

# Division of Pediatric Gastroenterology and Hepatology

Saint Louis University School of Medicine  
at SSM Health Cardinal Glennon  
Children's Hospital, St. Louis, MO



The Pediatric Gastroenterology and Hepatology Division at SSM Health Cardinal Glennon Children's Hospital is nationally and internationally recognized for excellent patient care and pioneering research into chronic liver diseases, pediatric nutrition, motility disorders, and inflammatory bowel disease. It also has an excellent long-term track record for graft survival and patient outcomes in patients undergoing liver transplant.

## Liver Diseases

SLUCare gastroenterologists are internationally respected for research into chronic liver diseases, particularly alpha-1antitrypsin deficiency (AATD), nonalcoholic fatty liver disease, hepatitis and biliary atresia. It is one of only eight pediatric centers in the United States participating in the Nonalcoholic Steatohepatitis Clinical Research Network to find treatments and novel therapeutics for non-alcoholic steatohepatitis (NASH) and non-alcoholic fatty liver disease (NAFLD).

Our division member Ajay Jain, MD, has coauthored several manuscripts pertaining to pediatric NAFLD/NASH in 2020 in leading journals. These included a study published in *Hepatology* assessing aminotransferase and gamma glutamyl transpeptidase as predictors of histologic improvement in pediatric NASH, and a study published in *Gastroenterology* characterizing the progression of fatty liver disease in children receiving standard of care lifestyle advice.

SLUCare gastroenterologists and hepatologists have particular expertise in the treatment of children diagnosed with hepatitis B and C. SSM Health Cardinal Glennon was the first hospital in the state of Missouri to offer pediatric clinical trials for Harvoni, which later was FDA-approved for children age 7 and older diagnosed with hepatitis C.

The hospital also is one of only seven pediatric centers to participate in the Hepatitis B Research Network. The collaborative research group has an observational database registry of children and adults with the disease and is currently offering three clinical trials evaluating the effectiveness of new therapeutics to treat chronic hepatitis B in children as well as adults.



## Nutritional Disorders

SLUCare Gastroenterologists at SSM Health Cardinal Glennon Children's Hospital are known internationally for their expertise in the diagnosis and treatment of childhood nutritional disorders. The hospital is one of only a select few NIH-funded childhood nutrition centers in the United States. A multidisciplinary team comprising gastroenterologists, surgeons and therapists focuses on bowel lengthening, nutritional management, intestinal rehabilitation and home nutrition services for pediatric patients. Faculty here were the first in the country to begin a clinical trial focused on the identification of new medications to prevent long-term complications of total parenteral nutrition (TPN) therapy in children.

*SLUCare gastroenterologist Ajay Jain, MD, a renowned expert on the treatment of nutritional disorders, has received multiple awards for his research. He is the recipient of the 2020 Stanley J. Dudrick National Scholar Award from the American Society For Parenteral and Enteral Nutrition and previously received the society's Harry M. Vars National Nutrition Award. He also received a National Nutrition Award from the North American Society for Pediatric Gastroenterology, Hepatology & Nutrition. Currently, Jain serves on the board of directors for the American Society for Parenteral and Enteral Nutrition. He has received several research grants from industry, foundations, and the NIH to advance understanding into mechanisms of liver and gut injury with total parenteral nutrition in short bowel syndrome.*

## Liver Transplant

For more than 20 years, the UNOS-certified liver transplant program at SSM Health Cardinal Glennon Children's Hospital has met or exceeded national graft and patient survival outcomes. From 2011 to 2018, 93.75% of liver transplant patients survived, with a graft survival rate of 88.2%.

The hospital offers isolated and multi-organ transplants, including whole and split livers. It is a long-standing member of the Studies of Pediatric Liver Transplantation (SPLIT) registry, an international research collaborative. Ongoing research efforts include the identification of pioneering strategies to mitigate ischemia-reperfusion injury in livers post-transplant.

In a recent manuscript published in August 2020 in the *American Journal of Transplantation*, SLUCare gastroenterologist and Principal Investigator, Ajay Jain, MD, published cross-sectional and longitudinal data for pediatric liver transplants over the past decade in North America in order to understand contributors to successful transplant outcomes and guide transplant decision processes. Pertinently, it highlighted that in infants 0-<3-month and those < 5kg, liver transplantation before reaching Status 1a/1b and aggressive post-operative management could positively influence outcomes.

In a landmark study published in 2020 online in the *Journal of Pediatrics*, researchers in the Childhood Liver Disease Research Network (ChiLDREN), including SLUCare gastroenterologist and principal investigator Jeffrey Teckman, MD, published a longitudinal study investigating potential predictors of mortality, liver transplantation and portal hypertension in pediatric patients with a native liver and diagnosed with AAT in the US and Canada. The study found that portal hypertension in this population impacts growth measures and that the risk of severe liver disease progression persists throughout childhood. A history of neonatal cholestasis, however, is a weak predictor of severe disease. In other multicenter research published in the July 2020 edition in *JCI Insight*, laboratory studies

have found that intravenously administered RNA interference (RNAi) therapy is a promising therapy for patients with AATD-associated liver disease. Translational research is now in Phase II and III clinical trials.

*Jeffrey Teckman, MD, is the recipient of a Lifetime Member Award from the Alpha-1 Association and was the keynote speaker at the 2019 Telethon Institute of Genetics and Medicine (TGEM) International Symposium in Italy where he presented on "Molecular Therapies for Liver Disease in AAT Deficiency."*

## Inflammatory Bowel Disease Center

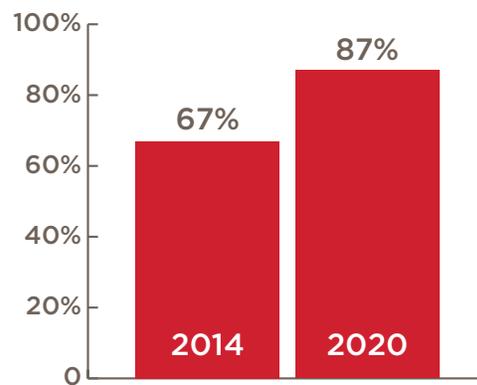
SSM Health Cardinal Glennon Children's Hospital has an acclaimed Inflammatory Bowel Disease (IBD) Center that is staffed by two pediatric physicians specializing in the treatment of pediatric IBD. The two lead a multidisciplinary specialized clinic that includes a nutritionist, psychologist, social worker, and nurse educator.

Volume in the center has more than doubled in the past five years. Treatments offered include the latest therapeutic medications as well as surgical options.

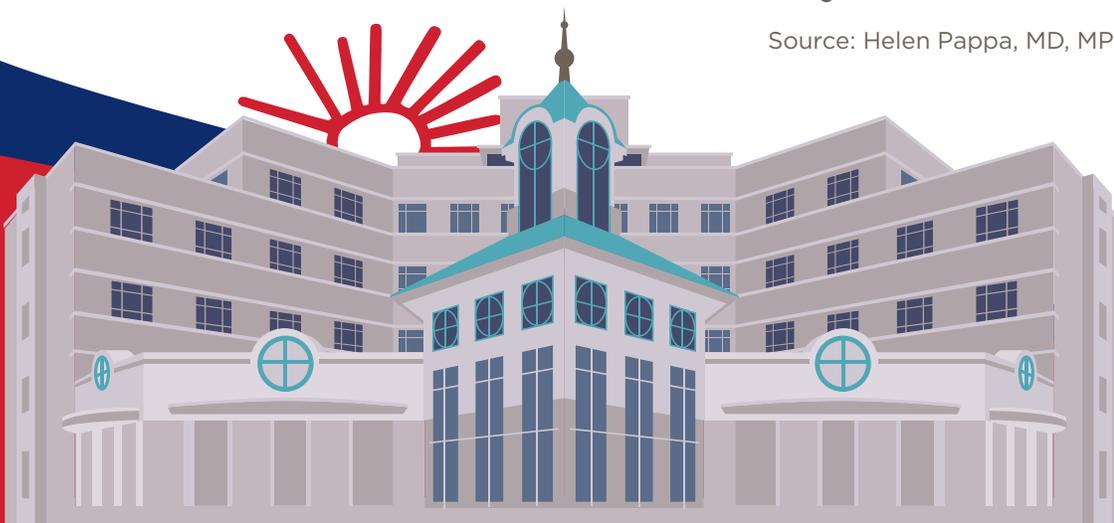
Of particular note is the hospital's excellent track record for improving IBD remission rates among young patients. Remission rates among children treated in the IBD Center are as high as 87%, well above the national average. The Center also is an active member of a national database registry of IBD patients.

## Improved IBD Remission Rate

Quality Care Initiative



Source: Helen Pappa, MD, MPH



IBD clinical research is conducted as part of the Center's participation in the ImproveCareNow Collaborative. Quality initiatives within the collaborative have resulted in standardized best practice care protocols for the treatment of IBD, particularly in children with Crohn's disease or ulcerative colitis. The hospital is an active member locally in the Crohn's and Colitis Foundation St. Louis chapter.

## **GIRAF Intestinal Rehabilitation and Feeding Program**

The hospital has a rapidly growing Glennon Intestinal Rehabilitation and Feeding (GIRAF) Program, the only one of its kind in the Midwest to focus on the care of children with complex cases of intestinal failure. The program offers both inpatient and outpatient services and has documented improved outcomes, including a decline in the time on total parenteral nutrition for many young patients.

*SLUCare Gastroenterologist Nisha Mangalat, MD, is a member of the North American Society for Pediatric Gastroenterology and Nutrition.*

## **Neurogastroenterology and Pediatric Motility Center**

The nationally recognized Neuro-Gastroenterology and Pediatric Motility Center is one of only a handful of dedicated programs in the country focused on the diagnosis and treatment of motility disorders and neuro-gastroenterology dysfunction in young children and adolescents. It also is one of only a few centers for children with expertise in the use of neurostimulators such as IB-STIM for the treatment of functional abdominal pain and IBS. The non-surgical procedure offers long-term resolution of pain from IBS and is FDA-approved for children ages 11 to 18. There is a 95% patient satisfaction rate among adolescents treated to date, with all experiencing more than 80% relief from their symptoms.

In addition to IBS, the Center treats children diagnosed with achalasia, colonic dysmotility, dysphagia, fecal incontinence, severe constipation and other motility disorders. Specialized motility studies that include esophageal, antroduodenal, colonic, and anorectal manometry are available, as is the use of SmartPill technology to identify factors associated with delayed gastrointestinal transit. Treatment options include Botox® therapy for anal fissures, biofeedback, pelvic floor training and balloon dilation of esophageal strictures.

Clinical research currently under way in the center includes collaborations with the Saint Louis University Cystic Fibrosis Center that are focused on investigating the connection between cystic fibrosis and gut dysmotility as well as the effect of laxatives on cystic fibrosis patients with chronic bowel problems.

*SLUCare gastroenterologist Dhiren Patel, MD, medical director of the center, serves on both the Neurogastroenterology and Motility Committee and the Research Committee of the North American Society of Gastroenterology, Hepatology & Nutrition (NASPGHAN).*

## **Childhood Obesity**

Clinical researchers in the division are investigating the factors that influence over-eating in children. For the treatment of childhood obesity, the hospital has a dedicated weight management program, Healthy First, that includes diet and nutrition counseling, medical management, and the option of adolescent bariatric surgery for teens and young adults between the ages of 13 and 21.

## **Multi-Specialty Clinics**

To enhance the care of young patients, gastroenterologists and hepatologists in the division offer and participate in a wide range of multispecialty clinics, including those for:

- Aerodigestive Disorders
- Anorectal/Colorectal Disorders
- Childhood Obesity
- Chronic Liver Disease
- Cystic Fibrosis
- Fontan Long-Term Clinic
- GI-Pancreatic
- Irritable Bowel Disease
- Intestinal Rehabilitation/GIRAF/TPN
- Neuro-gastroenterology/Motility

## **Pediatric Gastroenterology and Hepatology Fellowship**

Saint Louis University School of Medicine offers a three-year ACGME-accredited fellowship in pediatric gastroenterology and hepatology. The fellowship is based at SSM Health Cardinal Glennon Children's Hospital and accepts three fellows annually. Fellows completing the program have a 100% board passage rate. Our fellows had several abstract presentations at NASPGHAN 2020 and AASLD 2020.

For consultation with our specialists, physicians can contact the SSM Health Cardinal Glennon Access Center at **888-229-2424**.

For patient appointments, call our appointment line at **314-268-4010**.

## SLUCare Division of **Pediatric Gastroenterology and Hepatology Faculty**



### **Jeffrey Teckman, MD**

Director, Division of Pediatric Gastroenterology and Hepatology  
Drs. James & Patricia Monteleone Endowed Chair in Pediatric Gastroenterology  
*Professor of Pediatrics and Biochemistry and Molecular Biology*  
Saint Louis University School of Medicine

### **Ajay Jain, MD, DNB**

Associate Division Chief  
*Professor of Pediatrics, Pharmacology and Physiology*  
Medical Director, Pediatric Liver Transplant Program  
Director, MD/PhD Program, School of Medicine  
Saint Louis University School of Medicine

### **Nisha Mangalat, MD**

Director, Pediatric Gastroenterology Fellowship Program  
Medical Director, Glennon Intestinal Rehabilitation and Feeding (GIRAF) Program  
*Associate Professor of Pediatrics*  
Saint Louis University School of Medicine

### **Fernando Medina Carbonell, MD**

*Assistant Professor of Pediatrics*  
Saint Louis University School of Medicine

### **Helen Pappa, MD, MPH**

Medical Director, Center for Crohn's and Colitis  
*Associate Professor of Pediatrics*  
Saint Louis University School of Medicine

### **Dhiren Patel, MD**

Medical Director, Neuro-Gastroenterology & Pediatric Motility Center  
*Associate Professor of Pediatrics*  
Saint Louis University School of Medicine

### **Division of Pediatric Gastroenterology and Hepatology Fellows**

Sara Henen, MD\*

Albert Shan, MD

Lakshmi Anandini Suri, MD

*\*Joining faculty as of July 2021*

Faculty within the Division of Gastroenterology and Hepatology are affiliated with Saint Louis University School of Medicine and members of its SLUCare Physician Group. SSM Health Cardinal Glennon Children's Hospital is the only free-standing, not-for-profit Catholic pediatric hospital in the United States. It is a member of SSM Health, one of the largest Catholic health care systems in the country. For more information about the hospital, visit [cardinalglennon.com](http://cardinalglennon.com).



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