

PEDIATRIC SURGERY

OVERVIEW

Yale Pediatric Surgery continues to enjoy a period of exciting program growth and the development of new opportunities. Surgical volume has again increased over 10% from the previous year. The Section has markedly expanded its program in laparoscopy and thoracoscopy resulting in the development of the Yale Center for Pediatric Minimally Invasive Surgery, directed by Dr. Milissa McKee. The volume and complexity of cases grows monthly including regional firsts in minimally invasive repairs of diaphragmatic hernias and intestinal atresia. Yale offers Connecticut's only program in extracorporeal membrane oxygenation providing life saving cardiopulmonary support to infants with refractory respiratory and cardiac failure.

Yale is a leader in pediatric surgical education, offering one of only 31 accredited fellowship training programs in Pediatric Surgery. The program was reviewed by the ACGME this year and received full accreditation with no citations. Pediatric Surgery has enjoyed the opportunity to train numerous physician associate students, visiting medical students, and visiting residents. Beginning in July 2005 we will train an additional fellow in minimally invasive surgery and outcomes research.

The Section has made a concerted effort to augment our quality clinical care with an improvement in quality customer service. Yale Pediatric Surgery enjoyed the largest improvement in Press-Ganey satisfaction scores of any Section in the Yale Medical Group in the past year. The Section is also aggressively pursuing development opportunities to insure the quality and long-term viability of the program for generations to come. The Robert J. Touloukian Endowment for Pediatric Surgery initiated last year has now secured commitment of over three quarter million dollars.

The Yale Center for Children's Surgical Research provides the umbrella for our burgeoning basic and clinical research program as well as development efforts related to research. <http://www.yalesurgery.org/yccsr>

BASIC RESEARCH PROJECTS

- Do Tissue Engineered Vascular Grafts Grow? A foundation funded preclinical study investigating the growth potential of tissue engineered venous grafts in a juvenile lamb model.
- Microsphere Drug Delivery Systems. Development of a parathyroid hormone controlled release system for treatment of hypoparathyroidism. A small animal feasibility study funded by the Charles W. Ohse Research Endowment.
- The Application of Drug Delivery to Cardiovascular Tissue Engineering: A multidisciplinary study investigating the application of microsphere controlled release technology to cardiovascular tissue engineering applications.

CLINICAL RESEARCH PROJECTS

- Surgery for NEC in human infants: a randomized trial, a NIH funded multi-center randomized controlled trial comparing two surgical treatments for Necrotizing Enterocolitis in premature infants. Enrollment will end in May 2005. Yale is the coordinating center.
- Glaser Pediatric Research Network Neonatal Surgical Database: Necrotizing Enterocolitis Protocol. A multi-center, observational, prospective cohort study that will identify general outcome trends based on accepted standards of care and risk factors for progression of Necrotizing Enterocolitis. Enrollment is continuing; application was submitted for partnership with and support from The Gerber Foundation. Yale is the lead and coordinating center.
- Development of Evidence-Based Clinical Guidelines for the Management of Perforated Appendicitis in Children. A multi-center case control study to determine risk factors for infectious complications after treatment of perforated appendicitis in children, determine current treatment standards, and develop evidence-based guidelines for prospective study. Data analysis in process. Yale is the lead center.

- Post Operative Oral Intake in Pediatric Cases of Perforated Appendicitis. A multi-center case control study to identify factors that determine length of time to oral intake in pediatric patients following surgical treatment of perforated appendicitis. Data analysis in process. Yale is the lead center.

FACULTY

	<i>Academic Rank</i>	<i>Academic Interests</i>
R. Lawrence Moss, M.D.	Associate Professor, Surgery and Pediatrics & Chief, Pediatric Surgery	Clinical Trials in Surgery, Evidence-based Surgery, Necrotizing Enterocolitis
Robert J. Touloukian, M.D.	Professor, Surgery and Pediatrics	Pediatric trauma, tumors, newborn surgery
John H. Seashore, M.D.	Professor Emeritus, Surgery and Pediatrics	Surgical Education, Parenteral Nutrition
Christopher K. Breuer, M.D.	Assistant Professor, Surgery and Pediatrics	Tissue engineering, medical student education
Milissa A. McKee, M.D., M.P.H.	Assistant Professor, Surgery and Pediatrics	Minimally invasive & laparoscopic surgery. Outcomes research

STAFF

	<i>Position</i>
Linda Croughwell	Senior Administrative Assistant
JoAnne Pillar	Administrative Assistant
Margaurite Pollifrone	Administrative Assistant
Bonnie L. Silverman, Ph.D.	Clinical Epidemiologist/Research
Jasmin Jose, P.A.-C.	Physician Assistant
Judy Sutton, R.N.	Nurse Practitioner

POST-DOCTORAL RESEARCH AND CLINICAL FELLOWS

	<i>Position</i>	<i>Institution of Last Degree</i>
Matthew Brennan, M.D.	Postdoctoral Research Fellow	Ross University School of Medicine
Peter Fong, Ph.D.	Postdoctoral Associate Biomedical Engineering	Yale University
Amit Goyal, M.D.	Postdoctoral Research Fellow	State University of New York at Stony Brook
Marion Henry, M.D.	Postdoctoral Research Fellow	Stanford University
Greg Nelson MS I	Yale University Summer Research Fellow	Massachusetts Institute of Technology
Angela Walker, MS II University of Missouri School of Medicine	Doris Duke Clinical Fellow	Truman State University

CURRENT GRANT SUPPORT

	<i>Title</i>	<i>Funding Agency</i>	<i>Dates</i>
R. Lawrence Moss, M.D.	Surgery for NEC in Human Infants: a Randomized Trial.	National Institutes of Health. 1 RO1 HD38462-0	6/1/00-6/1/05

	Excellence in Clinical Research in Pediatric Surgery	National Institutes of Health 1 K24 HD042480-01	4/1/03-4/1/09
R. Lawrence Moss, M.D.	A Database for Neonatal Surgery	Glaser Pediatric Research Network	7/24/03-7/31/08
Christopher Breuer, M.D.	Tissue Engineering	Charles W. Ohse Research Award	1/1/04-12/31/04
	Evaluation of the Growth Potential of Tissue Engineered Venous grafts	American Pediatric Surgical Association Foundation	6/1/04-5/31/06

HONORS AND AWARDS

R. Lawrence Moss, M.D.	Appointed Panelist by NIH/FDA for administration of Best Pharmaceuticals for Children Act
	Advisor, Agency for Health Care Research and Quality to develop national quality indicators for Children's Hospitals
Robert Touloukian, M.D.	President, American Pediatric Surgical Association
Christopher Breuer, M.D.	American Pediatric Surgical Association Foundation Enrichment Award
	American Surgical Association Foundation Research Fellowship

MAJOR INVITED LECTURES

R. Lawrence Moss, M.D.	"Surgical Management of Necrotizing Enterocolitis: From Traditions to Trials" American College of Surgeons Clinical Congress, New Orleans
	"The Advantages and Limitations of Technology in the Conduct of Pediatric Clinical Trials" National Institutes of Health and Food and Drug Administration Colloquium on Pediatric Clinical Trials. Washington, D.C.
	"Clinical Research in NEC: Anecdotes, Tradition, and Evidence" Society for Pediatric Research and Academic Pediatric Society
	"Clinical Trials in Tissue Engineering" Surgery Grand Rounds, Bridgeport Hospital 2004
	"Surgical Emergencies in the Pediatrician's Office" Pediatric Grand Rounds, Bridgeport Hospital
	"Neonatal Bowel Obstruction" Surgery Grand Rounds, St. Mary's Hospital 2004
	"Laparoscopy and Thoracoscopy in Children and Adolescents: the Yale Experience" Pediatric Grand Rounds, Norwalk Hospital

"Pediatric Surgery in the next 100 years" Pediatric Grand Rounds, Bridgeport Hospital

"Making Two Patients Out of One: the Management of Conjoined Twins" Surgery Grand Rounds, Bridgeport Hospital

"Pediatric Minimally Invasive Surgery" Pediatric Grand Rounds, Lawrence and Memorial Hospital, New London

"Newborn Bowel Obstruction" Bridgeport Hospital Lecture Series

"Appendicitis" Bridgeport Hospital Lecture Series

Robert Touloukian, M.D. "Congenital Lesions of the Head and Neck" Bridgeport Hospital Lecture Series

"Wilms' Tumor and Neuroblastoma" Bridgeport Hospital Lecture Series

John Seashore, M.D. "GI Reflux" Bridgeport Hospital Lecture Series

"Nutritional Support of the Pediatric Surgical Patient" Bridgeport Hospital Lecture Series

Christopher Breuer, M.D. "Genetic Engineering" Surgery Grand Rounds, Bridgeport Hospital

"Hernias and Hydroceles" Bridgeport Hospital Lecture Series

"Hirschsprung's Disease" Bridgeport Hospital Lecture Series

"Neonatal Bowel Obstruction" Surgery Grand Rounds, St. Mary's Hospital, Waterbury

Milissa McKee, M.D., M.P.H. "Pyloric Stenosis" Bridgeport Hospital Lecture Series

"Pediatric Trauma" Bridgeport Hospital Lecture Series

MAJOR YALE LECTURES

R. Lawrence Moss, M.D. "Tissue Engineering Cardiovascular Structures" Pediatric Grand Rounds 2003

"Controlled Release of Osteopontin in Tissue Engineering Heart Valves" Vascular Biology and Transplantation Program Retreat

"Clinical Applications of Tissue Engineering" Introduction to Biomedical Engineering Course, Yale Biomedical Engineering Students (Undergraduate) 2004

"Tissue Engineering" Seminars in Biomedical Engineering, Department of Engineering (Graduate Students) 2004

Christopher Breuer, M.D. "Tissue Engineering Cardiovascular Structures", Surgery Grand Rounds

"Tissue Engineering" Pediatric Grand Rounds

"Controlled Release of Osteopontin in Tissue Engineered Cardiovascular Structures", Vascular Biology and Transplantation Program Retreat

ORIGINAL PUBLICATIONS

ORIGINAL ARTICLES

York G.B., DiGeronimo R.J., Wilson B.J., Cofer B.R., **Breuer C.K.**, Josephs J.D., Smith D.L., Sorrells D.L. Extracorporeal membrane oxygenation in piglets using polymerized bovine hemoglobin-based oxygen-carrying solution (HBOC-201). *J Pediatr Surg* 37(10), 1387-92, 2004 Oct.

Breuer C.K., Anthony T., **Fong P.** Potential tissue engineering applications for neonatal surgery. *Semin Perinatol* 28(3), 164-173, 2004 Jun.

Breuer C.K., Mettler B.A., Anthony T., Sales V.L., Schoen F.J., Mayer J.E. The application of tissue engineering principles towards the development of a heart valve substitute. *Tissue Eng* 10(11/12), 1725-36, 2004.

Anthony T, Fong P, Goyal A, Saltzman WM, **Moss RL**, Breuer CK Parathyroid hormone controlled release systems for surgical treatment for hypoparathyroidism. *J Pediatr Surg* 40:81-85, 2004.

Rangel S.J, **Moss R.L.:** Recent trends in the funding and utilization of NIH career development awards by surgical faculty. *Surgery* 136:232-239, 2004

Moss R.L. and EMSC Panel on Pharmacologic Agents in Pediatric Sedation. Clinical Policy: Evidence based approach to pharmacologic agents used in pediatric sedation and analgesia in the emergency department. *J Pediatr Surg* 39:1472-1484, 2004

Touloukian R.J. In Memorial Lawrence K Pickett, MD, 1919-2003 *J Pediatr Surg* 39:995, 2004

Touloukian, R.J, Seashore, J.H. Thirty-Five Year Institutional Experience with End-to-Side Repair for Esophageal Atresia. *Arch Surg* 139:371-374, 2004

REVIEWS AND CHAPTERS

Moss R.L. (guest editor), Advanced in Neonatal Surgery, Semin Perinatology, WB Saunders / Elsevier, Philadelphia, Vol 28, no.3, 2004

Henry M.C.W., **Moss R.L.** Current Issues in the Management of Necrotizing Enterocolitis. *Semin Perinatology* 28:221-233, 2004

Moss RL. Rangel SJ: Pediatric Surgery Adams G (ed) Surgical Subspecialties Clerkship Guide, Elsevier Science 2003

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Fizan Abdullah, M.D.	Chief Resident, General Surgery
Robert Udelsman, M.D., M.B.A.	Chair, Surgery
John Seashore, M.D.	Faculty, Pediatric Surgery
R. Lawrence Moss, M.D.	Faculty, Pediatric Surgery