Welcome

Dear Alumni, Colleagues and Friends,

Welcome to the Digestive Health Update from the Division of Gastroenterology and Hepatology at Penn State Milton S. Hershey Medical Center. This past year has been a tumultuous one with earthquakes and floods in Japan, financial crisis in Ireland and Greece, and forest fires out of control in Arizona; not to mention the internecine political warfare over health care out of Washington. If you want to get your dyspepsia rolling, may I suggest The End of the Third Bubble by Neal C. Hogan, Ph.D., BDC Advisors LLC: http://www.bdcimpact.com/docs/TheThirdBubble.pdf. Beach reading, it is not!

Just when I get to thinking that my lifeboat has been tossed on the stormy seas, a walk through clinic proves reassuring. In May, Dr. Graham Jeffries, former Chair of Medicine and Chief of Gastroenterology, celebrated his eighty-second birthday while supervising the fellows’ continuity clinic. It is helpful to have someone like Graham who has “seen it all.” Let’s reflect on the special things that have happened this past academic year:

Dr. Mathew has recently returned from his NOTES (Natural Orifice Transluminal Endoscopic Surgery) sabbatical. He collaborated with Dr. Santiago Horgan, an international leader in the field at the University of California, San Diego. The expertise of Drs. Bethards and Ouyang in motility was recognized by the American Neurogastroenterology and Motility Society. Our center has been designated as one of ten Centers of Excellence in the country for motility training. This program will allow subspecialty training for rotating fellows from other training programs. In addition, Dr. Feng Dong Meng from People’s Republic of China is spending a clinical and research year with Drs. Ouyang and Bethards. Congratulations and welcome!

The Division continues to be active in regional educational programs. The sixth annual Liver Transplant Symposium and the fourth annual Gastroenterology/Hepatology Update Course which was entitled “Controversies in Adult and Pediatric Gastroenterology” were held in December and April respectively. Both meetings attracted more than 100 participants. The transplant division successfully performed a simultaneous dual liver (patient’s son) and kidney (patient’s wife), living-related transplant this past year. This was only the eleventh such transplant ever performed. The patient and family are well.

This spring, Penn State Hershey Medical Group in collaboration with the Division opened a Gastroenterology and Endoscopic Endoscopy practice in State College. Dr. Joel Haight was recruited to begin that practice. Dr. Haight completed a gastroenterology fellowship at the Cleveland Clinic. He has admitting privileges at Mount Nittany Medical Center in State College. Dr. Evan Messaris, a member of our colorectal surgery division, will be in State College on a weekly basis. For more information or questions, email me at tmcgarrity@hmc.psu.edu or phone 717-531-8741.

With warm regards,

Thomas J. McGarrity, M.D.
Chief, Division of Gastroenterology & Hepatology
Minimally invasive and maximally effective approaches to pancreatic fluid collections and pancreatic necrosis

Background
Severe necrotizing pancreatitis represents an enormous clinical problem due to its prevalence, economic costs and high levels of morbidity and mortality. In the early phase of the disease (first 14 days), a systemic inflammatory response develops that may progress to multi-organ dysfunction due to excessive inflammatory mediator release. After this period, however, the leading cause of mortality stems from infection of the pancreatic necrosis which develops in 40-70 percent of these patients. Without intervention, the mortality rate of this group will approach 100 percent which can be reduced to 24-39 percent using various methods of surgical pancreatic necrosectomy. However, with perioperative mortality rates of 15-40 percent and complication rates often in excess of 80 percent, conventional pancreatic necrosectomy retains its own toxicity; consequently, the procedure is typically performed with trepidation. Additionally, repeated trips to the operating room are often required.3,4,5

In recent years, there has been an emerging body of evidence that minimally invasive techniques represent a more attractive approach to pancreatic necrosectomy. Minimally invasive procedures offer a decreased insult to an already critically ill patient, similar technical outcomes, and lower complication rates. Several minimally invasive approaches have been published, including transperitoneal and transgastric laparoscopic techniques, endoscopic ultrasound (EUS) guided cystgastrostomy, as well as interventional radiology methods. Each of these procedures carries inherent advantages and disadvantages.4,5,6

What we can offer
At Penn State Hershey Medical Center, we offer a full-range of modalities for the management of pancreatic fluid collections and pancreatic necrosis. Many fluid collections associated with disruption of the pancreatic duct can be effectively resolved with ERCP; however when fluid collections are extensive, complex, proximally located or contain solid debris, a more aggressive technique is required. Most often this is achieved through EUS-guided transgastric and/or transduodenal cystgastrostomy. After initial drainage and lavage, direct debridement of any solid debris can be performed at a follow-up procedure leaving a clean cyst that will heal in time. We have published some of our outcomes with these patients at the Medical Center in a smaller case series with an 83 percent clinical resolution over four months without complication. In certain cases, additional drainage with assistance from interventional radiology will be required. In highly selected cases, we can offer percutaneous, flexible endoscopic debridement of abdominal abscesses where a flexible endoscope is advanced through an access point previously made under CT guidance, which is then used to debride the infected tissue under direct visualization prior to the introduction of a large caliber irrigation tube for continual post-op lavage. See link for our illustration of this technique: http://daveproject.org/pancreas-advancing-the-principles-of-minimally-invasive-surgical-therapy-a-percutaneous-combined-re- flexible-endoscopic-pancreatic-necrosectomy/2009-08-20/

References

Dr. Moyer was awarded the 2010-11 Department of Medicine Junior Faculty Award for Clinical Research.
Simulation Training in GI

“Simulation is a technique, not a technology, to replace or amplify real experiences with guided experiences, often immersive in nature, that evoke or replicate substantial aspects of the real world in a fully safe, instructive, and interactive fashion.”


Simulation training in gastrointestinal procedures has been available at Penn State Hershey Medical Center for some time; however, the institution recently made a multimillion dollar investment in renovating our simulation facilities and technology resulting in the nationally recognized Penn State Hershey Simulation Center. Dr. Elizabeth Sinz, professor of anesthesiology, has been named Associate Dean for Simulation by Dean Harold Paz, M.D. and as our new Director of Endoscopic Education, Dr. Matthew T. Moyer is incorporating simulation into the GI training program which we expect will increase the depth and safety of our curriculum.

In Dr. Moyer’s words, “simulation is becoming important, perhaps even mandatory, in the early instruction of our residents and fellows. This process allows them to have their initial exposure to certain high-risk procedures (such as ERCP), or crisis situations (such as ACLS), during simulated sessions prior to practicing on actual patients. This gives new trainees an opportunity to achieve a certain level of comfort and technical proficiency in a safe environment with continual feedback." The need for simulation training is perhaps most clear in the procedural subspecialties. The airline industry and military have understood for a long time the merits of simulation training, and now it is increasingly being emphasized by the governing bodies of medical education such as the ACGME. The Penn State Hershey Simulation Center is located on the second floor of the George Harrell Library. New generation simulators for diagnostic and therapeutic upper endoscopy, colonoscopy, and ERCP are available and are light-years ahead of what was available just a few years ago. The integration of simulation training into our fellowship program is a challenge for Dr. Moyer, but will allow repeated exposures to standardized cases which they will encounter in clinical practice, for example, the patient with an upper GI hemorrhage. The student “thinks through, talks through, and finally works through” a standardized scenario. The process allows for immediate feedback and learning and offers initial experience in new, high-risk or uncommon procedures in a safe environment.

In addition, simulation training of ancillary staff, so vital for successful therapeutic endoscopy, is available. The limitation of standard didactics in procedural skill acquisition is well recognized, and there is room for improvement in the current “on-the-job-training” of chance patient encounters. Simulation training will enhances and refines the skills of new and experienced physicians, nurses, and technicians, and promises to improve patient care and outcomes.

(Dr. Matthew Moyer’s work in education is supported in part by the Margaret E. Walrath Career Professorship previously held by Dr. Abraham Mathew. This award allows a new faculty member to direct energies toward research and post graduate education. It also recognizes exceptional achievement by junior faculty. Congratulations to Dr. Moyer.)

DIVISIONAL SPOTLIGHT: GI Fellowship

The Division of Gastroenterology and Hepatology is extremely proud of its three-year fellowship program at Penn State Milton S. Hershey Medical Center. Each year over 300 physicians apply for our two fellowship positions. This extremely competitive process yields some of the most outstanding physicians in training in the entire country. We demand and expect the highest accomplishments from them.

The fellows’ primary responsibility is to provide clinical care in the hospital with prompt consultations and accessibility on a twenty-four-hour basis. They perform a number of inpatient and outpatient procedures including: endoscopy, colonoscopy, esophageal manometry, impedance probe analysis, and paracentesis.

In terms of research, our fellows have been extremely productive having written book chapters for nationally recognized texts, published manuscripts in high impact journals such as Gastrointestinal Endoscopy and Clinical Gastroenterology & Hepatology. They routinely present their abstracts at national meetings. Indeed, two fellows were awarded the Presidential Poster Award of Distinction at the American College of Gastroenterology meeting in 2007 and 2010, respectively.

They have also enrolled in advanced fellowships such as the American Association for the Study of Liver Diseases Advanced Hepatology Fellowship and the CCFA National Visiting IBD Fellow. Several have also participated in the K30 program at Penn State Milton S. Hershey Medical Center where they have obtained a Masters Degree in Public Health Sciences. This is no small feat given the time constraints of a three-year fellowship.

Our dedication and emphasis on research and education is reflected by the fact that over the past twelve years, 25 percent of our fellows have opted to remain in academic medicine.

Under the former directorship of Thomas McGarrity and now Ian Schreibman, the fellowship has continued to grow and adapt in the constantly evolving field of gastroenterology. Due to their efforts, the program was awarded a five-year accreditation status from the ACGME, this is the longest period that can be achieved at any site review.

In summary, the division is wholeheartedly committed to the education and training of our fellows and we anticipate great deeds in the future.
Endowed Chair Campaign

The Division of Gastroenterology proudly announces a campaign to endow the Graham H. Jeffries Chair in Medicine. The goal of the endowment is to honor Dr. Jeffries' many accomplishments and to supplement departmental support for outstanding University faculty to provide the holder of the chair with the resources necessary to continue and further the scholar’s contributions to teaching, research, and public service.

As you know, Dr. Jeffries was the founder and first Chair of the Department of Medicine at Penn State Hershey. He served in this capacity from 1968-88. In addition, he was the first chief of gastroenterology, a post he held until 1982. It was in these roles that Dr. Jeffries had his greatest impact as a teacher, mentor and role model on the first generation of medical students, internal medicine residents, and gastroenterology fellows at this institution.

To create a faculty chair endowment, we need to raise $2 million, however, with funds obtained in previous campaigns, we have already reached half of our goal. With the help of those impacted by Dr. Jeffries, we can meet our goal to provide the resources to award a renowned scholar for past academic achievement and enable that scholar the opportunity to pursue new lines of research or innovative teaching methods.

Dr. Jeffries was born in South Australia and moved with his family to New Zealand. He is a graduate of the Auckland University College and the Otago Medical School of the University of New Zealand. An accomplished track and field athlete, he was awarded a Rhodes scholarship. He spent three years at Oxford University and completed a Doctorate of Philosophy in experimental pathology in 1955. He then worked under Dame Sheila Sherlock in the Liver Unit at the Royal Postgraduate Medical School, Hammersmith Hospital, London. He was then recruited to Cornell University Medical College, and was chief of the gastroenterology section at New York Hospital. In June 1955, he married Elizabeth T. Jones of Pelham, New York.

Holders of University Chairs are often esteemed as mentors by students who seek their intellectual guidance. It is wholly proper that a Faculty Chair in Medicine be named in honor of Dr. Jeffries based on the continuing respect the alumni of Penn State College of Medicine have for him. He continues to act as a mentor and friend for many of these alumni as they grow and prosper in their careers.

If you are interested in learning more about how you can help honor Dr. Jeffries, please contact Troy M. Miller, Director of Individual Giving for Penn State Milton S. Hershey Medical Center at tmiller19@hmc.psu.edu. To reach our campaign goal of $1 million, additional resources are necessary and we need your help. Those that have a personal relationship with Dr. Jeffries know how deserving of this honor he is.

New Liver Center Under Development

Liver diseases are the twelfth leading cause of mortality in the United States today. Many liver diseases, such as non-alcoholic fatty liver disease, are rapidly increasing in frequency. There has also been a dramatic rise in the number of hepatocellular carcinoma attributable to the “Hepatitis Cirrhosis Epidemic” of the 1970’s. Penn State Hershey Medical Center is responding to this public health problem with the creation of a dedicated liver center. The aim of the center will be to provide multidisciplinary care for patients with the variety of chronic liver diseases. This center will include multiple specialties that have a focus on liver disease including transplant hepatology, transplant liver surgery, surgical oncologic surgeons, interventional radiologists, pathologists, oncologists, abdominal imaging, pediatric hepatology and transplant anesthesiologists. The center will not only focus on excellence in patient care but also in improving our understanding of liver diseases by dedicating efforts towards research. The liver center designation will make this the only fully dedicated Liver Center in the state of Pennsylvania and would be one of only a handful in the nation.

As part of our goal of the center we will continue to grow the liver transplantation team. Part of the goal over the next several years is to do one live-donor transplant per month. We recently accomplished an important milestone in central Pennsylvania performing the first live donor liver and kidney transplant where both organs were from two separate donors (patient wife and son). We also have set a goal to increase the number of liver transplants to thirty-five to forty over the next several years from our current twenty-five to thirty numbers. Our center has had excellent results with our current one year survival rate at greater than 90 percent, better than the national average.

Please watch for further announcements as we progress in the process of creating the liver center. If you have any specific feedback for us that you believe may help us with our goal, please feel free to contact us at triley@hmc.psu.edu. We look forward to a continued enhanced relationship with those providing liver care in central Pennsylvania.
Dr. Emmanuelle Williams joined the gastroenterology and hepatology Division in 2010. Dr. Williams graduated from Yale University and Jefferson Medical College. She completed an internal medicine residency at the University of Michigan and gastroenterology fellowship at the University of Florida. She was named Chief Fellow for her senior year of fellowship. Dr. Williams’ main clinical interest is inflammatory bowel disease. She has established a weekly multidisciplinary clinic with the colorectal surgery division which offers a patient-centered, disease-specific team management approach. In addition, Dr. Williams in collaboration with Dr. Jeffries has assumed directorship of undergraduate education for gastroenterology and hepatology. Please welcome Dr. Williams!

Gastroenterology State College

Penn State Hershey Medical Group has made strong inroads establishing a strong clinical campus in State College. Penn State Hershey Medical Group in State College has had an established presence in family practice, orthopaedics and sports medicine. Recently, the family and community medicine group under the direction of Dr. Michael Flanagan has experienced significant growth. Dr. Tom Covaleski, former medical chief resident at Penn State Hershey Medical Center, has established the Penn State Hershey hospitalist program at Mount Nittany Medical Center, State College.

In January 2011, Gene Marsh, M.D. was recruited as Associate Dean for the regional campus in State College; and is committed to establishing a diverse multidisciplinary medical and surgical practice to meet the needs of the Penn State community. In time, this practice will fulfill an important teaching role for Penn State College of Medicine students.

To this end, Joel Haight, M.D., has been recruited and established a gastroenterology practice in March 2011. Dr. Haight has been instrumental in designing and implementing an outpatient endoscopy center in State College. Dr. Haight completed his internal medicine residency at the University of Rochester and gastroenterology fellowship at the Cleveland Clinic. In addition, Dr. Haight’s work will be supported by Dr. Evan Messaris who recently completed his colorectal fellowship at Penn State.
Basic Science Research

For several years our laboratories have been interested in the organization of vagal brainstem circuits devoted to the control of homeostatic pathways, particularly those involved in the control of gastrointestinal and pancreatic functions, as well as feeding.

One primary focus of our laboratories is the investigation of functional gastrointestinal (GI) motility disorders, including functional dyspepsia, which are very common, often chronic and disabling, conditions that account for a large proportion of consultations with primary care and specialist physicians. The pathophysiology of these disorders remains incompletely understood, but several lines of evidence point toward impairment of the vagal sensory-motor loop connecting the gut to the central nervous system (CNS) and back. Visceral sensory information is conveyed to the CNS via vagal afferent nerve fibers which terminate within the brainstem in the nucleus tractus solitarius (NTS). Neurons of the NTS assimilate this sensory information with information received from other ‘higher’ CNS centers involved in the regulation of autonomic functions and homeostasis. Information from these converging neural inputs is assimilated and integrated with metabolic and hormonal signals to shape the resulting output response. NTS neurons project to, among other areas, the adjacent dorsal motor nucleus of the vagus (DMV) which contains the preganglionic parasympathetic neurons that provide the vagal efferent (motor) output back to the GI tract. DMV neurons innervate postganglionic neurons located within the gastrointestinal tract and belong to one of two distinct pathways; one is an excitatory cholinergic pathway that increases gastric tone, motility and secretion via activation of muscarinic cholinergic receptors. The other pathway is an inhibitory non-adrenergic, non-cholinergic (NANC) pathway that inhibits gastric functions mainly by releasing nitric oxide or vasoactive intestinal polypeptide.

Based on the experimental data we have generated in the last few years, we hypothesize that brainstem homeostatic circuits are not the simple, static relay networks previously described that respond to visceral sensory inputs with stereotypical output responses without processing, integration or modulation. Instead, brainstem vagal neurocircuits regulating GI functions adapt to ever-changing environmental conditions in a continuous and fluid manner and undergo short-term adaptive plasticity to ensure that vagally regulated functions respond appropriately to a variety of intrinsic and extrinsic factors (e.g., food, neurohormones, stress, peripheral sensory inputs, time of day, etc.). This short-term plasticity is directed toward selective and distinct neuronal subpopulations that are organized into discrete pathways controlling individual visceral functions, each of which is devoted to the modulation and regulation of integrative inputs originating from higher centers (e.g., the hypothalamus, the central nucleus of the amygdala, Barrington’s nucleus, etc.). Similarly, peripheral injury due to dietary deficiency, inflammation, metabolic or neurodegenerative disease (e.g., diabetes, pancreatitis, esophagitis, Parkinson’s disease, etc.) may induce longer-term alterations in the pharmacological and synaptic organization of these homeostatic circuits.

Our laboratories, funded by both the National Institutes of Health (NIH) and the National Science Foundation (NSF), are now investigating the differences in the organization and responses of these neural circuits with the aim of uncovering the mechanisms involved in the reorganization of neural substrates in pathophysiological states such as functional dyspepsia, acute pancreatitis, hyperglycemia and maternal obesity.

Dr. Travagli was awarded an American Gastroenterological Association Masters Award for Outstanding Achievement in Basic Digestive Sciences 2010.
Gastroenterology & Hepatology Fellows

Third Year Fellows

Dr. Sharzehi completed his internal medicine residency at Henry Ford Hospital in Detroit, Michigan. Before joining our fellowship program in 2009, Dr. Sharzehi completed a transplant hepatology fellowship at the University of Miami. Currently, Dr. Sharzehi is enrolled in our Master’s Degree Program in the Department of Public Health Sciences. He currently is seeking a fourth year fellowship in therapeutic endoscopy and anticipates a career in academic medicine. He has been accepted for an Advanced Endoscopic Fellowship with Fox Chase Cancer Institute in Philadelphia. Dr. Sharzehi serves this year as the chief fellow for our program.

Dr. Jain completed his internal medicine residency program at Thomas Jefferson University, Lankenau program where he was chief medicine resident. Last year, Dr. Jain was awarded a visiting scholarship in inflammatory bowel disease at Mount Sinai Hospital in New York City sponsored by the Crohn’s and Colitis Foundation. Dr. Jain has a particular interest in inflammatory bowel disease and evidence-based medicine.

Second Year Fellows

Dr. Bhardwaj completed his internal medicine residency at Pinnacle Health in Harrisburg, Pennsylvania. He was Resident of the Year 2006-2007 and also served as chief resident in the department. He was a faculty member in general internal medicine at Hershey Medical Center before starting his GI fellowship. Dr. Bhardwaj has published in peer-reviewed journals including the American Journal of Gastroenterology, Obesity Surgery, Digestive Surgery, and Archives of Pathology and Laboratory Medicine. In oral and abstract form, he has presented research work at Digestive Disease Week, American Gastroenterological Association as well as several other meetings. Dr. Bhardwaj’s wife, Neeti, is currently a fellow in our Division of Allergy and Immunology in the Department of Medicine.

First Year Fellows

Dr. Oluyemi earned her undergraduate degree at the University of Maryland, College Park and attended the Robert Wood Johnson School of Medicine. She completed her internal medicine residency here in 2010. At that time, she authored research on pregnancy outcomes of women with inflammatory bowel disease treated anti-TNF agents.

Dr. Yeasted completed his undergraduate studies at Muhlenberg College where he was an NCAA All-American wrestler. He was awarded a Dana scholarship. He completed medical school at Penn State College of Medicine. After his internal medicine residency, he served as chief medicine resident for the Department of Medicine 2010-2011.

Dr. Yasin completed medical school at State College of Medicine in 2007 and his internal medicine residency here in 2010. During his residency, he was awarded the 2009 Arnold P. Gold Foundation Humanism and Excellence in Teaching Award. He was named Intern of the Year in 2007 and Senior Resident of the Year in 2009-2010. He has an interest in liver disease and is considering pursuing a fourth year fellowship in hepatology.
Penn State Hershey Gastroenterology and Hepatology provides world-class care and advances the knowledge of disorders of the digestive system and liver through research, and train the physicians of the future. The physicians in the division participate in studies to determine the usefulness of novel treatments through clinical research studies and also in research which advances the basic knowledge of the disorders in this field.