GASTROPARESIS CARE: Collaboration in Motion
Virginia Mason’s Digestive Disease Institute optimizes patient care through innovations in research and education as well as a multidisciplinary approach to quality treatment of digestive and liver diseases.

Areas of Emphasis

Education & Training | Multidisciplinary treatment of digestive disease is being integrated into eight DDI fellowships by director Blaire Burman, MD. The team is pleased to welcome Hyunseok Lee, MD, PhD, Visiting Scholar from Kyungpook National University.

Research | Flavio Rocha, MD, co-directed the Asia Pacific Cholangio-carcinoma Conference and is working with the team to hire a clinical research leader focused on quality and compliance for DDI’s over 170 research studies.

Quality Improvement | In addition to launching a new Gastroparesis Work Group, Otto Lin, MD, is analyzing findings and developing a manuscript on outcomes of an innovative nurse administered propofol continuous infusion sedation protocol.

Innovation | Asma Siddique, MD, is using contrast enhanced ultrasound to better characterize focal liver lesions while James Lord, MD, PhD, is applying 500K in collaborative research funding to study predictors of response to vedolizumab.

Centers of Excellence

The Digestive Disease Institute’s eight centers of excellence promote new knowledge and treatment through research, education, innovation and continuous quality improvement.

Bariatric Surgery Center of Excellence | Accredited by the MBSAQIP, Jeffrey Hunter, MD and new team member Mohan Mallipeddi, MD, have launched an ongoing bariatric research group, with a major focus on outcomes research.

Esophageal Center of Excellence | Donald Low, MD, is lead author on the ERAS Society sponsored guidelines for esophagectomy and is PI of a SALGI Foundation grant to study the early diagnosis of esophageal cancer using breath analysis of volatile compounds.

Inflammatory Bowel Disease Center of Excellence | Led by Michael Chioorean, MD, the IBD team is looking at how changes in state law could smooth disputes over pre-authorizations. The team is thrilled to welcome colorectal surgeon Val Simianu, MD, to Virginia Mason.

Liver Center of Excellence | To identify patients at risk for NASH, Asma Siddique, MD, is developing an algorithm based on risk factor profile, and is collaborating to treat liver patients throughout Washington State.

Liver, Pancreas and Biliary Surgical Center of Excellence | To improve patient access, Scott Helton, MD, is exploring specialty pharmacy handling of pancreatic enzymes. HPB Surgical Fellowship Director Adnan Alseidi, MD, will be inducted into the Academy of Master Surgeon Educators.

Nutrition Center of Excellence | Jonathan Stoehr, MD, PhD, and team have launched an RSS on medical management of weight loss with focus on medication education, standardization, and complications.

Pancreatic Center of Excellence | Under the direction of Vincent Picozzi, MD, a new repository for early detection of pancreas cancer is being led by PI Margaret Mandelson, PhD, while Shayan Irani, MD, is collaborating with infectious disease colleagues on treatment of infected pancreatitis.

Therapeutic Endoscopy Center of Excellence | Led by Andrew Ross, MD, the team continues to advance third space endoscopy, increase options for endoscopic bariatrics, improve safety and outcomes for ERCP, and execute novel and federally funded device trials.
A Conversation with Richard A. Kozarek, MD  
Executive Director, Digestive Disease Institute at Virginia Mason

Richard Kozarek, MD, founding Executive Director, reflects on the state of digestive disease care from his vantage point as gastroenterologist, physician scientist, and leader.

Who are the people pictured on the front cover of this issue of Gut Instinct?

My colleagues depicted on this year’s cover are representative of our multitalented Digestive Disease Institute team. Lily Chang, MD, Director of Surgery Residency and former Digestive Disease Institute Director of Innovation, is a principal leader in bariatric surgery as well as gastroparesis care. Qing Zhang, MD, PhD, is a gastroenterologist nationally renowned for her expertise in gut motility, including esophageal and anorectal manometry. Diana McFarlane, PA-C, brings decades of experience in gastroparesis, IBD, and the effects of chronic narcotics on the GI tract. Together, these women exemplify the multidisciplinary brilliance and collegial relationships that fuel the ongoing excellence of the Digestive Disease Institute.

When you trained in gastroenterology, what percent of your class were women? How have things changed?

When I went to medical school, five percent of my class were women. When I finished my gastroenterology fellowship, the percent of female trainees in gastroenterology was comparable. The internet tells me that in 2020, 87% of practicing gastroenterologists were men. More recently, women have composed 20-30% of gastroenterology trainees. This change has afforded the opportunity for a significant subset of our patients who prefer a woman provider to choose one that meets their needs. At the Digestive Disease Institute, we appreciate our female colleagues for the formidable skill sets, critical thinking, and leadership distinction they bring, whether facilitating one of our interprofessional work groups or as a director in the Institute.

How does the Digestive Disease Institute mission to “optimize patient care through innovations in research, education, and a multidisciplinary approach to quality treatment of digestive and liver diseases” impact our patients, team members, and leaders?

Our mission — and our model of care at Virginia Mason — places patients as the focal points of all that we do. How will we optimize and transform care? We will deliver appropriate care by the appropriate provider at the appropriate time, no matter who touches the patient first. As someone who is immersed in the culture of a robust group practice, I cannot envision ongoing friction within and/or between disciplines. If the patient remains your central focus, everything else — innovation, research, and education — is implemented to improve patient outcomes.

How has a continuous commitment to the development and execution of research at the Digestive Disease Institute impacted the science and practice of medicine?

The Digestive Disease Institute at Virginia Mason was the first institution in the world to place transgastric and transduodenal stents for pancreatic pseudocysts, to treat IBD with methotrexate, and to implement nurse administered propofol continuous infusion sedation (NAPCIS) for routine endoscopy and colonoscopy. These breakthroughs were possible due to our focus on innovation and research concentrating on improvements in care. This focus also supported firsts in interventional radiology and surgery, including large bore percutaneous and dual modality drainage for walled off pancreatic necrosis, creation of a minimally invasive procedure for internal drainage of a disconnected pancreatic duct, and development of a world-wide web based database now encompassing 41 academic medical centers on esophagectomy outcomes. We’ve only just begun!

What is next for the Digestive Disease Institute in terms of bench/translational science initiatives?

Our IBD and esophageal surgery teams have received major research grant funding to carry our work forward. Meanwhile, the Therapeutic Endoscopy Center of Excellence is participating in two NIH sponsored studies as well as evaluation of a disposable duodenoscope as one approach to eliminating bacterial cross-contamination when using scopes with an elevator channel. In total, Digestive Disease Institute providers are participating in over 170 IRB approved studies. Read on for just a sample of this exciting work.
Answering Pivotal Questions About ERCP

The Digestive Disease Institute’s Therapeutic Endoscopy Center of Excellence is home to one of the region’s busiest endoscopy centers, performing a high volume of advanced endoscopic procedures to treat a wide range of clinical conditions. The center has served as a key player in defining the role of ERCP in the diagnosis and treatment of pancreaticobiliary (PB) disorders.

As ERCP remains an integral part of care for patients with PB disease, Virginia Mason is participating in several multicenter clinical trials that aim to examine significant questions pertaining to ERCP and ultimately improve patient outcomes. These trials include NIH-funded studies on the prevention of post-ERCP pancreatitis and on the role of ERCP in the treatment of pancreas divisum, as well as the first-in-human trial of a single-use duodenoscope.

“It’s a little unusual for a non-university-based hospital like Virginia Mason to be involved in these major studies,” says Andrew Ross, MD, who leads the Therapeutic Endoscopy Center of Excellence, “and it reflects our expertise in both endoscopy and care for patients with pancreaticobiliary disorders.”

Preventing Post-ERCP Pancreatitis

About 8% of patients who undergo ERCP may develop procedure-related acute pancreatitis. Both prophylactic pancreatic stent placement and the use of rectal indomethacin have been independently demonstrated to reduce the risk of this adverse event. An open question remains: does the combination of these two interventions confer an even greater risk reduction over either one alone?

By participating in the NIH-funded, multicenter Stent vs. Indomethacin (SVI) trial, Virginia Mason endoscopists are helping to answer this question. The trial is open to patients undergoing ERCP who are considered at high risk for developing post-ERCP pancreatitis.

“Everyone in the trial gets indomethacin, and the randomization is between whether they get a pancreatic duct stent or not,” Dr. Ross says. “If we find that indomethacin alone is non-inferior, it could change the standard of care, spare patients from potential complications from attempted pancreatic duct stent placement, and significantly reduce costs.”

Should Patients With Pancreas Divisum Undergo ERCP?

Another pressing question is whether or not ERCP with minor papilla sphincterotomy prevents the recurrence of acute pancreatitis in patients found to also have pancreas divisum. “The theory is that if we enlarge the minor papilla in patients with pancreas divisum, it improves drainage and potentially reduces pancreatitis risk,” Dr. Ross says.

“We’ve seen anecdotally that this enlargement seems to help certain patients, but no one knows for sure because it’s never been rigorously tested.”

Enter the Sphincterotomy for Acute Recurrent Pancreatitis (SHARP) trial, an NIH-funded, multicenter study that’s open to patients who have pancreas divisum; have
had more than one pancreatitis episode; and are candidates for ERCP plus sphincterotomy. Virginia Mason is one of approximately 15 study sites across the US, Canada, the UK and the Netherlands.

Participants are randomly assigned to undergo ERCP plus sphincterotomy with rectal indomethacin and stent placement, or a sham procedure. Patients are then followed for up to 48 months with the primary outcome measure being a recurrent bout of acute pancreatitis.

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Pursuing Precision Medicine for IBD

As director for the Inflammatory Bowel Disease (IBD) Center of Excellence, Michael Chiorean, MD, sees treatment for IBD as being “stuck in neutral” for most of his career. About half of IBD patients respond to today’s drugs, and perhaps 20% achieve remission. That’s why he, along with Elisa Boden, MD, and James Lord, MD, PhD, are spearheading Virginia Mason’s efforts to bring the latest small molecule therapies to patients, and identify biomarkers that usher in a new era of precision medicine for IBD.

“We are quickly moving toward a day when we will be able to use a patient’s clinical, genetic and biochemical information to identify their particular form of IBD and match them with therapies that give them a much better chance of overcoming it,” Dr. Chiorean says.

Innovative Therapies

Patients appreciate new small molecule therapies because they can be taken orally, and often work faster and more effectively than today’s biologic therapies — without added toxicity.

“There are so many promising drugs in the pipeline that it makes me think there’s a realistic chance we’ll cure some forms of IBD in my lifetime.” – James Lord, MD, PhD

The IBD Center of Excellence team is especially intrigued by Janus kinase (JAK) inhibitors, which can potentially reduce gastrointestinal inflammation by preventing a signaling cascade that causes overactive immune cells to mature and proliferate. In addition to offering recently FDA-approved therapies such as tofacitinib to patients, Virginia Mason is participating in Phase III clinical trials of JAK inhibitor upadacitinib for Crohn’s disease and ulcerative colitis.

“Tofacitinib illustrates why this class of drugs has such huge potential,” Dr. Lord says. “It’s oral, it’s fast, it’s relatively affordable to produce, and it’s forgiving — patients can go back on it if they temporarily stop taking it, and the interruption is not likely to make them lose response.”

The team is also involved in clinical trials of drugs that target the S1P-1 and S1P-5 receptors, which can reduce gastrointestinal inflammation by modulating the number of activated lymphocytes that enter the blood stream from lymph nodes.

“There are so many promising drugs in the pipeline that it makes me think there’s a realistic chance we’ll cure some forms of IBD in my lifetime,” Dr. Lord states.

The Future of Biologics

In contrast to earlier therapies, new biologic agents target inflammatory pathways earlier in the activation cascade (such as IL-23 inhibitors) or modulate innate immunity factors that have been implicated in the early onset of IBD or post-operative recurrence. Focus has shifted towards better efficacy and safety, and most of them are administered via injection vs. infusion.

Dr. Chiorean is particularly excited about new avenues to treat perianal fistulas in Crohn’s disease. As a lead investigator in an upcoming clinical trial using allogenic stem cells with initial response rates approaching 70%, he will explore a completely new treatment direction for this often debilitating complication.

Bead-purified peripheral blood CD4+ T cells stained with DAPI (blue), vedolizumab (green) and either CD45RA (left panel) or CD45RO (right panel) (red) were photographed by confocal microscopy and image stacks were reconstructed into 3-D reconstructions with a VR platform. Naïve (CD45RA+) cells (left panel) usually showed vedolizumab staining in a single intracellular/perinuclear focus, while vedolizumab colocalized with the cell surface in antigen-experienced (CD45RO+) cells (right panel).
Predicting Drug Response

The Digestive Disease Institute team is working to revolutionize IBD treatment by identifying biomarkers that can predict drug response in a particular patient. This research takes place in partnership with the Benaroya Research Institute (BRI) at Virginia Mason, where Dr. Boden, affiliate investigator, and Dr. Lord, principal investigator, are collecting blood and tissue samples from every patient, before and after they start new therapy. These samples are stored in BRI’s IBD biorepository, and Dr. Lord’s lab studies them for immunological clues.

A key finding this year was the discovery that people with higher levels of alpha 4 beta 7 integrin are more likely to respond to vedolizumab, a monoclonal antibody that targets this integrin and can reduce inflammation in both Crohn’s disease and ulcerative colitis patients. The study was published in *Digestive Diseases and Sciences*.

“The finding needs to be validated in a larger cohort, but it shows how we’re making progress toward assays that will help us match patients with the right drugs,” says Dr. Boden, who was the paper’s lead author.

Patient-Centered Care

The immunology expertise within the IBD Center of Excellence is a key part of why the team has been able to give each patient the best chance at a good outcome.

“Knowing how the immune system works is fundamental to selecting a patient’s treatment,” Dr. Lord says. “It doesn’t make sense to use a particular drug if a patient doesn’t have the particular hormone or cytokine that drug targets.”

Merging this scientific expertise with a patient-centered approach is critical. Dr. Lord works closely with patient advocacy groups, including JDRF and the Crohn’s & Colitis Foundation, to push the Washington State legislature to reform “utilization management” protocols that insurers use to restrict patient access to physician-recommended therapy.

“We get very close to patients and fight for them to get the right

Physician assistant Teresa Vasicek has seen it all.

Teresa was diagnosed with Crohn’s disease in high school and has been on multiple medications, undergone surgery and endured countless flares. This experience, plus the fact that she has four brothers with Crohn’s disease, gives her a unique ability to relate to IBD patients.

“A lot of our patients are young and newly diagnosed. They’re often in denial and don’t want to take medications,” Teresa says. “I’ve been there, so it’s easy for me to be patient with them and help them process what they’re up against.”

In addition to providing outstanding medical care, Teresa looks beyond each patient’s symptoms and asks them about their mental outlook. She explains how new IBD drugs are effective and becoming more precise all the time. And she delivers straight talk about complications that can result if the disease is not treated.

“Most people appreciate that I’m real with them and can have a frank conversation,” Teresa says.

Moreover, she goes out of her way to accommodate their needs and provide the highest level of care.

“I can usually fit patients in during my lunch break or find another way to be sure they get prompt care, often on the same day they need it,” she says.

Teresa’s empathy and an intense personal commitment to helping patients whenever they need it exemplify the values of Virginia Mason’s IBD Center of Excellence.

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medication,” Dr. Boden says. “It’s not easy, but there’s no better feeling than seeing a patient flourish after you’ve given them your all.”

For more information about the Inflammatory Bowel Disease Center of Excellence, visit VirginiaMason.org/IBD-Center or call 206-223-2319.

Welcome and Farewell

The Digestive Disease Institute is excited to welcome Timothy Zisman, MD, MPH to the IBD Center of Excellence. Dr. Zisman has spent the past 10 years at the University of Washington Medical Center, where he has delivered state-of-the-art care and been involved in an innovative research portfolio.

He is currently leading a study comparing low residue and specific carbohydrate diets in patients with active Crohn’s disease, and is the site principal investigator of a multicenter, randomized trial of upadacitinib for Crohn’s disease.

He was drawn to Virginia Mason by the chance to continue his research and contribute to our team approach.

“Virginia Mason is home to a number of leading experts who work together to provide exemplary care,” Dr. Zisman says. “I’m looking forward to joining this team and helping them elevate outcomes even higher.”

After 23 years of service, Michael Gluck, MD, is planning to retire in July. As we say goodbye, we thank him for his many years of outstanding leadership and innovation in gastroenterology. Dr. Gluck has held numerous roles within the Digestive Disease Institute, as well as serving as GI Section Head and as Chief of Medicine for Virginia Mason Medical Center. In addition to his prodigious academic output and importance as a member of our therapeutic endoscopy team, Dr. Gluck has mentored innumerable residents, fellows and visiting scholars over the years. We wish him the best in his endeavors ahead!

For more information about the Therapeutic Endoscopy Center of Excellence, visit VirginiaMason.org/Therapeutic-Endoscopy or call 206-223-2319.

Inflammatory Bowel Disease Center of Excellence continued from page 7

Testing a Single-Use Duodenoscope

A continuing challenge facing centers performing ERCP is effectively reprocessing duodenoscopes and reducing the risk of patient cross-contamination. A recent interim report of FDA-mandated post-market surveillance of manufacturer-recommended cleaning instructions revealed an approximately 3% contamination risk for high-concern organisms even after duodenoscopes had been cleaned according to the manufacturers’ instructions.

Virginia Mason has been at the forefront of seeking a solution. In 2014, the institution implemented the culture and quarantine method for duodenoscope reprocessing that exceeded all recommended manufacturer standards. Now the Center is pursuing another innovative solution, by working closely with industry partners and other experts in the field to develop and test a single-use duodenoscope.

“It’s not easy, but there’s no better feeling than seeing a patient flourish after you’ve given them your all.”

“Results of this study will directly impact the direction of care for patients with pancreas divisum and relapsing acute pancreatitis,” Dr. Ross says.

“Instead of testing decontamination solutions until we find one that’s even better than what we’re doing today.”

“Maybe the best solution is to avoid the cleaning challenge altogether,” Dr. Ross says.

The disposable duodenoscope is currently undergoing clinical testing in humans. “There are still some key questions, like how well these scopes will perform, affordability and environmental concerns,” Dr. Ross says. “But we are excited about the potential, and are going to keep identifying and testing decontamination solutions until we find one that’s even better than what we’re doing today.”

“There are still some key questions, like how well these scopes will perform, affordability and environmental concerns, but we are excited about the potential, and are going to keep identifying and testing decontamination solutions until we find one that’s even better than what we’re doing today.”

— ANDREW ROSS, MD
Multidisciplinary Training for Fellows

When Blaire Burman, MD, was approved as the Digestive Disease Institute’s Director of Education and Training in 2017, one of her priorities was to expose fellows to a broader array of perspectives and ideas.

“What makes our team special is that we collaborate across disciplines to make sure patients get the best possible care. I want our fellows to learn the value of that mindset first-hand,” she says.

Dr. Burman advanced this goal in 2018, when she launched didactic sessions where physicians from a variety of specialties including hepatology, hepatopancreatobiliary surgery, oncology, infectious disease and other areas lecture on a range of liver-related topics. Fellows then engage in lively interchange with presenters about application of knowledge to patient care.

“These sessions have been really well-received and are becoming part of an annual curriculum that covers everything from disease pathology to managing patients through transplantation,” Dr. Burman says.

Critical Clinical Thinking

Didactic sessions are held weekly, and topics have included liver physiology, pathology, commonly encountered conditions, multidisciplinary management of liver cancer, and renal disease in the setting of cirrhosis, among others. All Digestive Disease Institute fellows are invited to attend as a part of their educational curricula, and residents and medical students are invited to participate as well.

“The sessions have given me a much fuller view of the whole patient in terms of what they require before and after an operation. That view will impact how I approach certain surgeries,” says George Baison, MD, Pancreas Research Fellow who completed surgical residency at Tufts University.

Fellows are encouraged to raise clinical questions in these sessions, which helps to make the curriculum more practical and applicable to patient care.

“Some fellows will bring questions about cases they’ve been involved in that have been challenging,” Dr. Baison says. “It’s a unique chance to get input and clarification from providers who have a lot more experience than we do.”

Lively Discussions

When Janelle Rekman, MD, arrived at Virginia Mason for a hepatopancreatobiliary surgery fellowship following her surgical residency at the University of Ottawa, she was immediately struck by how closely the physicians work together.

“They call each other by their first names and drop by each other’s offices to get input on cases, and that collegiality extends to the fellows,” she says, “The attendings constantly ask us for our input, and provide feedback that helps us see how they make decisions.”

This dynamic exchange carries into the didactic sessions, which follow an open format where everyone is free to ask questions or make a comment at any time.

“It’s a chance to get inside the heads of some of the field’s top experts, and I’m really impressed and grateful that they take the time to make these presentations,” Dr. Rekman says. “Everyone at Virginia Mason is so engaged in making sure fellows get the best training. I wish I had another year here!”

For more information about Education and Training at the Digestive Disease Institute, see VirginiaMason.org/Digestive-Disease-Training-and-Education or call 206-223-2319.
Gastroparesis Workgroup

By the time gastroparesis patients are referred to Virginia Mason, they might have endured the condition for months or even years. They may have changed their diet. They may have been inappropriately prescribed opioids for concomitant pain.

“Gastroparesis is complicated and many doctors don’t see it often, so it can be hard for them to know what to do if patients don’t respond to initial therapy,” says gastroenterologist Qing Zhang, MD, PhD.

Dr. Zhang is part of a Virginia Mason team that sees close to 250 gastroparesis patients a year and is using its expertise to improve diagnosis and treatment, from Seattle to Alaska, Idaho and Montana.

“We’re devising solutions, including a new pathway and a working group that brings different disciplines together to evaluate cases, and to help even the most complex gastroparesis patients get the care they need,” Dr. Zhang says.

Multidisciplinary Collaboration

To be effective, gastroparesis treatment often requires input from different disciplines. The Digestive Disease Institute recently launched an innovative gastroparesis work group, which brings gastroenterologists, surgeons, advanced practitioners, and nurses together to evaluate and treat patients. This collaboration aims to reduce the number of appointments for patients, and enables our specialists to trade ideas and find creative solutions for people who don’t respond to standard therapy.

“This work group allows us to look at patients from every angle and talk about approaches, like off-label medications, that might have worked for similar patients,” says Lily Chang, MD, FACS, a general surgeon specializing in gastrointestinal surgery. “Then we can develop a comprehensive treatment plan that addresses all aspects of someone’s condition.”

Whenever possible, the team works with a patient’s home physician to administer treatment.

“We are always available for consultations,” Dr. Chang says. “We don’t want patients from Alaska to fly all the way to Seattle to learn they could feel better with a few dietary changes.”

An Easy-To-Use Pathway

Virginia Mason’s gastroparesis work group created an easy-to-use pathway that helps physicians diagnose gastroparesis and start patients with the appropriate treatments.

“Gastroparesis can be overwhelming to treat, and some things, such as opioids, are commonly used but can actually make it worse,” says Diana McFarlane, PA-C, a physician assistant who specializes in gastroenterology and helped develop the pathway.

“We want physicians to know what steps to take and when they should refer to specialized care.”

For example, the pathway starts with an upper GI endoscopy to help rule out other conditions. If there’s an obstruction, physicians should look for a tumor, scarring or an ulcer. If there’s no obstruction, the pathway leads to checking thyroid function and considering things such as small intestinal bacterial overgrowth. The pathway also outlines how to start gastroparesis treatment.

“This algorithm helps physicians methodically work through the treatments, starting with those that are least invasive,” McFarlane says. It makes things as easy as possible for the patient, and it assures insurers we have exhausted all non-invasive options before moving on to endoscopic or surgical procedures.”

Hope for Chronically Ill Patients

Gastroparesis treatment is rapidly evolving, requiring innovative therapies and procedures to best meet patient need. Virginia Mason approaches include:

- **Gastric neurostimulation**, to apply electrical pulses that relax muscles and help the stomach empty
- **Gastric Per Oral Endoscopic Myotomy (G-POEM)**, where the pyloric muscle is cut to relieve tension and enable the stomach to empty. Using an endoscope for this procedure mitigates complications and shortens recovery.

“Gastroparesis can leave patients feeling hopeless, but there are many reasons to be optimistic,” Dr. Chang says. “We have helped many chronically ill patients feel better, and we offer approaches that deliver the best chance at a good outcome.”

For more information about Innovation at the Digestive Disease Institute, see VirginiaMason.org/DDI-Innovation or call 206-223-2319.
VIRGINIA MASON GASTROPARESIS CARE PATHWAY

Upper GI Endoscopy

No Obstruction

Delayed Gastric Emptying Study
Retention > 10% at 4 h

Obstruction

Tumor

Scarring/Ulcer

Diabetic Gastroparesis
• Check HBAIC
• Control DM with HbA1c < 7, postprandial glucose < 200
• Endocrine consult if difficult to control

Idiopathic Gastroparesis
Consider post viral etiology

Check Thyroid Function

Consider Small Intestinal Bacterial Overgrowth
• Hydrogen breath test lactulose
• Rifaximin, augmentin, etc.
• Low FODMAP diet trial

Treatment Unsuccessful

Treat Hypothyroidism

Treat Symptoms of Reflux
• Proton pump inhibitor
• Histamine-2 receptor blocker
• Elevate head of bed at night
• GERD diet

Nutrition
• Gastroparesis diet
• Liquid nutrient supplement
• Nutrition consult
• Tube feed (G-tube, J-tube)

Endoscopic Therapy*
• Balloon dilation
• Pylori botox
• G-POEM pyloromyotomy
* Endoscopic Therapy remains controversial; none of the above therapies are recommended by the American Motility Society

Treat Constipation
• Polyethylene glycol 3350
• Bisacodyl
• Senna
• Linaclotide
• Lubiprostone
• Plecanatide

Surgical Consult
• Gastric neuro-stimulator
• Pyloroplasty

Antinauseants for Symptom Relief
• Bethanechol
• Prochlorperazine
• Ondansetron
• Promethazine

Patient Support
• Psychotherapy
• Patient support groups for pain
• Alternative therapies

Pain Consult
• Minimizie narcotics, anticholinergics, and other medications that significantly slow gastric emptying

Pro-Motility Medication
• Metoclopramide
• Erythromycin
• [Domperidone]
• Investigational

Endoscopy Therapy

The Digestive Disease Institute at Virginia Mason VirginiaMason.org/DDI
Selected Recent Publications

**PANCREATIC–BILIARY SYSTEM**


**PANCREAS CANCER**


**THERAPEUTIC ENDOSCOPY**


**GENERAL ENDOSCOPY**


**ESOPHAGEAL DISORDERS**


**BARIATRIC SURGERY**


**SMALL AND LARGE BOWEL**


**INFLAMMATORY BOWEL DISEASE**


**BOOK CHAPTERS**


**BOOKS**


To see a full list of recent publications visit VirginiaMason.org/DDI-published-articles
The objective of this study is to evaluate in subjects with resected esophageal and gastroesophageal junction cancer the administration of Nivolumab will improve overall survival, disease-free survival, or both compared with placebo.

To determine whether atezolizumab combined with FOLFOX and its continuation as monotherapy can significantly improve disease-free survival compared to FOLFOLX alone in patients with stage III colon cancers and DMMR.

To evaluate the safety and effectiveness of pemigatinib versus gemcitabine plus cisplatin in the first-line treatment of patients with stage III colon cancers and DMMR.

To assess endoscopic retrograde cholangiopancreatography (ERCP) with minor papilla sphincterotomy for the treatment of recurrent acute pancreatitis with pancreas divisum.

To confirm procedural performance of the Exalt single-use duodenoscope in Endoscopic Retrograde Cholangio-Pancreatography (ERCP) procedures.

To refer patients or to see a complete list of the Digestive Disease Institute’s currently enrolling clinical trials, call the research hotline at 206-341-1021 or visit VirginiaMason.org/DDI-Research.

To evaluate the efficacy and safety of Upadacitinib in Participants With Moderately to Severely Active Ulcerative Colitis Who Failed Prior Biologic Therapy

To evaluate the efficacy and safety of risankizumab compared to placebo in inducing clinical remission in subjects with moderately to severely active ulcerative colitis, and to identify the appropriate induction dose of risankizumab for further evaluation in Sub-Study 2.

The objective of Sub-Study 1 is to evaluate the efficacy of pemigatinib versus gemcitabine plus cisplatin in the first-line treatment of patients with cholangiocarcinoma with FGFR2 rearrangement.

To determine the organ preservation rate in patients with early (cT1-3 N0) rectal cancer treated with neoadjuvant FOLFOX or CAPOX and TEMS or TAMIS.

To refer patients or to see a complete list of the Digestive Disease Institute’s currently enrolling clinical trials, call the research hotline at 206-341-1021 or visit VirginiaMason.org/DDI-Research.

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To evaluate the safety and effectiveness of the AXIOS™ Stent with Electrocautery Enhanced Delivery System in the management of symptoms of acute cholecystitis as an alternative to percutaneous gallbladder drainage.
**Saturday, May 18**

Selective Type and Screen for Elective Colectomy Based on a Transfusion Risk Score May Generate Substantial Cost Savings
*Thomas Curran, Vlad Simianu, Christine Jensen, Shelby Allen, Marc Schermerhorn, Virgilio George

Non-Exposure Full-Thickness Resection of Colonic Lesions in the U.S.: The FTRD Experience “Plenary Session”

Suturing and Closures Hands-On Workshop
*Nikhil Kumta, Prashant Kedia, Allison Schulman, Vivek Kumbhari, Nitin Kumar, Michael Larsen, Neil Gupta, A. Aziz Adan, Pichamol Jirapinyo, Austin Chiang

Assessment of Health Related Quality of Life and Digestive Symptoms in Long Term, Disease Free Survivors Following Esophagectomy
*Fredrik Klevebro, Piers Boshir, K. V. Savva, Annabelle Waller, Lory Hage, George Hanna, Donald Low

ERCP with Overtube-Assisted Enteroscopy in Patients with Roux-en-Y Gastric Bypass Anatomy: A Systematic Review and Meta-Analysis
*Rajesh Krishnamoorthi, Mahendran Jayaraj, Harshith Priyan, Nadav Sahar, Joanna Law, Michael Larsen, Shayan Irani, Richard Kozarek, Andrew Ross

**Monday, May 20**

Rational Approaches to Occult and Obscure GI Bleeding
*Michael Chiorean

Let’s Keep it Clean: Update on Endoscope Reprocessing
*Andrew Ross

The Majority of Recurrences Post Endoscopic Therapy Occur in the First Year Post Treatment and Occur in the Distal Esophagus: Results from a Large Multicenter Consortium
*Chandra Dasari, Viveksandeep Thoguluva Chandrasekar, Rajesh Krishnamoorthi, Abhiram Duvvuri, Madhav Desai, Ramprasad Jegadesan, Harsh Patel, Nour Hamade, Muhammad Aziz, Kevin Kennedy, Kianoush Donboli, Marco Spadaccini, Prashanth Vennalaganti, Divyanshoo Kohli, Andrew Ross, Alessandro Repici, Irving Waxman, Prateek Sharma

Non-Exposure Full-Thickness Resection of Colonic Lesions in the U.S.: The FTRD Experience

Gene Expression Profiling and Flow Cytometry of Esophageal Biopsies Demonstrates Diverse Immune Infiltrate in Eosinophilic Esophagitis
*James Lord, Alex Hu, Karen Ceresaletti, Donna Shows, Michael Gluck, Steve Ziegler

Decreased Risk of Neoplastic Progression in Patients with Persistent Non-Dysplastic Barrett’s Esophagus in Consecutive Endoscopies: A Systematic Review and Pooled Analysis
*Viveksandeep Thoguluva Chandrasekar, Rajesh Krishnamoorthi, Harshith Priyan, Ramprasad Jegadesan, Chandra Dasari, Madhav Desai, Abhiram Duvvuri, Harsh Patel, Kevin Kennedy, Divyanshoo Kohli, Prashanth Vennalaganti, Prateek Sharma, Prasad Iyer

Molecular Characterization of Colonic MAIT Cells in Crohn’s Disease
*James Lord, Andrew Konecny
Tuesday, May 21

**How to Integrate Deep Enteroscopy into Your Practice?**
*Andrew Ross*

**Living on the Edge – Success, Long-Term Complications, and Implications Following EUS-Directed Transgastric ERCP: A Multicenter Study**

**Are There Any Differences in Outcomes with the Various Surgical Approaches to Management of Chronic Pancreatitis: An American College of Surgery (ACS) National Surgical Quality Improvement Program (NSQIP) Survey**
*George Baison, Janelle Rekman, Morgan Bonds, Scott Helton*

**Improved Survival with EUS for All Stages of Pancreatic Cancer: A Propensity Score Analysis**
*Sheila Rustgi, Sunil Amin, Anthony Yang, Nikhil Kumta, Satish Nagula, Michelle Kim, Christopher DiMaio, Aimee Lucas*

**A Case-Matched Study on EUS-Guided Drainage of Walled-Off Necrosis Using 20 mm vs 15 mm Lumen Apposing Metal Stents: Is Bigger Better?**

**A Multicenter Matched Comparative Analysis of EUS-Guided Biliary Drainage with Lumen-Apposing Metal Stents versus Fully Covered Metal Stents**

**EUS-Guided Creation of Entero-Enterostomy Using Lumen Apposing Metal Stents for Pancreaticobiliary Access in Non-RYGB Surgical Anatomy Patients**
*Juliana Yang, Theodore James, Todd Baron, Shayan Irani, William Hsueh, John Nasr, Enad Dawod, Qais Dawod, Kaveh Hajifathalian, Reem Sharaiha, Ryan Law, Andreas Wannhoff, Karel Caca, Douglas Adler, Kia Vosoughi, Yervant Ichkhanian, Olaya Brewer Gutierrez, Mouen Khachab*

**Gastric Outlet Obstruction (GOO): If You Can’t Do an Endoscopic Gastrojejunostomy (GJ) or Enteral Stent. Try an Endoscopic Duodenojejunostomy (DJ) or Jejunujejunostomy (JJ)**
*Shayan Irani, Tossapol Kersdiriratcharit, Mouen Khachab*

**Placing a Lumen Apposing Metal Stent (LAMS) Despite Ascites: Is it Feasible and Safe?**
*Shayan Irani*

**Histological Remission and Mucosal Healing in a Randomized, Placebo-Controlled, Phase 2 Study of Etrasiom in Patients with Moderately to Severely Active Ulcerative Colitis**
*Laurent Peyrin-Biroulet, Jinkun Zhang, Severine Vermeire, Vinul Jairath, Andres Yarur, Chris Cabell, Snehal Naik, William Sandborn*

**Correlation of Fecal Calprotectin and C-Reactive Protein Concentrations with Clinical Outcomes and Endoscopic Disease Activity in Patients with Ulcerative Colitis Receiving Induction Therapy with Etrasiom**
*Andres Yarur, Vinul Jairath, Jinkun Zhang, Julian Panes, Michael Chiorean, Laurent Peyrin-Biroulet, Severine Vermeire, Chris Cabell, Snehal Naik, William Sandborn*

*Presenters: Virginia Mason Provider*
The Digestive Disease Institute at Virginia Mason is a multidisciplinary coalition of providers from:

- Bariatric Surgery
- Endocrinology
- Colorectal Surgery
- Gastroenterology and Hepatology
- General Thoracic Surgery
- Hematology/Oncology
- Hepatopancreatobiliary Surgery
- Interventional Radiology
- Pathology

** CONDITIONS WE TREAT**

- Acute Pancreatitis
- Acute Liver Failure
- Ascites
- Autoimmune Hepatitis
- Barrett’s Esophagus
- Benign Hepatic Tumors
- Bile Duct Strictures
- Bile Duct Disorders
- Biliary Duct Cancer
- Celiac Disease
- Chronic Pancreatitis
- Cirrhosis
- Colitis and Chronic Ulcerative Colitis
- Colorectal Cancer
- Colorectal Polyps
- Constipation
- Crohn’s Disease
- Cystic Fibrosis
- Esophageal and Gastric Varices
- Esophageal Strictures and Cancer
- Fatty Liver Disease
- Gallstones and Bile Duct Stones
- Gastric Cancer
- Gastroesophageal Reflux Disease (GERD)
- Gastropareis (Delayed Gastric Emptying)
- Hemochromatosis
- Hepatitis B, Hepatitis C and Chronic Hepatitis
- Hepatorenal Syndrome
- Hiatal Hernias
- Inflammatory Bowel Disease (IBD)
- Intraductal Papillary Mucosal Neoplasm (IPMNs)
- Irritable Bowel Syndrome
- Liver Cancer
- Neuroendocrine Tumors
- Nonalcoholic Steatohepatitis (NASH)
- Obesity
- Pancreatic Cancer
- Pancreatic Cysts
- Pancreatic Necrosis
- Parasophageal Hernias
- Primary Biliary Cholangitis
- Primary Sclerosing Cholangitis
- Short Bowel Syndrome
- Small Bowel Obstruction
- Small Intestinal Bacterial Overgrowth (SIBO)
- Swallowing and Motility Disorders
- Ulcerative Colitis
- Wilson’s Disease

** WHY REFER YOUR PATIENTS?**

- We treat complex patients who may be untreatable in your area
- Multidisciplinary care in GI, hepatology, surgery, oncology, endocrinology, interventional radiology and nutrition
- GI Cancer Care Coordination Team will provide your patient with personalized attention
- Clinical trials may offer new hope to patients with no other treatment options

You may refer a patient to the Digestive Disease Institute by calling (206) 223-2319, or visit VirginiaMason.org/DDI.

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**Digestive Disease Institute Leadership**

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  Executive Director

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  Director, Training & Education

- **Michael Chiorean, MD**
  Director, Inflammatory Bowel Disease Center of Excellence

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  Director, Liver, Pancreatic, and Biliary Surgical Center of Excellence

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