

CURRICULUM VITAE FOR ACADEMIC PROMOTION

The Johns Hopkins University School of Medicine

SUJATHA KANNAN

(04/13/2012)

DEMOGRAPHIC AND PERSONAL INFORMATIONCurrent Appointments

Visiting Associate Professor
Anesthesiology and Critical Care Medicine 08/2011-----

Research Scientist
Hugo C Moser Research Institute
Kennedy Krieger Institute 08/2011-----

Personal Data

Pediatric Anesthesiology and Critical Care Medicine
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Education and Training (in chronological order):

7/89 - 3/95	MBBS/ Jawaharlal Institute of Post graduate Medical Education and Research, Pondicherry, India	Medicine
7/1/96-6/30/97	Internship University of South Dakota Sioux Falls, South Dakota	Transitional Year
7/1/97-6/30/98	Residency University of Illinois Chicago, Illinois	Pediatrics-PGYI
7/1/98-6/30/00	Residency Children's Hospital of Michigan Wayne State University, Detroit	Pediatrics
7/1/00-6/30/03	Fellowship Children's Hospital of Michigan Wayne State University, Detroit	Pediatric Critical Care Medicine

Professional Experience (in chronological order, earliest first)

9/1/03-7/31/10	Assistant Professor Pediatrics	Children's Hospital of Michigan Wayne State University, Detroit, MI
8/1/10-7/15/11	Associate Professor Pediatrics	Children's Hospital of Michigan Wayne State University, Detroit, MI
8/01/2011-----	Visiting Associate Professor	Johns Hopkins School of Medicine Anesthesiology and Critical Care Medicine
8/18/2011-----	Research Scientist	Hugo C. Moser Research Institute Kennedy Krieger Institute

RESEARCH ACTIVITIES**Publications: Peer-reviewed Original Science Research (*h-index* = 16)**

1. **Kannan S**, Meert K, Mooney J, Warriar I. Bleeding and Coagulation Changes During Spinal Fusion Surgery: A Comparison of Neuromuscular and Idiopathic Scoliosis Patients, *Pediatric Critical Care*, 2002; 3(4):364-9.
2. Meert K, **Kannan S**, Mooney J. Predictors of Red Cell Transfusion in Children and Adolescents undergoing Spinal Fusion Surgery, *Spine*, 2002;27(19):2137-42. Abstracted in the Year Book of Anesthesiology, 2004
3. Kohle P, Misra E, Kannan R, **Kannan S**, Lieh-Lai M. Drug Complexation, *in vitro* release and cellular entry of dendrimers and hyperbranched polymers, *International Journal of Pharmaceutics*, 2003; 259:143-160. (*All in vitro cell studies done by S. Kannan*) Cited 98 times.
4. **Kannan S**, Kohle P, Raykova V, Glibetic M, Kannan RM, Lieh-Lai M, Bassett D. Effect of dendrimer end functionality on the dynamics of cellular entry and drug delivery in lung epithelial cells, *Biomater. Sci. Polymer Edn*, 2004; 15(3):311-30. Cited 43 times.
5. Kolhe P, Khandare J, Kannan RM, Pillai O, **Kannan S**, Lieh-Lai M. Hyperbranched polymer-drug conjugates with high drug payload for enhanced cellular delivery, *Pharm. Res.* 2004; 21:2185-2195. (*All in vitro cell studies done by S. Kannan*)
6. Khandare J, Kolhe P, Pillai O, **Kannan S**, Lieh-Lai M, Kannan RM. Synthesis, cellular transport and activity of PAMAM dendrimer-methylprednisolone conjugates, *Bioconjugate Chem*, 2005; 16(2); 330-337. (*Responsible for all in vitro cell studies*). Cited 44 times.
7. Kolhe P, Khandare J, Pillai O, **Kannan S**, Lieh-Lai M, Kannan RM. Preparation, cellular transport, and activity of polyamidoamine-based dendritic nanodevices with a high drug payload, *Biomaterials*, 2006; 27(4):660-9. (*Responsible for all in vitro cell studies*) Cited 38 times.
8. Wang X, Inapagolla R, **Kannan S***, Lieh-Lai M, Kannan RM. Synthesis, Characterization and *In vitro* activity of Dendrimer-Streptokinase Conjugates, *Bioconjugate Chem*, 2007; 18(3):791-9. (*Responsible for all in vitro work. First and second authors worked under direct supervision of S. Kannan*).
9. **Kannan S**, Saadani-Makki F, Muzik O, Chakraborty P, Mangner TJ, Janisse J, Romero R, Chugani D. Microglial activation in perinatal rabbit brain induced by intrauterine inflammation: Detection with [11C](R)-PK11195 and microPET, *Journal of Nuclear Medicine*, 48(6), 946-54, 2007.
10. Saadani-Makki F, **Kannan S***, Lu X, Janisse J, Dawe E, Edwin S, Romero R, Chugani D. Intrauterine administration of endotoxin leads to motor deficits in a rabbit model: a link between prenatal infection and cerebral palsy. Oct 7, 2008, *AJOG*. (*Primary and Corresponding author on manuscript. First author was post-doctoral fellow who worked under direct supervision and guidance of S. Kannan*.)
11. Perumal OP, Inapagolla R, **Kannan S***, Kannan RM*. The effect of surface functionality on cellular trafficking of dendrimers. *Biomaterials*. 2008 Aug-Sep;29(24-25):3469-76. (*Equal primary and corresponding author on manuscript. First author and second author were post-doctoral fellow and graduate student who worked under direct supervision and guidance of S. Kannan*)
12. Navath R, Kurtoglu Y, Wang B, **Kannan S**, Romero R, Kannan RM. Dendrimer-drug conjugates for tailored intracellular drug release based on glutathione levels. *Bioconjug Chem*. 2008 Dec;19(12):2446-55. (*Responsible for all in vitro cell work and testing*)
13. Kurtoglu YE, Navath RS, Wang B, **Kannan S**, Romero R, Kannan RM. Poly(amidoamine) dendrimer-drug conjugates with disulfide linkages for intracellular drug delivery. *Biomaterials*. 2009 Apr;30(11):2112-21. Epub 2009 Jan 25. (*Responsible for in vitro cell work and characterization*).
14. Perumal O, Khandare J, Kohle P, Lieh-Lai M, **Kannan S***, Kannan RM. Effects of branching architecture and linker on the activity of hyperbranched polymer-drug conjugates. *Bioconjugate Chemistry*. 2009 May 20;20(5):842-6. (*Equal primary and Corresponding author on manuscript. First author a post doctoral fellow who worked under direct supervision of S. Kannan*) Manuscript selected for Faculty of 1000 Biology, 2009.
15. Saadani-Makki F, **Kannan S***, Malek M, Janisse J, Muzik O, Romero R, Chugani D. Intrauterine endotoxin administration leads to white matter diffusivity changes in newborn rabbits. *Journal of Child Neurology* 2009 Sep;24(9):1179-89. (*Sole Primary and Corresponding author on manuscript, First author post doctoral fellow who worked under direct supervision of S. Kannan*)
16. Wang B, Navath R, Romero R, **Kannan S**, Kannan R. Anti-inflammatory and anti-oxidant activity of anionic dendrimer-N-acetyl cysteine conjugates in activated microglial cells. *Int J Pharm*. 2009 Jul 30;377(1-2):159-68. Epub 2009 May 2. (*Responsible for all in vitro cell work and testing*)
17. Kurtoglu YE, Mishra MK, **Kannan S**, Kannan RM. Drug release characteristics of PAMAM dendrimer-drug conjugates with different linkers. *Int J Pharm*. 2010 Jan 15;384(1-2):189-94. Epub 2009 Oct 13. (*Responsible for all in vitro cell work and testing*)
18. Navath RS, Wang B, **Kannan S**, Romero R, Kannan RM. Stimuli-responsive star polyethylene glycol conjugates for improved intracellular delivery of the drug in neuroinflammation. *J Control Release*. 2010 Mar 19;142(3):447-56. Epub 2009 Nov 5. (*Responsible for all in vitro cell work and testing*)
19. Menjoge AR, Navath RS, Asad A, **Kannan S**, Kim CJ, Romero R, Kannan RM. Transport and biodistribution of dendrimers across human fetal membranes: Implications for intravaginal administration of dendrimer-drug conjugates. *Biomaterials*. 2010 Jun;31(18):5007-21. (*Immunohistochemical evaluation and In vitro studies*).
20. Navath RS, Menjoge AR, Wang B, Romero R, **Kannan S**, Kannan RM. Amino acid functionalized dendrimers with hetero-bifunctional chemoselective peripheral groups for drug delivery. *Biomacromolecules*. 2010 Jun 14;11(6):1544-63. (*Responsible for in vitro cell studies*).

21. Wang B, Navath RS, Menjoge AR, Balakrishnan B, Bellair R, Dai H, Romero R, **Kannan S***, Kannan RM*, Inhibition of bacterial growth and intramniotic infection in a guinea pig model of chorioamnionitis using PAMAM dendrimers. *Int J Pharm.* 2010 Aug 16;395(1-2):298-308. (*Equal primary author*)
22. Dai H, Navath RS, Balakrishnan B, Raja Guru B, Mishra M, Romero R, Kannan RM*, **Kannan S***. Intrinsic targeting of neuroinflammatory cells in the brain by polyamidoamine dendrimers upon subarachnoid administration, *Nanomedicine (Lond).* 2010 Nov;5(9):1317-29. (*Equal primary author*).
23. **Kannan S***, Saadani-Makki F, Balakrishnan B, Dai H, Chakraborty P, Janisse J, Muzik O, Romero R, Chugani D. Decreased cortical serotonin in neonatal rabbits exposed to endotoxin in utero. *J Cereb Blood Flow Metab.* 2011 Feb;31(2):738-49. Epub 2010 Sep 8. (*Primary/Corresponding Author*).
24. **Kannan S***, Saadani-Makki F, Balakrishnan B, Chakraborty P, Janisse J, Xin Lu, Muzik O, Romero R, Chugani DC. Magnitude of [(11)C]PK11195 binding is related to severity of motor deficits in a rabbit model of cerebral palsy induced by intrauterine endotoxin exposure. *Dev Neurosci.* 2011;33(3-4):231-40. (*Primary/ corresponding author*).
25. Navath RS, Menjoge AR, Dai H, Romero R, **Kannan S**, Kannan RM. Injectable PAMAM dendrimer-PEG hydrogels for the treatment of genital infections: formulation and in vitro and in vivo evaluation. *Mol Pharm.* 2011 Aug 1;8(4):1209-23. (*Responsible for all in vivo evaluation*).
26. **Kannan S***, Dai H, Navath RS, Balakrishnan B, Jyoti A, Janisse J, Romero R, Kannan RM. Dendrimer-based Postnatal Therapy for Neuroinflammation and Cerebral Palsy in a Rabbit Model. *Science Translational Medicine.* April 18th, 2012. (*Co-Corresponding Author*).

Inventions/ Patents

Apr. 2010 Dendrimer-containing particles for sustained release of compounds, R. Kannan, R. Iezzi, **S. Kannan**
 Patents filed in US (#12/681,516), Canada (#2,701,291), European Union (#08835693.6), Japan (#2010-528216) and India (1247/ELNP/2010) (**Pending**)
Describes inventions on ocular and neuroinflammation applications of dendrimer-based drug delivery systems.

June 2010 Dendrimer-based therapeutic nanodevices for therapeutic and imaging applications, R. Kannan, S. Kannan, R. Romero, R. Navath, H. Dai, Y. Kurtoglu, B. Wang, A. Menjoge.
 US patent (#12/797,657) and international PCT (PCT/US10/38068), filed.
(Patent Pending)
Describes inventions on dendrimer-based formulations for cerebral palsy and other neurodegenerative diseases, and for maternal-fetal infections and inflammation.

Extramural Funding (current, pending, previous)

Pending

01/12-12/16; Mechanisms and therapy in maternal intrauterine inflammation induced brain injury.

R01 HD069562-01A1,

NICHHD, NIH

\$1,250,000

PI: Sujatha Kannan

Role: PI

Percent Effort: 25%

Priority Score: 24; Percentile: 9.

The objective of this application is to define the role of intrauterine inflammation induced alterations in tryptophan metabolism and serotonin depletion, due to activation of the kynurenine pathway in the placenta and fetal/newborn brain resulting in brain injury in the fetus and neonate. Therapeutic efficacy in the prenatal and postnatal period is evaluated using an agent acting on the kynurenine pathway, by inhibiting the enzyme kynurenine mono-oxygenase (KMO).

Previous

Grants:

09/07-08/2011; Imaging and therapy in intrauterine inflammation induced perinatal brain injury, K08 HD50562-01A1, NICHD, NIH
\$472,300
PI: Sujatha Kannan
Role: PI
Percent Effort: 75%

For establishment and characterization of animal model, determine role of microglial activation and brain injury in maternal intrauterine inflammation, PET imaging. Primarily provides salary support for PI.

01/2008-08/2010; In vivo evaluation and imaging of dendrimer nanodevices targeting neuroinflammation: applications in cerebral palsy and age-related macular degeneration.

Wilson Medical Foundation grant: Research Grant for Discovery in the Biomedical Sciences
\$200,000

PI: R.M.Kannan
Role: Co-Investigator

Assessment of biodistribution of dendrimers in rabbit pups with CP and rat model of age related macular degeneration and assessment of in vivo efficacy of minocycline for the treatment of neuroinflammation.

01/05-06/07; Imaging and targeted therapy in perinatal brain injury

Pediatric Critical Care Scientist Development Program-NICHD
\$273,250

Role: PI for Sub-contract

For establishing animal model of perinatal brain injury and optimizing PET imaging techniques. Provided salary support for PI

07/04-06/06; Investigation of novel nanodevices for controlled delivery of NSAIDS in a rodent model of pain

Pfizer Scholars Grant in Pain Medicine 2004
\$130,000

Role: PI

For the development and characterization of dendrimer-based drug delivery nanodevices for delivering anti-inflammatory agents in a rodent model of pain.

SubContracts:

09/07-07/11; Dendrimer based functionally optimized nanodevices for diagnosis and treatment of chorioamnionitis
NIH/NICHD Perinatology Research Branch

\$2,494,244

PI for subcontract: RM Kannan

Role: Co-PI (share \$858,998)

For evaluation of dendrimer based therapies for maternal and fetal infection and inflammation.

07/04-10/08; Imaging and Targeted therapy in Perinatal Brain Injury

NIH/NICHD Perinatology Research Branch

\$472,000

PI for subcontract: Sujatha Kannan

For establishing and characterizing animal model of perinatal brain injury.

EDUCATIONAL ACTIVITIES

Educational Publications

Editorial

1. Kannan S, Johnston MV. 'Hot spot' in the brain: Tissue to be rescued? Critical Care Medicine, 2012. *In press*.

Invited Reviews (Peer reviewed):

1. Kannan S*, Balakrishnan B, Muzik O, Romero R, Chugani D. PET Imaging of neuroinflammation. Invited review. Journal of Child Neurology, 2009 Sep;24(9):1190-9. (*Primary and Corresponding author*).

2. Kannan S, Chugani HT. Applications of PET imaging in the newborn nursery. Invited review. Semin Perinatol. 2010 Feb;34(1):39-45.

Case-Reports in refereed journals:

1. Kannan S, McGreevy PS, Fullerton TE. Nonsteroidal antiinflammatory drug-induced duodenal web. South Dakota J Med, 1997, 50(11): 393-394
2. Kannan S, Mattoo TK. Diffuse Crescentic Glomerulonephritis in Bacterial Endocarditis. Ped Nephrol, 2001, 16:423-428.
3. Kearns-Sayre Syndrome presenting as complete heart block, Chawla S*, Coku J, Forbes T, Kannan S. Pediatric Cardiology 2008 May;29(3):659-62. (*Corresponding author; First author is a pediatric resident who worked under direct supervision of S. Kannan*)

Peer reviewed electronic journals/websites:

1. Reviewed by S. Kannan and K. Meert. PedsCCM Evidence Based Medicine Journal Club. "Nuckton TJ, Alonso JA, Kallet RH, Daniel BM, Pittet JF, Eisner MD, Matthay MA. Pulmonary dead-space fraction as a risk factor for death in the acute respiratory distress syndrome. N Engl J Med. 2002;346(17):1281-6."

Book Chapters:

1. Kannan S, Hypoglycemia; Diabetes Insipidus; Cushing Syndrome. In Pocket Pediatrics, Editors: Lieh-Lai M, Fiore M, Lee KJ, Lippincott Williams and Wilkins, Philadelphia, PA, 2001, 78-81.
2. Kannan S, Karpawich P. Cardiac Arrhythmias. In Pocket Pediatrics, Editors: Lieh-Lai M, Fiore M, Lee KJ. Lippincott Williams and Wilkins, Philadelphia, PA, 2001, 31-40.
3. Kannan S, Rapid Sequence Intubation; Conscious Sedation; Procedures: Intraosseous Needle Placement; Endotracheal Intubation. In Pediatric Acute Care, Editors: Lieh-Lai M, Ling-McGeorge K, Asi-Bautista M, 2nd Edition, Lippincott Williams and Wilkins, Philadelphia, PA, 2001, 278-281; 293-294; 270-273
4. Pillai O, Kannan S, Kannan RM. Cellular Interactions of Nano Drug Delivery Systems, Published in "Force Microscopy in Biology and Medicine" by Wiley & Co, 2005. Editor: Bhanu Jena
5. Kannan RM, Pillai O, Kannan S. Dendrimers and Hyperbranched Polymers for Drug Delivery. Accepted for publication in "Biomedical Applications of Nanotechnology" by John Wiley and Sons, 2006. Editor: Vinod Labhateswar
6. Kannan S, Sarnaik A. 'The Child with MODS', Published in Pediatric Emergencies, 2006 and 2011. Editor: Meherban Singh.

Teaching**Classroom instruction**

04/11/2011 Course: Integrative Unit Pharmacology 2011, Pediatric Pharmacology Lecture to MIII students

Role: Lecturer

Location: Wayne State University School of Medicine

Clinical instruction (dates, course title, role, location)

9/2003-Present Bedside teaching for residents and fellows during rounds as attending on service (10 weeks a year) and on call at night (around 3 calls per month) since 2003.

Role: Preceptor, Attending on service

Location: PICU at Children's Hospital of Michigan (9/2003 to 7/2011) and PICU at Johns Hopkins (8/2011 to Present)

9/2003-Present Weekly 1-2 lectures for residents on service with around 0.5-1 hour preparation time for each lecture. Total of around 15-20 lectures per year.

Role: Lecturer, Attending on service

Location: PICU at Children's Hospital of Michigan (9/2003 to 7/2011) and PICU at Johns Hopkins (8/2011 to Present)

9/2003-07/2011 Teaching rounds specifically for the pediatric critical care fellows (once every 8 weeks with 4-5 hours preparation time for the lectures). Involved in weekly board reviews and journal clubs for pediatric ICU fellows (1 hour preparation time). (PICU at Children's Hospital of Michigan)

1/2005-1/2009 Board reviews for all pediatric residents annually (Involves 4 hours of preparation time each time with 1-2 reviews annually). (Children's Hospital of Michigan)

1/2007-1/2010 Nursing teaching lectures annually on CRRT (Children's Hospital of Michigan)

1/2005-1/2009 Orientation lecture for new fellows on CRRT (Children's Hospital of Michigan)

03/9/2011 Maternal Inflammation and Cerebral Palsy-How do start a basic science research program
Lecture for all Pediatric Fellows, Research Series.

Role: Presenter

Location: Children's Hospital of Michigan

CME instruction

02/2006 Pediatric Critical Care Colloquium

Intrauterine inflammation induced perinatal brain injury

Role: Presenter

Location: Park City, Utah

10/28/2007 Pediatric Grand Rounds

Novel Imaging and Nanotherapeutic Options in Intrauterine Inflammation induced Perinatal Brain Injury

Role: Presenter

Location: Children's Hospital of Michigan, Detroit, MI

Target Audience: All pediatric residents, fellows, faculty

06/2009 Neurology Grand Rounds

Research Presentation, Imaging and targeted therapy of perinatal brain injury

Role: Presenter

Location: Detroit Medical Center, Detroit, MI

Target Audience: All adult and pediatric neurology residents, fellows and faculty

5/14/2010 Pediatric Grand Rounds

Maternal Inflammation and Cerebral Palsy, Imaging and Targeted Therapy

Role: Presenter

Location: Children's Memorial Hospital, Northwestern University, Chicago, IL

10/17/2011 Gerber Visiting Professor Lectureship

Novel imaging and therapeutic strategies in perinatal brain injury and cerebral palsy

Role: Presenter

Location: Grand Rapids, MI

10/18/2011 Pediatric Grand Rounds

Neuroinflammation and neurodegeneration in perinatal brain injury

Role: Presenter

Location: Helen DeVos Children's Hospital, Grand Rapids, MI

Workshops /seminars

03/2008 Michigan Cerebral Palsy Society Symposium and Conference

Role: Presenter. 'Link between prenatal infection and cerebral palsy'

Location: University of Michigan, MI

01/20/2010 Synergy Seminar on "Surgical Site Infections: trying to Outfox Nature"

Role: Panelist

Location: Austen Bioinnovation Institute, Akron, OH

10/19/2010 Symposium on Developing Collaborative Research with the CP Community,

Roles: Moderator for session on Etiology and Best Practices in CP".

Presenter, "Novel therapeutic strategies in maternal inflammation induced brain injury and cerebral palsy"

Location: Michigan State University, MI

08/15/2011 Workshop on Fetal Origins of Autism

Role: Presenter

Location: Perinatology Research Branch and Wayne State University, Detroit, MI

Mentoring (pre- and post-doctoral)

Pre-doctoral

Rajyalakshmi Inagapolla (1/2005-12/2006), PhD student Chemical Engineering;

Supervised for part of her thesis work on mechanisms of cell entry of dendritic nanoparticles and characterization of streptokinase-dendrimer conjugates. Currently working in the industry.

Lauren Fink (Undergraduate Student, Oberlin College, June-August 2007) Summer student, Supervised in lab for work on characterization of microglial cell morphology in vivo in rabbit model of perinatal brain injury. Currently graduate student in Neuroscience at Wellesley.

Sarah Kizilbash (Pediatric resident PGYII; July 2007) in the lab for work on in vitro studies on inhibition of microglial cells using minocycline-dendrimer conjugates.

Post Doctoral Research Fellows

Omathanu Pillai Perumal, PhD (11/2003 to 7/2005). Currently is Assistant Professor in Pharmaceutics at University of South Dakota.

Xiangtao Wang , PhD (2/2005-5/2006) . Currently is a faculty with the Chinese Academy of Medical Sciences.

Fadoua Saadani-Makki, PhD (5/2005-10/2008). Currently in Switzerland on time-off for child rearing, looking for industrial positions.

Hui Dai, PhD (12/2007-05/2011) **Won the best poster award at WSUSOM annual postdoctoral scholars day, 2008.** Currently Assistant Professor in Department of Surgery at University of Southern Illinois, IL

Bing Wang, MD (1/2008-3/2010). Currently working in Pathology Lab, Perinatology Research Branch. Detroit, MI

Bindu Balakrishnan, PhD (10/2008-present) **Won second place for poster presentation under Basic Neuroscience category, Annual ACCM Research Day, 12/2011, JHU.**

Post-Doctoral Clinical Fellows

Penelope Sandiford (Critical Care fellow: 10/2006-6/2009) **Nominated for best fellowship research project by Society of Critical Care Medicine (2009). Won Wolf-Zuelzer award for best fellow research at Children's Hospital of Michigan (2009).** Currently Assistant Professor, Pediatrics, Division of Pediatric Critical Care at University of Illinois College of Medicine, in Peoria, IL

Sarah Kizilbash (Pediatric resident PGYII; July 2007). Currently Assistant Professor, Pediatrics, Children's Hospital of Michigan, Detroit, MI.

Thesis Committee

12/2006 Rajyalakshmi Inagapolla, PhD student Chemical Engineering, Wayne State University.

Role: Evaluator

Other Educational Activities (National)

2005-2008 Writing questions for the Pediatric Critical Care Subboard of American Board of Pediatrics (Involves reviewing content specifications for the topic, referring appropriate literature, developing the stem of the question as a case scenario and providing distracters with the most possible answer. A detailed explanation and rationale has to be provided with each question).

CLINICAL ACTIVITIES

Certification

Medical

Michigan Board of Medicine License (7/2/2003-1/31/2013)

Permit ID #4301072890

Maryland Board of Medicine (7/18/2011-9/30/2012)

Permit ID #D72754

Specialty and Subspecialty Board Certification

2004

American Board of Pediatric Critical Care Medicine #1212 Expiration date 2014

2000, 2007

American Board of Pediatrics #070226;

Expiration date 2014

Clinical (Service) Responsibilities (dates, specialty, role, time commitment)

9/2003-7/2011 Staff Intensivist and Attending physician in Pediatric Critical Care at Children's Hospital of Michigan, Detroit, MI.

10-14 weeks on service per year. In house night calls at around 3-4 calls per month.

08/2011-Present Staff Intensivist and Attending physician in PICU at Johns Hopkins University Hospital.

10 weeks on service per year. In house night calls at around 3 calls per month.

Clinical Program Building / Leadership

- 9/2003 to 01/2010 Established Continuous Renal Replacement Therapy (CRRT) program and protocols for the Pediatric ICU. Train nursing staff and fellows in the ICU regarding use of CRRT in the ICU at Children's Hospital of Michigan, Wayne State University.

SYSTEM INNOVATION AND QUALITY IMPROVEMENT ACTIVITIES

Production of guidelines and/or protocols:

- 9/2003 to 05/2011 Continuous Renal Replacement Therapy (CRRT) program and protocols for the Pediatric ICU.
Role: Established protocol for dose and anticoagulation, trained nursing staff and fellows in use of CRRT and gave annual refreshers/updates to faculty and fellows regarding use of CRRT.
Percent Effort: 10% during time of introduction and establishment (2003-2004). Around 3% after that per year for updating protocols and training.
Location: Children's Hospital of Michigan, Detroit Medical Center.
Current Status: Currently being used by the hospital and division.
- 2004 Established protocol for management of hyperkalemia for the hospital in collaboration with Pediatric Emergency Medicine and Nephrology Children's Hospital of Michigan, Detroit Medical Center.
Role: Established protocol along with another faculty in Nephrology and Pediatric Emergency Medicine
Percent effort: 3%
Location used: Children's Hospital of Michigan, Detroit Medical Center.
Current Status: Was used in the hospital in 2004 and 2005. Currently modifications of the original protocol as per nephrology are being used by the hospital.
- 2004. Helped establish protocols for use of thrombolytics and anti-coagulants in the Pediatric ICU Children's Hospital of Michigan, Wayne State University.
Role: Worked with Hematology and Pediatric Thrombosis Team at Children's Hospital of Michigan
Percent Effort: 3%
Location used: Children's Hospital of Michigan, Detroit Medical Center.
Current Status: A more comprehensive protocol with multiple updates that was modified from the original protocols by the Thrombosis team and Pharm D is now currently in use.
- 2004-2009 Established protocol for management of head injury in the Pediatric ICU Children's Hospital of Michigan, Wayne State University. (Protocols were periodically reviewed and updated as required till 2009)
Role: Worked with other ICE faculty as part of a team member in establishing protocol
Percent Effort: 3% initially and about 1% per year after that for updates and reviews along with the rest of the team.
Location used: Children's Hospital of Michigan, Detroit Medical Center.
Current Status: A modified protocol with updates is currently being used by the PICU.

ORGANIZATIONAL ACTIVITIES

Institutional Administrative Appointments (date, committees)

2006 to 2011 Member of Scholarship Oversight Committee for all Critical Care fellows, Children's Hospital of Michigan, Wayne State University.
Review and evaluate research progress for all critical care fellows once every 4 months as part of American Board of Pediatrics requirement and advise program director on fellow's progress and if they meet board requirements for scholarly activity.

2007 to 2011 Member of the Wayne State University Nanotherapeutics Committee Group.

Journal peer review activities

Pediatric Critical Care Medicine (reviewer): 02/25/2011; 03/22/2011; 03/31/2011; 04/25/2011; 05/22/2011; 11/27/2011

Developmental Neuroscience (reviewer): 12/2010

Critical Care Medicine (reviewer): 09/2010

Journal of Biomaterials Applications (reviewer): 08/2010

Biomaterial (reviewer): 12/2009

American Journal of Obstetrics and Gynecology (reviewer); 2005; 2006; 2007

Advisory Committees, Review Groups/Study Sections (date, sponsor, role)

06/2011, Health Resources and Services Administration (HRSA), Grant Reviewer
08/2011 to Present Member of the Committee for Pediatric Formulations Initiative-Part of the New Drug Delivery Systems Working Group NICHD, NIH. (representing expertise in nanotechnology based Drug Delivery systems in pediatrics).

Professional Societies (date, membership, committees, role)

2007- Present Society for Neuroscience
2008- Present International Society for Cerebral Blood Flow and Metabolism
2010- Present Society of Critical Care Medicine
2010-Present Society for Pediatric Research
2010-Present American Academy of Pediatrics, Critical Care Section

RECOGNITION

Awards, Honors

Sheldon Brenner Award for Best Resident Research Project 2000
Children's Hospital of Michigan (among approximately 60 pediatric residents) for work on *Bleeding and Coagulation Changes during Spinal Fusion Surgery*

Wolfe Zuelzer Award for Best Fellowship Research Project 2002
Children's Hospital of Michigan (from around 25 fellows of various pediatric subspecialties) for work on *Targeted Drug Delivery using polymeric Nanostructures*

Pfizer Scholar's Award in Pain Medicine 2004

Wayne State University SOM Teaching Award 2007

Invited Talks, Panels

1. Feb, 2006. 'Intrauterine inflammation induced perinatal brain injury', Pediatric Critical Care Colloquium, Utah
2. March, 2008 'Maternal endotoxin exposure leads to motor deficits in a rabbit model: A link between prenatal infection and cerebral palsy', Presented at the Michigan Collaborative Cerebral Palsy Society Conference in Ann Arbor, MI.
3. March, 2008. 'Imaging and targeted therapy using novel nanopolymers in brain injury', Invited to present at the Safar Center for Resuscitation Research at University of Pittsburg.
4. April, 2008. 'PET Imaging of neuroinflammation as a predictor for development of cerebral palsy', The International Society of Cerebral Palsy program at Bled, Slovenia.
5. Nov. 2008. 'PET Imaging of neuroinflammation'. Invited to present at the Neurobiology of Disease in Children Conference, Santa Clara, California.
6. May 2009. Imaging and targeted therapy in perinatal brain injury. Invited to present at the Society of Pediatric Research, Topic Symposium, Baltimore, Maryland.
7. January 20th, 2010. Panelist for the Synergy Seminar on "Surgical Site Infections: trying to Outfox Nature" at the 'Austen Bioinnovation Institute', Akron, Ohio.
8. October, 2010. Novel therapeutic options in maternal inflammation and cerebral palsy, Michigan Collaborative Cerebral Palsy Society Conference in Michigan State University, MI.
9. October, 2011 Novel imaging and therapeutic strategies in perinatal brain injury and cerebral palsy, Gerber Visiting Professor Lectureship, Grand Rapids, MI.