committee	Boston Children's Hospital, Member

2015-	Physician's Organization Congress Subgroup	Boston Children's Hospital, Member
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National and International

2006-2007	Surgical Infection Prevention Collaborative	Boston Children's Hospital and Child Health Corporation of America Member
2007-	Task Force on Epidemiologic Studies of Neurotoxicity	Federal Drug Administration, Member
2008-	Health Technology Assessment appointment to the Trial Steering Committee for GAS project	United Kingdom, Member
2010	First Symposium on Anesthesia and Neurodevelopment in Children	Columbia Medical School, NYC, Speaker and member
2011	Second Symposium on Anesthesia and Neurodevelopment in Children	Columbia Medical School, NYC, Speaker and member
2012	Third Symposium on Anesthesia and Neurodevelopment in Children	Columbia Medical School, NYC, Speaker and member
2012	SmartTots Workshop	FDA White Oak Campus. Washington DC,
2013	SmartTots/ International Anesthetic Research Society (IARS)committee meeting	San Diego, CA, Participant
2014	SmartTots/IARS committee meeting	Montreal, Canada, Participant
2014	Fourth Symposium on Anesthesia and Neurodevelopment in Children	Columbia Medical School, NYC, Speaker and member
2015	SmartTots/IARS committee meeting	Honolulu, HI, Participant
2016	SmartTots/IARS committee meeting	San Francisco, California, Participant
2016	Fourth Symposium on Anesthesia and Neurodevelopment in Children	Columbia Medical School, NYC, Speaker and member
2016-	FDA Anesthetic and Analgesic Drug Products Advisory Committee (AADPAC)	Member/Special Government Employee, Acting Chairperson
2017	Fifth Symposium on Anesthesia and Neurodevelopment in Children	Columbia Medical School, NYC, member
2017	SmartTots/IARS committee meeting	Boston, MA, participant

2018	Sixth Symposium on Anesthesia and Neurodevelopment in Children	Columbia Medical School and SmartTots, NYC, Speaker and member
2018	SmartTots/IARS committee meeting	San Francisco, California, Participant

Professional Societies

1998-	Society for Pediatric Anesthesia	Member
	2003-present	Member, Education Committee
	2008	Vice Chair, Winter Meeting
	2009	Vice Chair, Winter Meeting
	2010	Chair, Winter Meeting
	2012-	Board Member
1998-	American Academy of Pediatrics	Member
2003-	American Society for Anesthesiology	Member and Committee Assignments
	2003-2005	Member, Subcommittee for Pediatrics
	2003-	Member, Infection Control Task Force
	2006-2008	Member, Subcommittee for Pediatrics
	2008-2010	Member, Occupational Health Committee
	2008-2009	Member, Pediatric Anesthesia Committee
	2011-	Member, Educational Track Subcommittee on Pediatric Anesthesia
	2011-	Member, ASA Abstract Review Subcommittee on Pediatric Anesthesia
	2014-	Vice Chair, Educational Track Subcommittee on Pediatric Anesthesia
	2016-	Chair, Educational Track Subcommittee on Pediatric Anesthesia

Grant Review Activities

2014-	Trailblazer Grant Review Committee	Permanent Member, Boton Children's Hospital
2017-	Translational Research in Pediatric and Obstetric Pharmacology and Therapeutics Study Section	NIH, NIHCHD Ad hoc member
2017-	Outcome Measures for Use in Treatment Trials for Individuals with Intellectual and Developmental Disabilities Study Section	NIH, NICHD, NIDCD Ad hoc member

Editorial Activities

Ad hoc Reviewer

Anesthesiology
Anesthesia and Analgesia

Journal of Neurosurgical Anesthesiology
Journal of Pediatrics
Acta Anaesthesiologica Scandinavica
Pediatrics
Journal of Clinical Anesthesia
Paediatric Anesthesia
British Journal of Anesthesia

Associate Editor

Paediatric Anaesthesia 2019-

Honors and Prizes

1980	Alpha Omega Alpha	Boston University School of Medicine, Boston Children's Hospital
2006	Smith Award	Department of Anesthesiology, Perioperative and Pain Medicine, Boston Children's Hospital

Report of Funded and Unfunded Projects

Funding Information

Past

2003-2006	Does Acupressure Reduce Bispectral Index Values and Stress in Adolescents? Society for Education in Anesthesia, Protocol 03-05-077 PI The objective of this study is to determine effect of pressure application on the acupuncture point "extra 1" on the bispectral index values and on stress in adolescents undergoing acupuncture for chronic pain syndromes.
2005	Does Anesthesia Harm the Developing Brain? Robert M. Smith Award, Boston Children's Hospital PI The specific aim of this longitudinal study is to determine whether human infants exposed to general anesthesia before the age of 20 weeks are at increased risk for developing neurocognitive-deficits. This study has evolved into the GAS study.
2007	A Study to Evaluate the Correlation of the Sedline PSI with the Endtidal Sevoflurane Concentration in a Pediatric Population. Hospira Company, CP-09-008, Protocol 07-10-0396 Co-PI The objective of this study was to evaluate the correlation of BIS and the Sedline PSI monitor in children undergoing cardiac catheterizations. The sevoflurane concentrations were to be altered in a stepwise fashion. This study was terminated before enrollment by the company.
2007	A Sedline and BIS Data Collection Study in a Pediatric Population Hospira Company, CP-09-007, Protocol 07-07-0298

Co-PI

This study was terminated after we enrolled 4 patients because the company decided to end pediatric anesthesia research. The objective of this study was to compare the cerebral function monitor, the sedline PSI with the cerebral function monitor BIS.

Past

2008-2011

Assessment of the Long-term Neurodevelopmental Outcomes in Pediatric Administered Regional and General Anesthesia as Neonates or Infants
Federal Drug Administration, FDA-SOL-08-SAFEKIDS-Clin 002-Project 2
PI (\$657,000)

This is the title of the American arm of the GAS trial, a multinational RCT enrolling 660 infants undergoing either a regional or general anesthesia and evaluating the enrollees at age 2 and 5 for neurodevelopmental outcomes. The secondary outcome measure of this trial is apnea. This grant is for trial infrastructure.

2010-2015

Effects of general vs regional anesthesia on infant neurodevelopment and apnea
Co-Principal investigators: David Bellinger, PI, Mary Ellen McCann, Co-PI.
1-R01 HD06 1136-01A1 Grant Award \$2,421,699 for 2010-2015

The goal of this trial, the GAS trial, a multinational RCT enrolling 660 infants undergoing either a regional or general anesthesia and evaluating the enrollees at age 2 and 5 to determine whether general anesthesia affects neurodevelopmental outcomes. The secondary outcome measure of this trial is apnea.

2013

Efficacy, safety and population pharmacokinetic profile of Tranexamic acid in reducing blood loss in pediatric idiopathic scoliosis surgery: A randomized double-blind placebo-controlled trial. Scoliosis Research Society Stacy Lewis Award Grant for 2 years \$50,000.
PI: Susan Goobie, MD, CoI Mary Ellen McCann

Current

2014

The GAS Trial, May Day Fund, Grant Award \$25,000-bridge funding

2015-2018

Neurologic and Neurocognitive Outcomes after Infant Anesthesia Co-Principal investigators: David Bellinger, PI, Mary Ellen McCann, Co-PI.
1R01HD081303-01 Grant Award \$ 581,000 for 2015-2018 NCE 2019

2015-2019

Neurocognitive outcomes 5 years after infant anesthesia: The GAS Trial. Thrasher Foundation Grant award \$361,000 NCE 2019

Current Unfunded Projects

2005

Anesthesia complications and implications of growing rods and VEPTR devices
This is review of the anesthetic experience of children undergoing repetitive Vertebral Expansion Prosthetic Titanium Rib device insertion for congenital scoliosis and thoracic insufficiency syndromes. PI Mary Ellen McCann

2012

A pilot study of effects of general anesthesia on the infant EEG. Charles Berde, PI, CoI Mary Ellen McCann

- 2013- Intraoperative incidence and duration of neurodevelopmentally significant physiologic changes in neonates and infants. Raymond Park, PI Mary Ellen McCann CoI I am mentoring Dr Park on outcomes research in infants undergoing general anesthetics
- 2013 Pediatric Blood Pressure in anesthetized children. Raymond Park, PI, Mary Ellen McCann CoI, I am mentoring Dr Park on outcomes research in children undergoing general anesthetics
- 2015 An open label pilot study of dexmedetomidine remifentanil caudal anesthetic for infant lower abdominal/lower extremity surgery: the T REX Pilot study. Mary Ellen McCann, PI

Report of Local Teaching and Training

Teaching of Students in Courses

Pediatrics for Physician Assistants Physician Assistant Students	University of Oklahoma 12 one hour lectures on general pediatrics
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Formal Teaching of Residents, Clinical Fellows and Research Fellows (post-docs)

- 1991-2000 Postoperative Nausea and Vomiting core lecture given every 3 months to clinical fellows, rotating pediatric anesthesia residents to Boston Children's Hospital
- 2000- Premedication core lecture given every 3 months to clinical fellows, rotating pediatric anesthesia residents to Boston Children's Hospital

Clinical Supervisory and Training Responsibilities

- 1988-2003 Advisor to 3-4 Pediatric Anesthesia Residents/year
Responsible for meeting with them at least twice/rotation about their evaluations.
- 1988 Clinically work 3 days/week and directly supervise 1-4 anesthesia residents, nurse anesthetists, nurse anesthetist students, pediatric ICU fellows, anesthesia fellows, and/or transport nurses in the conduct of pediatric anesthesia for approximately 8-10 hours/day.

Formally Supervised Trainees

- 2001-2002 David Hill, MBBS, Attending, Royal Children's Hospital, Herston, Australia
Mentored David Hill in his fellow's project about the vasotrac device which was published in Anesthesia and Analgesia.
- 2004-2005 Kelly Groeper, MD, Attending. Washington University, St. Louis, Missouri
Mentored Kelly Groeper in her fellow's project about the acid base imbalances in patient's receiving toperimate therapy which was published in Pediatric Anesthesia.
- 2005 Nicole Dobija, MD, Attending, Congenital Heart Center, College of Medicine, Health Science Center, Gainesville, FL

	Mentored Nicole Dobija in her fellow's project about the anesthetic complications and implications of the VEPTR device.
2008-2009	Ami Kuisle, MD, Attending, Denver, CO Mentored Ami Kuisle in her fellow's project: Postoperative Adrenal Crisis in an adolescent with Loeys Dietz Syndrome.
2008-2009	Stephanie Gauguet, MD, Pediatric Anesthesia Fellow, Boston Children's Hospital Mentored Stephanie Gauguet in writing case report on Loeys Dietz Syndrome
2010	Rahul Koka, MD Pediatric Anesthesia Fellow, Boston Children's Hospital Mentored Rahul in writing a case report and abstract on the anesthetic management of a child with hereditary xerocytosis
2014	Laura Cornelisson, Research Fellow in Anesthesia Project on Neonatal EEGs

Formal Teaching of Peers (e.g., CME and other continuing education courses)

1990	Fluids and Electrolytes CHB/MGH Biannual Pediatric Anesthesiology and Critical Care Medicine Conference (Harvard Medical School)	Single presentation and panel discussion Boston
1992	Premedication CHB/MGH Biannual Pediatric Anesthesiology and Critical Care Medicine Conference (Harvard Medical School)	Single presentation and panel discussion Boston
1994	Premedication CHB/MGH Biannual Pediatric Anesthesiology and Critical Care Medicine Conference (Harvard Medical School)	Single presentation and panel discussion Boston
1996	Postoperative Nausea and Vomiting CHB/MGH Biannual Pediatric Anesthesiology and Critical Care Medicine Conference (Harvard Medical School)	Single presentation and panel discussion Boston
1998	Postoperative Nausea and Vomiting CHB/MGH Biannual Pediatric Anesthesiology and Critical Care Medicine Conference (Harvard Medical School)	Single presentation and panel discussion Boston
2000	Premedication in Children CHB/MGH Biannual Pediatric Anesthesiology and Critical Care Medicine Conference (Harvard Medical School)	Single presentation and panel discussion
2002	The Anxious Child and Anesthesia CHB/MGH Biannual Pediatric Anesthesiology and Critical Care Medicine Conference (Harvard Medical School)	Single presentation and panel discussion Boston

2004	School) The Approach to the Anxious Child and Parents CHB/MGH Biannual Pediatric Anesthesiology and Critical Care Medicine Conference (Harvard Medical School)	Single presentation and panel discussion
2006	Awareness Under Anesthesia CHB/MGH Biannual Pediatric Anesthesiology and Critical Care Medicine Conference (Harvard Medical School)	Single presentation and panel discussion Boston
2008	Neurotoxicity of General Anesthesia in Infants CHB/CHOP 2 nd Annual Pediatric Anesthesiology and Critical Care Medicine Conference (Children's Hospital Boston and Children's Hospital of Philadelphia)	Single presentation and panel discussion Boston
2010	SAFEKIDS Update: Anesthetic-Induced Neurotoxicity CHB/CHOP 4th Annual Pediatric Anesthesiology and Critical Care Medicine Conference (Children's Hospital Boston and Children's Hospital of Philadelphia)	Single Presentation Boston
2011	Does Anesthesia Affect the Developing Brain? A Hard Look at the Data Harvard Anesthesia Update: Innovation and Transformation in Anesthesiology	Single presentation and panel discussion Boston
2012	Chairperson Practical Aspects of Pediatric Anesthesiology, Critical Care and Pain Medicine Conference (Boston Children's Hospital)	Chairperson Boston
2012	Update on: Anesthetic induced Neurotoxicity Practical Aspects of Pediatric Anesthesiology, Critical Care and Pain Medicine Conference (Boston Children's Hospital)	Single presentation and panel discussion Boston
2014	Chairperson Practical Aspects of Pediatric Anesthesia and Critical Care Conference (Boston Children's Hospital)	Chairperson Boston
2014	Infantile Cerebral Encephalopathy Practical Aspects of Pediatric Anesthesiology, Critical Care and Pain Medicine Conference (Boston Children's Hospital)	Single presentation and panel discussion Boston

2015	Anesthetic Effects on Neurocognition, Practical Aspects of Pediatric Anesthesiology, Critical Care and Pain Medicine Conference (Boston Children's Hospital)	Single presentation and panel discussion Boston
2016	Optimizing Neonatal Physiology Practical Aspects of Pediatric Anesthesiology, Critical Care and Pain Medicine Conference (Boston Children's Hospital)	Single presentation and panel discussion Boston
2017	Anesthetic Effects on Neurocognition, Practical Aspects of Pediatric Anesthesiology, Critical Care and Pain Medicine Conference (Boston Children's Hospital)	Breakfast Panel and discussion, Boston
2018	Pediatric Anesthetic Neurologic Risks Practical Aspects of Pediatric Anesthesiology, Critical Care and Pain Medicine Conference (Boston Children's Hospital)	Single presentation and panel discussion Boston

Local Invited Presentations

2007	Does General Anesthesia Harm Young Infants? / Combined Surgical and Anesthesia Grand Rounds, Boston Children's Hospital	
2008	GAS Study and Neurotoxicity / Combined Pediatric Surgical and Anesthesia Grand Rounds, Massachusetts General Hospital, Boston	
2008	GAS study and Neurotoxicity / NICU nurses, Brigham and Women's Hospital, Boston	
2009	The GAS study-Are we poisoning babies / NICU Grand Rounds, BIDMC, Boston	
2009	Does General Anesthesia Harm Young Infants? Clinical Correlates / Combined Surgical and Anesthesia Grand Rounds, Boston Children's Hospital	
2009	Anesthetic Neurotoxicity / Combined Surgical and Anesthesia Grand Rounds, MEEI, Boston	
2010	The GAS study-Neurotoxicity in Infants / NICU Grand Rounds, BIDMC, Boston	
2011	Does Anesthesia Affect the Developing Brain? A Hard Look at the Data/ Anesthesia Grand Rounds, Boston Children's Hospital	
2012	Update on:Anesthesia Induced Neurotoxicity/Anesthesia Grand Rounds, NWH, Newton, MA	
2013	Anesthesia Neurotoxicity in Young Children: Interpreting Evolving Science, Exploring Preventative Strategies, Safe Practices Now and Talking with Parents/ Grand Rounds, Tufts New England Medical Center, Boston Children's Hospital	
2014	Anesthesia Toxicity in Young Children. Combined Surgical and Anesthesia Grand Rounds, Boston Children's Hospital	
2014	Anesthesia Toxicity in Young Children. Urology Grand Rounds, Boston Children's Hospital	
2015	Anesthesia Toxicity in Young Children. Combined Surgical and Anesthesia Grand Rounds, Boston Children's Hospital	
2016	Anesthesia Toxicity in Young Children. Combined Neonatal Research Grand Rounds, Beth Israel Deaconess Medical Center	

- 2016 Anesthesia Toxicity in Infants. Gastroenterologic Grand Rounds, Boston Children's Hospital
- 2017 Pediatric Neurotoxicity, BWH NBM Grand Rounds, BWH.

Report of Regional, National and International Invited Teaching and Presentations

Invited Presentations and Courses

National

- 1998 Pharmacokinetics of Lumbar Epidural Ropivacaine in Children and Adolescents
American Society of Anesthesia, Orlando, Florida [*Oral Poster and Slide Presentation, abstract*]
- 2004 Moderator for Oral Poster and Slide Discussion, Neurotoxicity, American Society of Anesthesiologists, San Francisco, California
- 2005 Moderator for Oral Poster and Slide Discussion, Pediatrics, American Society of Anesthesiologists, Atlanta, Georgia
- 2006 Surgical Infection Prevention Collaborative, Kansas City, Kansas, Child Health Corporation of America [*Poster and Slide Presentation*]
- 2006 Moderator for Oral Poster and Slide Discussion, Pediatrics, American Society of Anesthesiologists, Chicago, Illinois
- 2007 Symposium on Pediatric Anesthesia Toxicity, Washington DC, Federal Drug Administration [*Plenary Presentation*]
- 2007 Moderator for Oral Poster and Slide Discussion, Neurotoxicity, American Society of Anesthesiologists, San Francisco, California
- 2008 Pediatric Anesthesia-Induced Neurotoxicity (PAINS) Project, Columbia University, NY, FDA/Columbia University [*Invited Lecture*]
- 2008 Moderator for Oral Poster and Slide Discussion, Pediatric Anesthetic Techniques and the Developing Brain, American Society of Anesthesiologists, Orlando, Florida
- 2009 Moderator for Pulmonary Core Lecture series, Society for Pediatric Anesthesia 2009 winter meeting, Jacksonville, FL
- 2009 Lecturer for Pediatric Panel, "Pediatric Awareness under Anesthesia", American Society of Anesthesiologists, New Orleans, LA
- 2009 Lecture and Presentation, The GAS Project Update, SAFEKIDS Initiative, FDA, International Anesthesia Research Society, Silver Springs, MD
- 2010 Lecturer for Practical Pediatric Ambulatory Anesthesia, "Are we poisoning our patient's brains?", American Society of Anesthesiologists, San Diego
- 2011 Lecture to Surgeons, Neonatologists and Anesthesiologists, "Neurotoxicity and Anesthesia from Research to Clinical Practice", Dallas Children's Hospital, Dallas, Texas [*Visiting Professorship*]
- 2011 Lecture and Presentation, The GAS Project Update, SmartTots Initiative, FDA,

- International Anesthesia Research Society, Silver Springs, MD Webinar
- 2011 Lecturer for Infection Control Panel, "Educational Strategies for the Implementing Infection Control Practices", American Society of Anesthesiologists, Chicago [*Panel Discussion*]
- 2011 Lecture "Pediatric Awareness" VIII Annual Anesthesiology Convention Sociedad de Anestesiologos de Puerto Rico, San Juan, Puerto Rico
- 2011 Neonatal Anesthesia, Techniques, Perils and Pitfalls, Department of Anesthesia, Albany Medical Center [*Visiting Professorship*]
- 2011 General Anesthesia and Neonatal Neurotoxicity, New York State Society of Anesthesiologists, Desmond Hotel, Albany, New York.
- 2011 Lecture "Late Effects of Anesthesia in Infants" Hot Topics in Neonatology, Conference, Washington DC
- 2012 Update on: Anesthesia Induced Neurotoxicity, Department of Anesthesia, Seattle Children's Hospital [*Visiting Professorship*]
- 2012 Lecture "Anesthetic Neurotoxicity in Babies, Pediatric Ophthalmology Day at the American Academy of Ophthalmology Meeting, Chicago, Ill.
- 2013 David M Little MD Memorial Lecture: Anesthesia Neurotoxicity in Young Children: Interpreting Evolving Science, Exploring Preventative Strategies, Safe Practices Now and Talking with Parents; New England Society of Anesthesiologists Fall Meeting, Lenox, MA. (*Keynote Speaker*)
- 2014 Lecture "Neurotoxicity in Young Children", Department of Anesthesia, Maine Medical Center, Portland Maine
- 2014 Lecture "Neuroprotection and Anesthetic Techniques for Scoliosis Surgery", Society for Pediatric Anesthesia Winter Meeting, Fort Lauderdale, Florida.
- 2014 Lecture "Update on the Neurocognitive Effects of Anesthesia in Children", Keynote speaker for Pediatric Surgeon Study Group meeting, Boston, MA
- 2014 Lecture "Preliminary Results of the GAS study", Anesthesia and Neurodevelopment in Children Symposium, Columbia University, New York City, NY
- 2014 Lecture "Confounding Factors in Human Studies", ASA 2014 meeting, New Orleans, LA
- 2015 Refresher Course lecture "Common Neonatal Emergencies: You can never be better prepared. ASA 2015 meeting, San Diego, CA
- 2016 Lecture "Apnea and the Neonate" International Anesthetic Research Society(IARS) 2016 meeting San Francisco, CA
- 2016 Lecture "Pediatric Neurologic Risks: What Do the Data Show?" American College of Surgeons Annual Meeting, Washington DC
- 2017 Refresher Course Lecture "Common Neonatal Emergencies; You Never Be Better Prepared" ASA Annual Meeting, Chicago, Ill.
- 2017 Refresher Course Lecture "Common Neonatal Emergencies; You Never Be Better Prepared" ASA Annual Meeting, Boston, MA.
- 2018 Presentation Session SPE37 Initial Results of Major Trials-The GAS Trial. American Society of Anesthesiologists meeting San Francisco, CA
- 2018 Presentation Session SPE22 Featured Session-Anesthesia and the Developing Brain

International

- 2006 Presentation on multinational neurotoxicity project to Association of Paediatric Anaesthetists /

Seminar

- Cardiff, Wales (Association of Paediatric Anaesthetists)
- 2010 Presentation to international GAS collaborators on US involvement in GAS study, Glasgow, Scotland (Association of Paediatric Anaesthetists)
- 2010 Lecture, Experts for SARNePI, “Neurotoxicity and Anesthesia: from Research to Clinical”, 14th Congresso Nazionale, SARNePI, Genoa, Italy
- 2010 Lecture, Hot Topics in Anesthesia Pediatrica II, “Awareness in Pediatric Anesthesia”, 14th Congresso Nazionale, SARNePI, Genoa, Italy
- 2010 Lecture, “Neonatal Anesthesia”, NEONATAL UPDATE 2010, “*The science of newborn care*”, Imperial College, London, England
- 2012 Lecture, “Review from the Literature; Cerebral Damage after Surgery and Anesthesia in the Neonate”, Zomercongres Sectie Kinderanesthesiologie, Bergen, Netherlands
- 2012 Lecture, “Pediatric Anesthetic Induced Neurotoxicity and the GAS Study”, Utrecht Children’s Hospital, Utrecht, Netherlands [*Visiting Professorship*]
- 2014 Lecture, “The Importance of Hemodynamics and CO₂” Pediatric Anesthesia and Neurotoxicity, EuroSTAR-SmartTots Scientific Network Meeting, Genoa, Italy
- 2015 Scientific Abstract judge 42nd APA annual scientific meeting Aberdeen, Scotland
- 2016 Lecture, “Role of Intraoperative Blood Pressure and Neurocognitive Outcomes in Children” British Journal Anesthesia Neurotoxicity Seminar, London, England
- 2016 “Neonatal Anesthesia Impacts on Neurodevelopment” Keynote Lecture Canadian Pediatric Society meeting Charlottetown Prince Edward Island
- 2016 Lecture “Managing the Exprematuere Infant” World Congress of Anesthesiologists, Hong Kong, China
- 2016 Lecture “Tips for Safe Anesthesia in a Neonate” World Congress of Anesthesiologists, Hong Kong, China
- 2017 Lecture “Secondary outcomes from the GAS study”. The 2nd International Conference on Pediatric Neurotoxicity, Genoa, Italy
- 2018 Visiting Professor Lecture; “Pediatric Neurologic Anesthetic Risks”, Shanghai Medical College of Fudan University, Shanghai, China
- 2018 Lecture, “Pediatric Neurologic Anesthetic Risks”, Henan Provincial Peoples Hospital and Zhongyuan International Neuroscience in Anesthesiology Symposium, Zhengzhou, China.

Report of Clinical Activities and Innovations

Current Licensure and Certification

- 1982 National Board of Medical Examiners
- 1984 Massachusetts Registered Physician
- 1984 Oklahoma Registered Physician
- 1988 American Board of Pediatrics
- 1989 American Board of Anesthesiology
- 2005 Recertification American Board of Anesthesiology
- 2014 American Board of Pediatric Anesthesiology

Practice Activities

Preoperative Clinic at Boston Children's Hospital

Clinical Activity Description: As one of the few members of my department who completed a pediatric residency and practiced both academic and private practice pediatrics, I enjoy attending in

the Preoperative Clinic 1-2 days per week evaluating complex patients for surgery and teaching the anesthesia fellows about perioperative pediatric medicine. Patient Load: 30 patients/day

Chief of Pediatric Anesthesia for Scoliosis Surgery

Clinical Activity Description: I primarily manage anesthetics for pediatric patients undergoing complex scoliosis procedures or neonates requiring spinal anesthesia. Patient Load: 6/week; critical

Clinical Innovations

I help develop clinical protocols for the perioperative management of complex scoliosis disease and procedures including patients with meningomyeloceles and hydrocephalus. I also developed the Back Data Base with Dr. John Emans used by our department to track our anesthetic results for back surgery. I have developed strategies within our department to minimize the complications associated with motor evoked potential monitoring, and blood salvage during scoliosis surgery. I also developed the teaching module for infection control within our department. This includes a video as well as a net learning. My co-producer of the video Elizabeth Norton is negotiating with national hospital groups to market the video.

Report of Education of Patients and Service to the Community

Educational Material for Patients and the Lay Community

1. Could Anesthesia cause developmental disorders? Interview with Claudia Kalb Oct 21, 2008 Newsweek Interview
2. Calming children who are anxious about anesthesia
Q. Does it ease a child's anxiety to have a parent around before receiving general anesthesia?
Interview with Judy Foremann October 24, 2009, Healthsense, Boston Globe

Report of Scholarship

Publications

Peer reviewed publications in print or other media

1. Davidson AJ, **McCann ME**, Devavaram P, Auble SA, Sullivan LJ, Gillis JM, Laussen PC. The differences in the bispectral index between infants and children during emergence from anesthesia after circumcision surgery. *Anesth Analg.* 2001;93(2):326-30
2. **McCann ME**, Sethna NF, Mazoit JX, Sakamoto M, Rifai N, Hope T, Sullivan L, Auble SG, Berde CB. The pharmacokinetics of epidural ropivacaine in infants and young children. *Anesth Analg.* 2001;93(4):893-7.
3. **McCann ME**, Brustowicz RM, Bacsik J, Sullivan L, Auble SG, Laussen PC. The bispectral index and explicit recall during the intraoperative wake-up test for scoliosis surgery. *Anesth Analg.*

2002;94(6):1474-8, table of contents.

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5. **McCann ME**, Waters P, Goumnerova LC, Berde C. Self-mutilation in young children following brachial plexus birth injury. *Pain*. 2004;110(1-2):123-9.
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Narrative Report

My background and training in pediatrics, anesthesia and clinical effectiveness serves as a background for both my academic and clinical efforts to improve the care of pediatric patients. My interests in epidemiology and outcome research in patient safety led me with colleagues in the UK and Australia to develop the GAS project, a multinational RCT which compares the neurodevelopmental outcomes of 722 infants exposed to either a general or regional anesthetic for inguinal herniorrhaphies. There is compelling preclinical data that commonly used general anesthetics cause increased neuro-apoptosis in juvenile animals and some retrospective studies demonstrate that young children who have had several exposures to anesthesia have more school difficulties compared with non-exposed children. The GAS project is an NIH and FDA funded project that nationally involves 32 other academic centers, 10 centers in the USA for which I am directly responsible (BCH, CHOP, Dartmouth, Univ Iowa, Univ Seattle, Univ Vermont, Denver Children's H, Nashville Children's Hospital, Lurie Children's Hospital (Chicago)). There is great national and international interest in this topic and thus far I have been interviewed by Newsweek (2008) and Anesthesia News (2009) about this study and written several review articles on the topic of the potential neurotoxicity of general anesthesia and give many lectures internationally. The importance of this area of research is highlighted by the fact that in 2016 the FDA issued a safety warning about the dangers of general anesthesia use in young children and changed the labels on general anesthetics. The safety communication warned that "especially for procedures that may last longer than 3 hours" in part due to our initial findings of the GAS study at age 2 which found shorter to intermediate length general anesthetics did not affect the 2 year Bayley neurocognitive outcomes. The five year results which are being published in Lancet February 2019 support these findings.

However, the area of pediatric anesthesia that interests me the most is improving anesthesia for very young vulnerable infants. Several years ago, there was a premature infant who developed postoperative seizures after an apparently uneventful anesthetic for hernia surgery. A root cause analysis revealed that the infant had some hypotension as well as some mild hypocapnia during the procedure which may have led to the watershed ischemic lesions found on MRI after his seizures. I reached out to the international pediatric anesthesia community and developed a small case series of 6 very young infants who had postoperative seizures in the setting of mild to moderate intraoperative hypotension. Publishing this series was incredibly difficult (5 revisions) because there was disbelief in the pediatric anesthesia community that injury could possibly happen as a result of anesthetic practices that permitted hypotension during procedures. Since publishing that case series, I have spoken about the need for improved vigilance in maintaining normal physiologic parameters during anesthesia locally, nationally and internationally and manage to speak about this topic briefly even during talks not related. Several years ago, I was at a meeting in Aberdeen Scotland, when to my delight a professor from Switzerland highlighted my series of 6 infants as one of the papers that most changed pediatric practice that year. Subsequently, with the help of the pediatric anesthesia community, I was the chief editor and author of a text book devoted to the care of neonates and infants undergoing anesthesia.

Other roles that I have assumed are leadership positions as a board member for the Society for Pediatric Anesthesia for 4 years and was Chair and CoChair for their annual meeting for 3 years. In addition, I am presently the Chair of the Educational Track Subcommittee on Pediatric Anesthesia of the American Society of Anesthesiologists which is responsible for all the pediatric educational content for the annual meeting. I also was the Chair and CoChair for the annual review course “Principles of Pediatric Anesthesia and Critical” Car that Boston Children’s Anesthesia department runs for several years and managed to triple attendance of that meeting. I am also appointed as the American Society of Anesthesiologists liaison member to the Anesthesia and Analgesia Drug Products Advisory Committee and have served as Acting Chair of that committee. Locally my role as chief of pediatric anesthesia for spinal surgery has developed over the last 8 years. Spinal surgery is associated with a high incidence of morbidity and mortality compared with other types of pediatric surgery because of the nature of the procedures themselves and the high co-morbidities associated with childhood scoliosis. In order to improve patient care, I have developed with my orthopedic colleagues, clinical practice guidelines for patients with ventriculo-peritoneal shunts undergoing prolonged procedures and “Clinical Pearls” for our departmental website and written several review articles, original research, case reports and book chapters about neuromonitoring and scoliosis. I also serve on the PPSQ (Patient Program in Safety and Quality) at CHB to work with the orthopedic surgeons to improve outcomes of scoliosis surgery and finally have collaborated with my surgical colleagues to develop a “back database”.

My background as a pediatrician has helped me in my role as the primary infection control administrator for my department. My scoliosis and infection control interests were combined in my membership of the Surgical Infection Prevention Collaborative, a national effort to reduce surgical infections after spinal procedures. In addition, I was the pediatric anesthesia representative to the American Society of Anesthesiologists Infection Control Task Force and Occupational Safety Committee and have written the pediatric section of the 3rd Edition of the ASA Recommendations for Infection Control for the practice of Anesthesia. My role as infection control administrator expanded to a huge teaching commitment for our department. Educational materials that I have authored include a NETlearning, a 15 minute video, our departmental guidelines on infection control, and auditing tools.

Finally I have endeavored through my career to be role model especially for young female physicians trying to balance career and family. Through my work at the Joint Committee on the Status of Women, I have learned to be an effective counselor and mentor to young physicians starting their careers. I remember how difficult it was to be a dedicated clinical physician, mother and wife and junior clinical researcher and not being satisfied that I was fulfilling any of these roles well. As my children became more independent and I felt I had more time, I consciously decided that it was time for me to make a difference on my specialty and to give back to the pediatric anesthesia community that had been so supportive of me. If you look at my academic timeline the vast majority of my many national committee and board work, NIH and other grant funding, and leadership roles have been in the last 10 years.