Division Data Summary

RESEARCH AND TRAINING DETAILS
Number of Faculty: 24
Number of Research Fellows: 5
Number of Support Personnel: 74
Direct Annual Grant Support: $2,084,963
Direct Annual Industry Support: $22,483
Peer Reviewed Publications: 45

CLINICAL ACTIVITIES AND TRAINING
Number of Clinical Staff: 14
Number of Clinical Fellows: 8
Number of Other Students: 15
Inpatient Encounters: 11,158
Outpatient Encounters: 6,085

Division Photo

Row 1: G Tiao, R Falcon, R Brown, A Bischoff, B Dickie
Row 2: J Nathan, M Helmrath, M Levitt, D von Allmen
Row 3: S Barnett, A Peña, R Azizkhan
Row 4: T Inge, A Shaaban

Significant Accomplishments

Intestinal Rehabilitation
Michael Helmrath, MD, has expertise in gastrointestinal diseases that cause intestinal failure. His basic research is focused on the adaptive response of stem cells following surgical loss of the bowel. Multiple NIH-supported projects focus on the expansion of intestinal stem cells and the ability to culture and expand both murine and human intestinal epithelium. Clinically, he is the surgical director of the intestinal rehabilitation center and is actively involved in establishing the intestinal failure registry and outcome trials in this patient population.

Colorectal Center
Marc Levitt, MD, Alberto Pena, MD, Andrea Bischoff, MD, Jason Frischer, MD, Belinda Dickie, MD, Michael Helmrath, MD, make up the Colorectal Center Team. The Colorectal Center for Children is engaged in a quality of life research project, the FISH study, to assess how patients are doing following their participation in the Bowel Management Program to treat fecal incontinence. This involves collaboration among several pediatric surgeons, as well as with psychology, and nursing. Once the quality of life tool is complete, we anticipate that other collaborating Centers around the world will use the tool for the assessment of their patients. The Center’s role in training pediatric surgeons in Africa continued its relationship with Accra, Ghana, where at Korle Bu Teaching hospital, four surgeons and four nurses are being trained in advanced pediatric colorectal techniques. The colorectal team visited the hospital there for the second time in March 2012; 34 children underwent complex colorectal reconstructions. The team included staff of Cincinnati Children’s as well as surgeons and nurses from collaborating centers in the Netherlands, South Africa and Israel. So far, Korle Bu has served as
the regional center for pediatric colorectal problems and has cared for children from 10 surrounding African nations. The trip was supported by a $15,000 grant from Kind Cuts for Kids.

Our Center also collaborates with Johns Hopkins Medical Center on the genetic aspects of Hirschsprung’s disease; we have the most patients enrolled in this study. We collaborate with John Clancy, MD, in Pulmonary Medicine, who is researching the CFTR gene and its role in constipation in patients without cystic fibrosis. Specimens from colorectal cases are being analyzed for this funded project.

**Bariatric Surgery**

Thomas Inge, MD, PhD, and Todd Jenkins, MPH, PhD, direct the Center for Bariatric Research and Innovation. In addition to participating in a long and growing list of collaborative studies, this Center partners with the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) to lead the national effort to prospectively gather data and publish evidence-based recommendations for use of weight loss surgery in adolescents.

The NIDDK-funded Teen LABS study, the largest multicenter study of outcomes following weight loss surgery, received five additional years of funding in 2011; five-year funding renewal was also granted to the study’s data coordinating center, overseen by Jenkins and C. Ralph Buncher, ScD.

**Division Highlights**

**Biology of Vascular Disease – Peter Dickie, PhD**

Dr. Dickie’s research laboratory was established to explore the underlying cellular defects associated with the development of lymphatic malformations in humans. Several unique lymphatic endothelial cell lines have been established from patient lesions. Indicative of disease-causing potential, these have displayed aberrant behavior in in vitro functional assays and continue to be studied.

**Trauma – Richard Falcone, MD, MPH**

Dr. Falcone received funding from the Ohio Department of Public Safety for his work in trauma epidemiology, education and prevention. Dr. Falcone is the Director of the Trauma and Injury Prevention Program.

**Extracorporeal Membrane Oxygenation – Jason Frischer, MD**

Dr. Frischer is the Extracorporeal Membrane Oxygenation Program Director. He intends on applying to the National Institute of Health for a K08 in 2013.

**Intestinal Rehabilitation – Michael Helmrecht, MD**

Dr. Helmrecht is the Director of Surgical Research. He has expertise in gastrointestinal diseases resulting in intestinal failure. His basic science research is focused on the adaptive response of stem cells following surgical loss of the bowel. Multiple projects in the laboratory are focusing on the expansion of intestinal stem cells and the ability to culture and expand both murine and human intestinal epithelium. These projects are supported by the National Institutes of Health. Clinically, he is the surgical director of the intestinal rehabilitation center and is actively involved in establishment of the intestinal failure registry and outcome trials in this patient population.

**Bariatric Surgery – Thomas Inge, MD, PhD, FACS, FAAP**

Dr. Inge and Dr. Jenkins together direct the Center for Bariatric Research and Innovation. In addition to participation in a long and growing list of collaborative studies, this Center partners with the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) to lead the national effort to prospectively gather data and publish evidence-based recommendations for use of weight loss surgery in adolescents. The Teen LABS
study continues to be funded by the NIDDK, the largest multicenter study to document outcomes of adolescents undergoing weight loss surgery. The Teen-LABS Competitive Renewal Grant was awarded another 5 years of funding in September 2011 to continue this important research. Dr. Inge is the Surgical Director of the Surgical Weight Loss Program for Teens.

Teen-LABS Data Coordinator Center (DCC) – Todd Jenkins, PhD, MPH
Dr. Jenkins and Dr. Buncher together direct the Teen-LABS Data Coordinator Center (DCC) that was awarded 5-year renewal funds in September 2011. The DCC provides data management and statistical expertise, as well as administrative support to the Teen-LABS consortium and ancillary investigations. Dr. Jenkins co-directs the Center for Bariatric Research and Innovation.

Molecular Fetal Therapy – Helen Jones, PhD
Dr. Jones research investigates placental function in cases of placental insufficiency and intrauterine growth restriction with a focus on developing a nanoparticle delivery method for placental treatment. Her research is funded by a K99/R00 Pathway to Independence Award from the Eunice Kennedy Shriver National Institute of Child Health and Human Development. She is currently pursuing a secondary appointment in the Division of Reproductive Sciences.

Wound Care Services – Sundeep Keswani, MD
Dr. Keswani is focusing on the molecular mechanisms underlying the fetal regenerative wound healing phenotype. If the goals of the project are realized, his work may yield a wide range of therapeutics for diseases characterized by excessive fibroplasia. His basic science interests in fetal wound healing are closely paired with his clinical practice in fetal surgery and he is the Surgical Director for the Pediatric Advanced Wound Care Service which opened in January, 2012. His research is funded by a K08 award from the National Institute of Health.

Colorectal Center – Marc Levitt, MD
Dr. Levitt is actively engaged in a quality of life research project, (the FISH study) to assess how patients are doing following their participation in the Bowel Management Program to treat fecal incontinence. Dr. Levitt traveled to Africa to train pediatric surgeons in colorectal techniques. The trip was supported by at $15,000 grant from Kind Cuts for Kids. Dr. Levitt is the Director of the Colorectal Center.

Fetal Care Center – Foong-Yen Lim, MD
Dr. Lim has expertise in wound healing and fetal cellular and molecular therapeutics research. He is the Surgical Director of the Fetal Care Center.

Chronic Liver Disease – Jaimie Nathan, MD
Dr. Nathan will focus to elucidate the role of the gut microbiome in the modulation of liver injury and cholangiopathies. His studies involve a novel mouse model of small bowel bacteria overgrowth, in which a small bowel self-filling blind loop is surgically created. With this model, he is studying the gut-liver axis as it relates to the pathogenesis of a number of cholangiopathies which can progress to end-stage liver disease.

Biliary Atresia – Gregory Tiao, MD
Dr. Tiao continues to develop his research in Biliary Atresia through an ongoing R01 project funded by the National Institutes of Health. Dr. Tiao is the Surgical Director of Liver Transplantation and the Director of the Small Bowel Program.

Same Day Consultation/Surgery Program - Sean Barnett, MD
Dr. Barnett leads the same day consultation/surgery program at Cincinnati Children's Medical Center Liberty
Campus. He has operated on close to 200 patients over the past 2.5 years and continues to have excellent satisfaction from both parents and referring physicians. He has presented at national meetings and has helped other institutions develop their own program. Other divisions within the institution have begun to replicate this experience into their own practice.

**Significant Publications**


This paper provided evidence supporting the need for a clinical trial of sirolimus in patients with vascular anomalies. The choice of sirolimus for patients with refractory lymphatic anomalies is rational. The mammalian target of rapamycin (mTOR) pathway is associated with lymphangiogenesis in preclinical studies. Sirolimus has been effective for vascular anomalies in syndromes with upregulated mTOR activity, specifically hamartomas in patients with PTEN mutations and vascular tumors in patients with tuberous sclerosis. In this study, patients given sirolimus were heavily pretreated with traditional therapies. Given their refractory course, the expected mortality for these patients was almost certainly >50%, yet all survived with improvement in symptoms. Diligent reporting of side effects and length of follow-up >12 months in five of these patients demonstrates tolerability and implies lasting effect. Most excitingly, the authors have opened a phase 2 clinical trial in which over 40 patients have been recruited.


New modality combining fluoroscopy and 3d reconstruction to visualize the anatomy of a cloacal anomaly which has provided better preoperative anatomic assessment of this complex colorectal problem and helped with surgical planning.


Biliary atresia remains a devastating disease of childhood. Kasai portointerostomy continues to be the first surgical intervention utilized that might salvage the native liver. If the Kasai fails, transplantation is necessary for long term survival. In this study, we found that a sub population of patients who show symptoms of a failing Kasai can be salvaged by Kasai revision precluding the need for liver transplantation. This study provides the basis for future multi-institutional trials to study the effectiveness of Kasai revision.


Total colonic aganglionicosis is a serious condition that requires further study to improve the long term quality of life for the patients who suffer from it. The number of complications observed in these patients under the best circumstances is extremely high. The paper includes valuable advice to prevent complications such as ileostomy prolapse, severe diaper rash and obstructive symptoms. Special emphasis is placed on the importance of preserving the anal canal to try to prevent fecal incontinence. A modality of management that has never been reported consists in maintaining the ileostomy open until the patients are toilet trained for urine and tolerate rectal irrigations. The reason for this is that patients younger than 3 years of age cannot control the multiple, liquid bowel movements produced by a total colectomy. As a consequence, the babies suffer from severe diaper rash. A 3 year old or older child that is toilet trained for urine can become toilet trained for
stool in a few days, provided the anal canal has been meticulously preserved during the colonic resection. It is highly desirable for the patient to tolerate rectal irrigations because it is well known that these patients suffer from higher incidence of enterocolitis and we consider rectal irrigations the most important therapeutic maneuver to treat this complication.


Multiple visits for the evaluation, treatment, and follow-up of straightforward surgical problems (hemias) are inconvenient, can result in lost work for the parents, and missed school for the child. This paper documents a pilot program started by the general surgery division at the Liberty campus to see these types of patients in the clinic and operate on them on the same day, thus decreasing the number of visits. The paper looked at a total of 61 kids demonstrating high diagnosis confirmation levels and excellent patient satisfaction. It represents a seminal paper on the topic. Since its presentation at APSA annual meeting and subsequent publication, the program has doubled in the number of patients seen (now close to 200 total) and operated on per year and has met with significant kudos from parents and primary care providers alike. Many other institutions as well as other divisions within Cincinnati Children’s have begun to develop their own programs based on this experience.

Division Publications


Faculty, Staff, and Trainees

Faculty Members

Daniel von Almen, MD, Professor

Leadership Division Director
Richard Azizkhan, MD, Professor
   Leadership Surgeon-in-Chief

Maria H. Alonso, MD, Associate Professor
   Leadership Surgical Director, Kidney Transplant Program; Co-Surgical Director, Intestinal Transplant Program

Sean J. Barnett, MD, MS, Assistant Professor

Andrea Bischoff, MD, Instructor

Rebecca L. Brown, MD, Associate Professor
   Leadership Associate Director, Trauma Services

A. Roshni Dasgupta, MD, MPh, Assistant Professor

Peter Dickle, PhD, Assistant Professor

Richard A. Falcone, MD, MPh, Associate Professor
   Leadership Director, Trauma Services

Jason S. Frischer, MD, Assistant Professor
   Leadership Director, Extracorporeal Membrane Oxygenation Program

Victoria Garcia, MD, Professor
   Leadership Founding Director, Trauma Services

Mounira Habli, MD, Assistant Professor

Michael A. Helmrath, MD, Professor
   Leadership Director of Surgical Research; Surgical Director, Intestinal Rehabilitation Center

Belinda Hsi Dickie, MD, Assistant Professor

Thomas H. Inge, MD, PhD, FACS, FAAP, Professor
   Leadership Surgical Director, Surgical Weight Loss Program for Teens; Director, Center for Bariatric Research and Innovation

Todd M. Jenkins, PhD, MPh, Assistant Professor
   Leadership Director, Data Coordinator Center

Helen Jones, PhD, Assistant Professor

Sundeep G. Keswani, MD, Assistant Professor
   Leadership Surgical Director, Pediatric Advanced Wound Care Service

Marc A. Levitt, MD, Professor
   Leadership Director, Colorectal Center

Foong-Yen Lim, MD, Assistant Professor
   Leadership Surgical Director, Fetal Care Center of Cincinnati

Jaimie D. Nathan, MD, Assistant Professor

Alberto Pena, MD, Professor
   Leadership Founding Director, Colorectal Center

Frederick C. Ryckman, MD, Professor
   Leadership Vice President, System Capacity and Perioperative Operations; Director, Pediatric Surgery
Training Program

**Gregory M. Tiao, MD, Associate Professor**

**Leadership** Surgical Director, Liver Transplantation; Director, Small Bowel Program; Associate Director, Pediatric Surgery Training Program

**Trainees**
- **Aaron Garrison, MD**, PL-9, University of North Carolina-Chapel Hill
- **Jason Fisher, MD**, PL-9, New York Presbyterian Hospital-Columbia University

**Division Collaboration**

**Division of Pediatric Surgery - Michael Helmrath** » **Division of Developmental Biology - James Wells**
Characterization of intestinal stem cells during intestinal adaptation and development of intestinal regenerative strategies.

**Division of Pediatric Surgery - Michael Helmrath** » **Division of Gastroenterology, Hepatology and Nutrition - Noah Shroyer**
Characterization of intestinal stem cells during intestinal adaptation and development of intestinal regenerative strategies.

**Division of Pediatric Surgery - Jason Frischer** » **Division of Oncology - Timothy Cripe**
Exploring the growth and development of blood vessels in a tumor environment to try to develop novel cancer therapies to overcome tumor resistance to the classic treatments.

**Division of Pediatric Surgery - Jason Frischer** » **Division of Gastroenterology, Hepatology and Nutrition - Lee Denson**
Treating well established murine models of colitis with antiangiogenic agents to provide new treatments for the managing of Crohn's disease and ulcerative colitis.

**Division of Pediatric Surgery - Thomas Inge/Todd Jenkins/Stavra Xanthakos** » **Division of Pathology - BioBank**
Collection of biological specimens from obese patients and lean comparison patients seeking surgical care at Cincinnati Children’s Hospital Medical Center (CCHMC). Provide a long-term repository of such biological specimens and collect sufficient demographic information, anthropometric information, past medical history, surgical information, and clinical test results to permit selection of specimens to be used in hypothesis-driven research studies. These specimens are available to qualified researchers at CCHMC, or other institutions with IRB approved studies aimed at better understanding the biology of pediatric obesity and related disorders.

**Division of Pediatric Surgery - Thomas Inge** » **Division of Biomedical Informatics**
Collaborative effort to design and maintain the website and web registry site for the International Registry for Hypothalamic Obesity Disorders.

**Division of Pediatric Surgery - Thomas Inge** » **Division of Biomedical Informatics**
Collaborative effort to design and maintain the secure web portal used for the adjudication process of the TeenLABS study.

**Division of Pediatric Surgery - Thomas Inge/Todd Jenkins** » **Division of Gastroenterology, Hepatology and Nutrition - Stavra Xanthakos**
1. Explore biological determinants of Steatohepatitis after adolescent bariatric surgery. 2. Pilot project will expand upon preliminary data from pre-clinical animal studies that demonstrate a correlation of a novel serum
3. Biomarker, Coenzyme Q, with fibrosis progression in a murine nonalcoholic steatohepatitis (NASH) model.

**Division of Pediatric Surgery - Thomas Inge** » Division of Gastroenterology, Hepatology and Nutrition - Senad Divanović

Explore the role of IL-17 in NAFLD development and progression in obese adolescents to devise novel preventive and therapeutic strategies for NAFLD.

**Division of Pediatric Surgery - Thomas Inge/Todd Jenkins** » Division of Gastroenterology, Hepatology and Nutrition - Rohit Kohli

Pilot study to correlate bile acid levels in serum to the reduction in weight in post-bariatric surgery in adolescents.

**Division of Pediatric Surgery - Thomas Inge/Todd Jenkins** » Heart Institute - Healthworks

Locating non-operative cohort of patients who have been out of the Surgical Weight Loss Program for Teens, as well as Healthworks for 5 or more years to recruit for a follow-up study to obtain height, weight, and blood samples for analysis.

**Division of Pediatric Surgery - Thomas Inge/Todd Jenkins** » Division of Behavioral Medicine and Clinical Psychology - Meg Zeller

Teen View, Teen-View2, TeenView 3 looking at risk behaviors in the Teen-LABS cohort.

**Division of Pediatric Surgery - Thomas Inge/Todd Jenkins** » Division of Social Services - Payal Sawhney

Support group effect in a weight-loss-surgery cohort. This study will help understand how a structured and well organized family support group improves the amount of weight loss achieved by patients who are undergoing weight-loss surgeries.

**Division of Pediatric Surgery - Thomas Inge/Todd Jenkins** » Division of Nephrology - Nianzhou Xau

The objective of the present study is to describe the prevalence of kidney abnormalities in severely obese children, and to evaluate risk factors for kidney abnormalities in severely obese children using the TEEN-LABS baseline status.

**Division of Pediatric Surgery - Thomas Inge/Todd Jenkins** » Division of Endocrinology - Janet Chuang

Assessment of appetite regulatory peptides following gastric bypass surgery in adolescents.

**Division of Pediatric Surgery - Thomas Inge/Todd Jenkins** » Division of General & Community Pediatrics - Heidi Kalkwarf

Assessment of body composition via dual-energy X-ray absorptiometry (DEXA) in adolescents undergoing bariatric surgery.

**Division of Pediatric Surgery - Thomas Inge/Todd Jenkins** » Division of Biostatistics & Epidemiology - Rachel Akers

Data collection and management collaboration for the Teen-LABS, FABS, and FABS 5+ studies.

**Division of Pediatric Surgery - Thomas Inge/Todd Jenkins** » Division of Pulmonary Medicine - Narong Simakajompoon

Effect of obesity duration on obstructive sleep apnea syndrome (OSAS) severity and sleep quality in morbidly obese patients with OSAS.

**Division of Pediatric Surgery - Thomas Inge/Todd Jenkins** » Division of Behavioral Medicine and Clinical Psychology - Avani Modi

Multi-method measurement of adherence to vitamin supplementation in adolescents undergoing bariatric
surgery.

**Division of Pediatric Surgery - Thomas Inge/Todd Jenkins** » Clinical and Translational Research - Andrea Ferris
Clinical research coordinator support for the FABS 5+ study.

**Division of Pediatric Surgery - Marc Levitt** » Division of Pulmonary Medicine - Clinical - John Clancy
CFTR gene and its role in constipation in patients with CF. Specimens from colorectal cases are being analyzed for this funded project.

**Division of Pediatric Surgery - Sean Barnett** » Division of Adolescent Medicine - Jennifer Hillman
Awaiting results from a center wide survey in regards to work life balance.

**Division of Pediatric Surgery - Jaimie Nathan** » Division of Gastroenterology, Hepatology and Nutrition - Jorge Bezerra
Studying the role of the gut microbiome in the modulation of liver injury and cholangiopathies, which can progress to end-stage liver disease.

**Division of Pediatric Surgery - Peter Dickie/Belinda Hsi Dickie** » Division of Pediatric Otolaryngology - Alexander Osborn
Identify altered patterns of expression in lymphatic-determining transcription factors associated with lymphatic malformations.

**Division of Pediatric Surgery - Peter Dickie/Belinda Hsi Dickie** » Division of Pediatric Surgery - Jason Frischer
Explore lymphangiogenesis in the context of colitis.

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**Grants, Contracts, and Industry Agreements**

**Grant and Contract Awards**

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<tr>
<th>Grant and Contract Awards</th>
<th>Annual Direct</th>
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**FALCONE, R**

**Traumatic Brain Injury Symptom Screening and Resolution**
Ohio Department of Public Safety

| 07/01/11-06/30/12 | $79,592 |

**HELMRATH, M**

**Mechanisms of Intestinal Stem Cell Expansion Following Resection**
National Institutes of Health

R01 DK 083325

| 05/01/10-06/30/14 | $183,034 |

**INGE, T**

**Metabolic Actions of Antipsychotics on Adipose Tissue Samples from Children and Adolescents**
University of Cincinnati

| 07/01/11-06/30/12 | $14,546 |

**Teen Longitudinal Assessment of Bariatric Surgery (Teen-LABS)**
National Institutes of Health

UM1 DK 072493

<p>| 09/23/11-08/31/12 | $881,391 |</p>
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<thead>
<tr>
<th>Name</th>
<th>Project Title</th>
<th>Institution</th>
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<tr>
<td>Jenkins, T</td>
<td>Dietary Intake and Eating Behavior in Adolescents Who Undergo Bariatric Surgery</td>
<td>National Institutes of Health (University of Pennsylvania)</td>
<td>R01 DK 080738</td>
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<td>Jenkins, T</td>
<td>Teen Longitudinal Assessment of Bariatric Surgery (Teen-LABS) renewal</td>
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<td>Jones, H</td>
<td>Development of Non-Viral DNA Delivery Systems for Placental Gene Therapy</td>
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<td>Jones, H</td>
<td>Insulin-like Growth Factor 1 Gene Therapy; Correction of Placental Insufficiency</td>
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<td>Keswani, S</td>
<td>Novel Mechanisms of IL-10 and Hyaluronan in Regenerative Fetal Wound Repair</td>
<td>Wound Healing Foundation</td>
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<td>The Molecular Determinants of Virus Induced Biliary Atresia</td>
<td>National Institutes of Health</td>
<td>R01 DK 091566</td>
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**Current Year Direct** $2,084,963

**Industry Contracts**

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<td>Azizkhan, R</td>
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<tr>
<td>Inge, T</td>
<td>Ethicon Endo-Surgery</td>
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**Current Year Direct Receipts** $22,483

**Total** $2,107,446