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In this issue

Management of *Helicobacter Pylori* Infection in Africa: The Challenges and Peculiarities

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Helicobacter pylori (H. pylori) is a gram-negative class 1 carcinogen that has chronically infected more than 50% (4.4 billion people) of the world's population with variable prevalence rates in different populations.[1,2] Africa comprises 54 nations with a population of 1.4 billion people, many of whom have *H. pylori* infection. Africa has the highest prevalence of *H. pylori* infection (70.1%) compared to Oceania/Australia with the lowest prevalence of 24.4%.[3] Among individual countries, Nigeria in West Africa has the highest global prevalence of 87.7% while Switzerland has the lowest prevalence of 18.9%.[3]

H. pylori is a major cause of gastroduodenal disease including chronic active gastritis, peptic ulcer disease, mucosa-associated lymphoid tissue (MALT) lymphoma, and gastric cancer. It is an established cause of iron deficiency anemia and idiopathic thrombocytopenia and a suggested cause of many other non-gastroduodenal disorders. While about 75-80% of *H. pylori*-infected persons do not show clinical symptoms,

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almost all show evidence of gastritis if biopsies are taken during esophagogastroduodenoscopy. *H. pylori* gastritis has been designated as an infectious disease with the recommendation of a paradigm shift from treatment of persons with clinical manifestations to the treatment of all infected persons (Kyoto consensus report of 2015).[4] As an infectious disease without an available vaccine, the hope of its containment is in the treatment of all infected persons to eradicate the organism and break the chain of transmission driven by the cohort effect.

Eradication of *H. pylori* is the most effective means to cure and prevent the recurrence of peptic ulcer disease and MALT lymphoma. The risk of gastric cancer is related to the severity and extent of gastric atrophy, intestinal metaplasia, and dysplasia (Correa cascade). *H. pylori* eradication has been found beneficial in preventing the progression of gastric atrophy and intestinal metaplasia leading to an approximately 50% reduction in the risk of gastric cancer development.[5, 6] Globally, there has been a substantial decline in *H. pylori* eradication rates over the years due to antibiotic resistance necessitating antimicrobial resistance testing as an important tool in *H. pylori* management.[7, 8] *H. pylori* antimicrobial susceptibility testing is sparse in most parts of Africa. Eradication rates and antibiotic resistance patterns are variable among different geographical regions and largely mirror the type and quantity of antibiotics used in a particular population.[9] Eradication failure is more worrisome in Africa already grappling with a huge burden of *H. pylori* infection prevalence rates occasioned by poor sanitation, over-crowding, low antimicrobial stewardship, poverty, sparse endoscopic services, out-of-pocket payment system of healthcare, and poor medication compliance.[10] In a prior study in Africa, *H. pylori* eradication rates were as low as 30.0%, 44.4%, 50.0%, 53.8%, and 77.8% by protocol analysis and 23.1%, 23.5%, 33.3%, 35.0%, and 41.2% by intention to treat respectively using five different triple therapy combinations.[11]

H. pylori eradication testing is carried out using a urea breath test, stool antigen test, or endoscopic biopsy specimen. When a urea breath test, stool antigen, or rapid urease test is used, the patient should be off antibiotics, bismuth, and proton pump inhibitor (PPI) at least two weeks before carrying out the test, and a post-treatment test should be carried out at least four weeks after completion of therapy to prevent a false-negative result. An eradication test is not recommended as a primary indication for endoscopy. However, when a biopsy specimen is obtained from other indications for endoscopy, at least two tissue specimens should be taken, each from the antrum and the corpus as *H. pylori* tend to migrate upwards from the antrum in patients who are receiving PPIs. Histologically, the corpus may look like the antrum in atrophic gastritis and requires that the antral biopsy specimen be separated from that of the corpus. In intestinal metaplasia, multiple gastric biopsy specimens (using Modified Sydney protocol) should be obtained as *H. pylori* preferentially colonize normal gastric mucosa and do not adhere to the metaplastic gastric mucosa.

If performing *H. pylori* culture for diagnosis or for antibiotic susceptibility testing, the gastric biopsies should be plated and cultured rapidly, or else placed in a transport medium such as Brucella broth with 20% glycerol and frozen immediately, preferably by a quick freeze at −70 to −80 °C and shipped overnight on dry ice to the laboratory where culture will be performed.[8] If maintained in a −70 to −80 °C freezer, the specimen will remain viable for months, if not years. Another transport medium is Portagerm pylori.[8] Antimicrobial susceptibility testing using next-generation sequencing (NGS) is an alternative to culture.[8] However, the high cost and lack of expertise limit the use of resistance testing in Africa. *H. pylori* can also be detected in blood by the presence of antibodies, but this serologic test is mainly reserved as a screening test and is not as accurate as the other tests discussed above. Though available and cost-effective, another drawback with using serology to

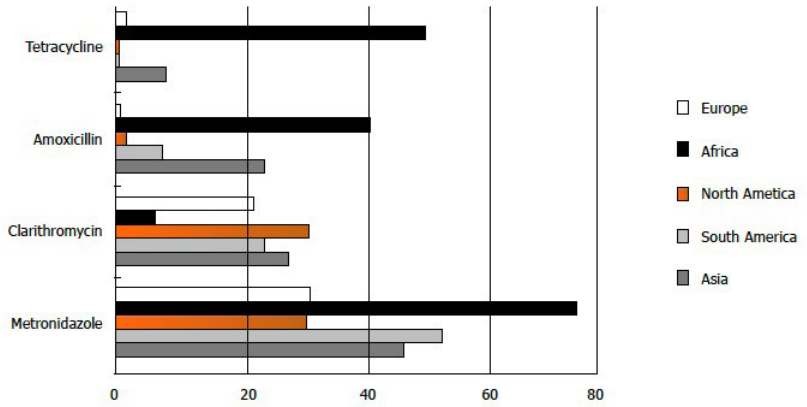

Figure 1: Antibiotic resistance rates to 4 most common used antibiotics in different continental areas. Ghotaslou et al[13]

evaluate eradication is that it does not differentiate active from past *H. pylori* infection.

In Africa, there is marked *H. pylori* resistance to the most common antimicrobials that are used in combination with PPIs to treat *H. pylori* infection, namely amoxicillin, clarithromycin, tetracycline, and metronidazole (see Figure 1). Treatment success requires the use of optimized regimens that are defined as consistently achieving high cure rates in adherent patients with susceptible infections. As a general rule, therapeutic regimens that have a ≥90% or, preferably, ≥95% eradication rate locally are recommended and where no available regimen can achieve a ≥90% eradication rate, the most effective regimen(s) available locally should be used.[12] Eradication in Africa has not reached the global target of ≥90%.[12]

With the exception of clarithromycin, Africa records the highest antibiotic resistance to the common antibiotics (amoxicillin, metronidazole, and tetracycline) used in the treatment of *H. pylori* infection (Figure 1) which has been attributed to poor antibiotic stewardship. Currently, the suitable common empirical regimens for the treatment of *H. pylori* include bismuth quadruple therapy, concomitant therapy, sequential therapy, and rifabutin triple therapy.[8] Conventional triple-therapy consists of a proton pump inhibitor and two antibiotics: amoxicillin and clarithromycin, or metronidazole and clarithromycin. For use as a first-line regimen, clarithromycin combination triple therapy (PPI, amoxicillin, clarithromycin) is recommended if local clarithromycin resistance is less than 15% (Maastricht V/Florence Consensus report, 2016).[14] Metronidazole can replace amoxicillin in patients who are allergic to penicillin. However, high rates of metronidazole resistance in Africa limit its use as a combination for triple therapy. Quadruple therapy should be used as first-line therapy in places with high clarithromycin resistance (>15%).[14]

Ideally, treatment of resistant *H. pylori* infection should prompt antibiotic susceptibility testing (AST- see Figure 2). However, in most parts of Africa where this test is not available, treatment should include the use of quadruple therapy (bismuth-containing quadruple therapy or non-bismuth containing quadruple therapy). Bismuth-containing quadruple therapy consists of bismuth sub-salicylate or sub-citrate administered four times a day, high dose PPI given twice a day, and two antibiotics (metronidazole, tetracycline, amoxicillin, furazolidone or levofloxacin) preferably administered for 14 days. The non-bismuth-containing quadruple (concomitant) therapy is one in which, instead of bismuth, another antibiotic is added to the combination to make it three antibiotics (clarithromycin, amoxicillin, and metronidazole) and a PPI. High-dose PPIs are shown to enhance the efficacy of treatment by raising gastric epithelial pH and working in synergism with antibiotics. Sequential therapy (five days PPI and amoxicillin followed by another five days PPI, metronidazole or tinidazole, and clarithromycin) has not been shown to be more efficacious than quadruple therapy.[15]

Vonoprazan, a novel type of potassium-competitive acid blocker, provides more rapid and profound acid suppression that is achievable with PPIs. Dual therapy of vonoprazan and amoxicillin or triple therapy of vonoprazan, amoxicillin, and clarithromycin appears highly effective in studies from South East Asia where the drug was first used. Triple therapy of vonoprazan, amoxicillin and rifabutin or levofloxacin may be more effective in some areas in Africa with high clarithromycin resistance. Though vonoprazan is not yet available in Africa, it is hoped it will be available and affordable to help improve the currently low rates of *H. pylori* eradication in the continent over the next decade.

It is our opinion that the most important methods to improve *H. pylori* management in Africa would involve creating more awareness of the alarming prevalence of *H. pylori* infection in the continent, improving antibiotic stewardship, training, and re-training healthcare workers on how to make early diagnoses and

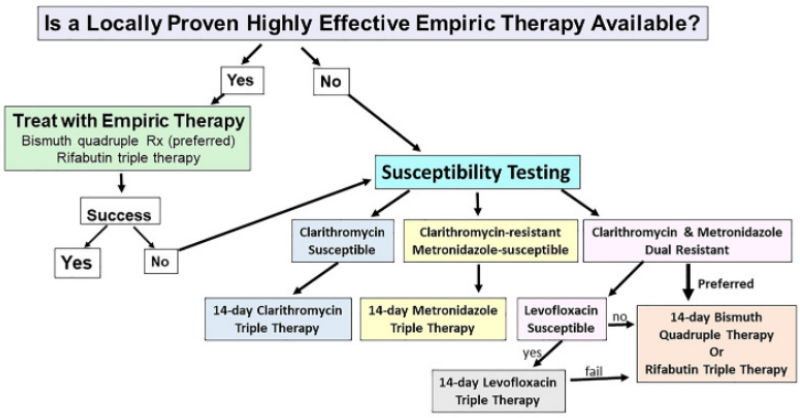

Figure 2: Proposed algorithm for the selection of ***Helicobacter pylori*** regimen based on knowledge of the results of empiric first-line therapies and the results of susceptibility testing. Graham DY and Moss SF.[8]

appropriate treatment of the infected population as well as scaling up endoscopic services to manage *H. pylori*-associated complications.

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Message from the Editors

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We are happy to present the June issue of e-WGN to our esteemed members. Our Editorial Board of *e-WGN*, just like our parent organisation World Gastroenterology Organisation (WGO), has a global inclusion. We have on our editorial board members from Rwanda, Peru, Ethiopia, Australia, Poland, New Zealand, Romania, Japan, China, India, and USA. On 30 March this year, we had a full editorial board meeting where almost all the members were present. We had an exciting discussion with generation of great proposed ideas and we look forward to the upcoming years.

This present *e-WGN* issue has two important academic expert point of views. Dr. Amol Bapaye from India gives an excellent overview on the rapid growth of endoscopic surgery in the last decade. Third space endoscopy includes, but is not limited to, peroral endoscopy myotomy (POEM), submucosal tunneling endoscopic resection (STER), and endoscopic full thickness resection (EFTR). This article has briefly touched on the history of these procedures, indications, limitations, and futuristic concepts. In a related article during conversation with Dr. Vivek Kaul, chair of WGO's Endoscopy Interest Group, Dr. Bapaye answers relevant questions related to his own learning of procedures, present status of these procedures, role of industry and professional associations, and the unmet needs of training.

Helicobacter pylori continuous to be an important pathogenetic factor responsible for gastric inflammation as well as neoplasia. The African continent continues to be an important geographical location for *H.pylori*. Dr. Evaristus Chukwudike and colleagues highlight the importance of diagnosis, treatment strategies, and ways to confirm eradication of *H. pylori* as practiced in Africa. We are confident that there are a lot of take-home messages from this article not only for our readers from the African region but also for other countries.

e-WGN has been a platform for information regarding important meetings of member societies. In this addition, we have news from India about their 62nd Annual Meeting held in Pune, as well as from Brazil about the Brazilian Digestive Week held in November 2021. Dr. Ganiyat Oyeleke also details the recently held training program at Lagos on "Colorectal Cancer Awareness Endoscopy Workshop."

Train the Trainers is a very effective component of WGO's activities, and Dr. Roque Sáenz from Chile has written his commentary on this. On behalf of WGO, we invite all members and colleagues to the upcoming World Congress of Gastroenterology to be held in Dubai in December 2022. A brief agenda of this meeting is mentioned in this issue.

WGO Global Guidelines are important documents because they are carefully designed based on evidence and with consideration of diverse geographical issues. Guidelines on pancreatic cystic lesions, digestive tuberculosis, and *Helicobacter pylori* are now available and a link has been provided in the present edition.

We both are very excited to continue with our responsibilities associated with quality and timely publications of *e-WGN*. We also take this opportunity to invite suggestions and feedback from our global community of members to improve content and circulation of the *e-WGN*. Our catchline continues to be "happy but never satisfied."

Mahesh and Anita

Endoscopic Surgery – An Evolving Interdisciplinary Subspecialty!

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Introduction

Although gastrointestinal (GI) endoscopy made humble beginnings in 1958 as a diagnostic tool, intraluminal therapeutic interventions through the endoscope have evolved significantly. Since the first description of polypectomy by Shinya et al. in 1969,[1] endoluminal interventions made tremendous progress in the subsequent years by the development of techniques like endoscopic mucosal resection (EMR) and endoscopic submucosal dissection (ESD).[2, 3] Despite these developments, for a long time, endoscopic interventions were limited to treatment of intraluminal pathologies, or to the so called "first space."

The tremendous development and technological explosion of laparoscopic surgery in the late 1980s and 1990s stimulated pioneers in flexible endoscopy to aim to perform "no scar" flexible endoscopic surgery within the peritoneal space. This resulted in the development of natural orifice transluminal endoscopic surgery (NOTES) as a specialty in 2004, wherein transgastric or transvaginal approaches were used to gain access to the peritoneal cavity.[4, 5] Although NOTES remained largely a proof-of-principle paradigm, the concept provided endoscopists with the opportunity to explore the possibilities of accessing the peritoneal or "second space" reliably and safely. Secure closure of the bowel wall defect was one of the most important challenges for the development and application of NOTES. Easier or safer modes to access the peritoneal cavity were therefore explored.

Sumiyama et al. in 2007 described the concept of submucosal tunneling endoscopy using a mucosal flap valve (SEMF) to access the peritoneal cavity.[6] The submucosal, or "third space" as it is called, provides a unique opportunity to access the deeper (intramural) layers of the GI tract as well as acts as a port to access the peritoneal cavity. Pasricha et al. evaluated the concept of submucosal myotomy in porcine models.[7] Inoue and colleagues performed the first peroral endoscopic myotomy (POEM) for achalasia cardia in 2008. They published their "first in the world" case series of 17 patients, unleashing a decade of research, evolution, and advancement in the field of third space endoscopy.[8] In this article, we discuss the current applications for this exciting specialty and future directions.

Endoscopic Submucosal Dissection (ESD) – The Precursor

ESD is the first procedure that visualized and required dissection in the submucosal space. ESD was conceived to address the limitations posed by EMR to perform enbloc resection for mucosal neoplasia larger than 20 mm in size. ESD has been extensively used for the treatment of early gastric cancer and mucosal lesions, esophageal squamous cell carcinoma, and early colorectal cancer and dysplastic lesions.[9] Results of ESD have consistently demonstrated high success rates of enbloc and R0 resection and relatively low recurrence rates and adverse events.

Third Space or Submucosal Endoscopy

Submucosal endoscopy using a mucosal flap valve (SEMF), also called third space endoscopy (TSE), submucosal surgery, or submucosal endoscopic surgery, is a unique concept (Figure 1). It utilizes the mucosal flap valve principle to create a tunnel in the submucosal layer through a proximally placed mucosal incision. This access route is then used to operate in the deeper layers of the gastrointestinal (GI) tract or to gain access to the peritoneal or mediastinal cavity, after which the incision is closed using endoscopic clips or sutures. The advantage of such an approach is the added procedural safety because of the stepwise dissection of layers of the bowel wall that separates the mucosal incision and myotomy sites.[10, 11]

Peroral endoscopic myotomy (POEM) is the index procedure first performed using TSE principles. After the unprecedented success and popularity of POEM, endoscopists around the world have extended the applications of TSE to other spastic disorders of the GI tract. In addition, subepithelial tumors of the GI tract are being resected using submucosal tunneling endoscopic resection (STER) or endoscopic full-thickness resection (EFTR) procedures.[12, 13]

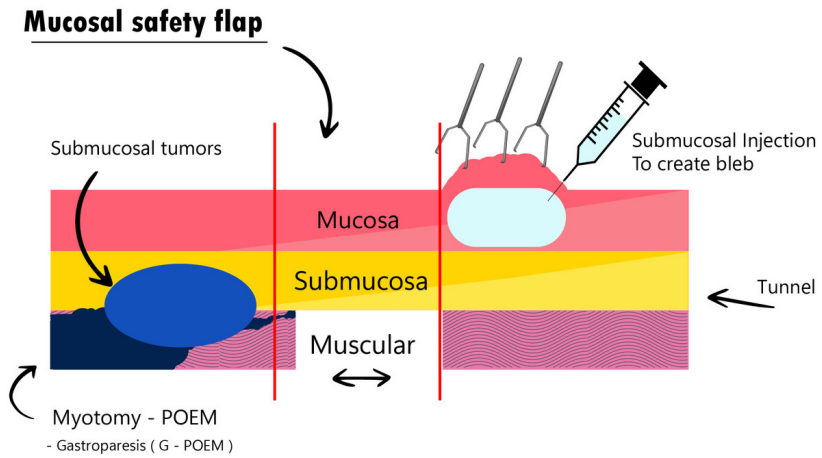

Figure 1 Third Space Endoscopy Procedure Steps

The general technique for TSE procedures involves creating a submucosal cushion proximal to the area of interest in the bowel, mucosal incision over the cushion, entry into the submucosa, creating a longitudinal tunnel along the axial length of the organ of interest, accessing the muscle layer distal to the site of mucosal entry, and performing the desired intervention—myotomy, tumor resection, etc., followed by endoscopic closure of the mucosal incision using clips or sutures. General anesthesia and carbon dioxide insufflation are mandatory while performing these procedures. Apart from standard high-definition endoscopes, a variety of instruments such as endoscopic caps, knives, coagulation graspers, clips, and suturing devices are used while performing these procedures.

TSE procedures are largely safe, and most procedures have reported a low incidence of adverse events. Pneumoperitoneum (or pneumomediastinum) type adverse events are the most common and occur due to carbon dioxide insufflation while performing the procedure. Using low flow insufflation devices and abdominal or pleural needle decompression have been described as measures to avoid or treat these events, respectively. Intraprocedural (or delayed) bleeding, perforation, and infection have all been reported, and care must be taken to adhere to surgical principles of hemostasis, closure, and disinfection to avoid or minimize the occurrence of such events. Severe adverse events are rare, although mortality has been anecdotally reported.[10, 11]

POEM for Achalasia Cardia

POEM is the oldest and most evaluated of all TSE procedures (Figure 2). It has the distinction of being the procedure that gained fastest popularity and acceptance in the history of endoscopy. Based on the current available literature on POEM, an estimated more than 25,000 POEM procedures have been performed worldwide. POEM has demonstrated excellent technical and clinical success rates for treatment of all types of achalasia cardia and has reported consistently low adverse events. Success rates above 90% have been consistently reported in most studies and meta-analyses. POEM has demonstrated excellent outcomes for naïve achalasia as well as for prior treatment failures. It has shown excellent outcomes in the pediatric population as well. While comparing POEM with other modalities, it has demonstrated superior results over endoscopic pneumatic balloon dilatation (EBD), whereas outcomes for laparoscopic Heller's myotomy (LHM) and POEM are comparable for achalasia subtypes I and II. POEM has been successfully implemented for the treatment of type III achalasia and other spastic esophageal disorders (SEDs) like diffuse esophageal spasm (DES), GE junction outflow obstruction, and jackhammer esophagus (JH). Because POEM is performed through the esophageal lumen, it has the advantage that a customized length of myotomy can be performed, depending on the underlying pathology. Results of POEM in type III

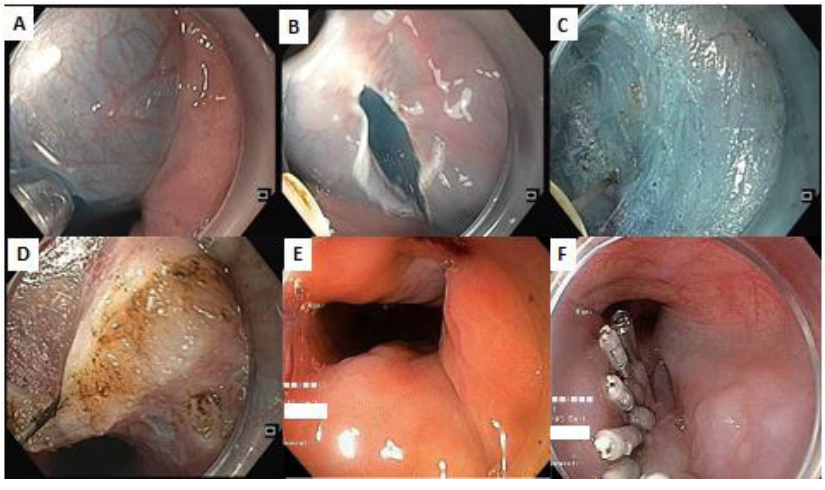

Figure 2 POEM Procedure Steps

achalasia and SEDs have demonstrated significantly higher success rates as compared to LHM or EBD.[10, 11]

Patients with achalasia cardia being subjected to POEM require prior evaluation by EGD and high-resolution manometry to confirm and classify the type of achalasia. POEM is usually performed as an in-patient procedure or more recently has also been safely performed on an out-patient basis.

Submucosal Tunneling Endoscopic Resection (STER) for GI Subepithelial Tumors

Subepithelial lesions (SELs) of the GI tract can arise from the submucosal or muscularis propria layer of the bowel and include a variety of pathologies – leiomyoma, gastrointestinal stromal tumors (GISTs), lipoma, neuroendocrine tumors (NETs), neural origin tumors like schwannoma, etc.

A tissue diagnosis of these lesions is often challenging and, although most of these lesions are benign, some such as GISTs and NETs harbor malignant potential. Resection is therefore often mandated, especially when the lesion is known to be premalignant, has demonstrated rapid interval growth, and/or is symptomatic. Using the TSE principles, these tumors, particularly those in the esophagus, gastroesophageal junction (GEJ), or stomach, can be resected endoscopically (Figure 3). As in POEM, a submucosal tunnel is created through a proximally placed mucosal incision, and the tumor is resected (enucleated) from the muscle layer. Since the defects in the muscle and mucosa are at different locations, full-thickness perforation is avoided and safety is enhanced.[12]

Outcomes of STER demonstrated high clinical efficacy with excellent complete resection rates and high enbloc resection rates in two large meta-analyses. Adverse events were reported more frequently as compared to POEM (14.8%), but most were minor in nature. Risk factors for inferior outcomes and adverse events following STER have been defined as SELs with diameter > 3.5 cm, overlying ulcerated mucosa, SELs with irregular borders, lesions in the fundus or on the gastric lesser curvature, tumors arising from the deep portion of the muscularis propria layer, long procedure time, and insufflation with air. Compared to surgery (thoracoscopic enucleation), STER has demonstrated significantly superior outcomes for procedure times, length of hospital stay, and cost.[10, 11]

During STER, the tumor is enucleated from the muscle layer. Although this may be adequate for benign SELs, R0 resection margins can pose a challenge for GIST tumors which have malignant potential. Secondly, STER is technically difficult or nearly impossible to perform in certain areas of the GI tract, like the gastric fundus or lesser curvature. To ensure a wide (oncologically sound) resection margin and to address lesions at these locations, EFTR can be utilized.[11]

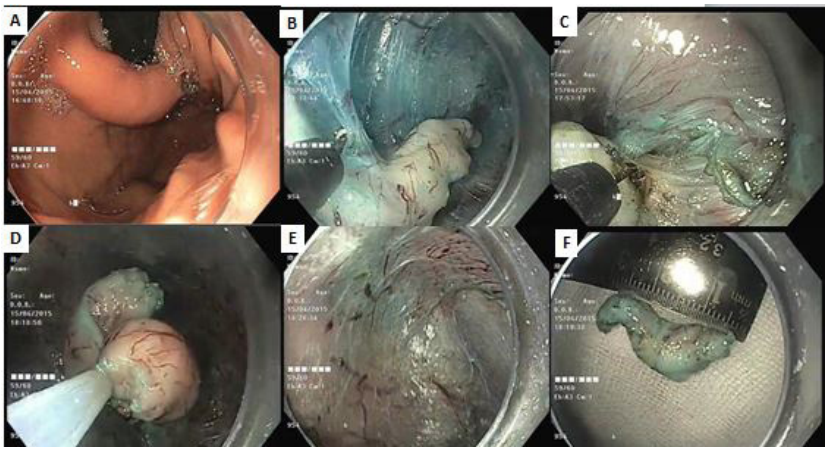

Figure 3 STER Procedure Steps

Endoscopic Full-Thickness Resection (EFTR)

EFTR can be performed using one of the three approaches – non-tunneled exposed EFTR, tunneled-exposed EFTR, and non-exposed EFTR – wherein the term "exposed" refers to any temporary exposure of the GI tract lumen to the peritoneal cavity.[13] Exposed EFTR involves creation and subsequent closure of bowel wall defects whereas in non-exposed EFTR, the defect is prophylactically closed prior to tumor resection. Tunneled exposed EFTR is like STER, wherein the tumor is resected via a submucosal tunnel and the mucosal incision is closed thereafter. In non-tunneled exposed EFTR, the procedure begins as a standard ESD wherein the tumor is dissected all around from the submucosa, before resecting it from the deeper muscle layers and serosa. The resultant defect must be closed, and this is achieved by various means – standard mucosal clips, combination of endoloop and clips, full-thickness clips or endoscopic suturing. Prototype endoscopic staplers have also been described. The major challenge after non-tunneled exposed EFTR is to achieve safe closure of the defect after resection, which is often challenging due to compromised luminal insufflation after complete tumor resection. With the increasing implementation of endoscopic suturing and retraction methods, these challenges can be somewhat circumvented.

Non-exposed EFTR involves approximation of the serosal surfaces un-

derneath the lesion prior to resection, thereby preventing a full-thickness perforation. A major advance in non-exposed EFTR has been the development of the full-thickness resection device (FTRD), which combines resection with closure using a full-thickness over-the-scope clip (OTSC) in one device. The SEL is grasped and pulled into the transparent distal hood attached to the endoscope, the clip is applied to the base, and the lesion is resected above the clip using an inbuilt snare. Initially described for lower GI conditions, a device for foregut applications has also recently become available. EFTR using FTRD is limited by the size of the lesion and sometimes by the large size of the device itself, which makes its insertion up to the target site technically difficult, particularly through the sigmoid colon or across the cricopharynx. For larger lesions therefore, combined laparoscopic-endoscopic surgery (LECS) has been described.

Majority of EFTRs have been described in the stomach, and for GIST tumors. Although the technique can be applied to other locations in the GI tract, technical difficulties for secure closure limits this applicability. In general, outcomes of EFTR have demonstrated high enbloc and R0 resection rates, low recurrence and adverse events.[11]

Tunneling Myotomy for Other Spastic GI Conditions

The high success rates of POEM for achalasia prompted endoscopists to devise and perform tunneling endoscopy procedures for other spastic conditions in the GI tract. These include gastric peroral endoscopic myotomy (G-POEM) for refractory gastroparesis,[14] tunneling septotomy for Zenker's or epiphrenic diverticula (D-POEM and Z-POEM respectively)[15, 16] and per rectal endoscopic myotomy (PREM) for Hirschsprung disease and acquired megacolon.[17]

Z-POEM and D-POEM for Esophageal Diverticula

Zenker's diverticulum is an anatomical outpouching occurring through a defect in the cricopharyngeus muscle at the Killian's triangle. Conventional treatment has included surgical resection of the diverticulum along with cricopharyngeal myotomy (a procedure with significant morbidity) or endoscopic septotomy. Septotomy, although less invasive, has the inherent risk of recurrence if the septotomy is short and the risk of perforation if it is too long. TSE has enabled safe septotomy to be performed through a submucosal tunnel at the cricopharynx – Z-POEM, wherein an adequate length septotomy can be performed without the risk of perforation and mediastinitis.

Similarly, mid esophageal and epiphrenic diverticula occur in patients often with esophageal motility disorders, particularly achalasia. The same principle is applied to perform diverticular septotomy (D-POEM) for these diverticula. Outcomes of Z-POEM and D-POEM have demonstrated excellent symptom relief and minimal adverse events.

G-POEM for Refractory Gastroparesis

Gastroparesis is caused either because of reduced gastric body contractility or incoordinated peristalsis and opening of the antrum and pyloric sphincter. Typical etiologies are iatrogenic (due to surgical vagal injury), diabetes, or idiopathic. For gastroparesis caused due to pyloric sphincter spasm or incoordinated activity, Khashab et al. performed the first G-POEM or gastric per-oral endoscopic pyloromyotomy.[14] The procedure has demonstrated good clinical success rates of approximately 82% in various case series and in meta-analyses. One of the key elements for patient selection for G-POEM is to consider it for those with pylorospasm and avoid in those where gastric hypomotility

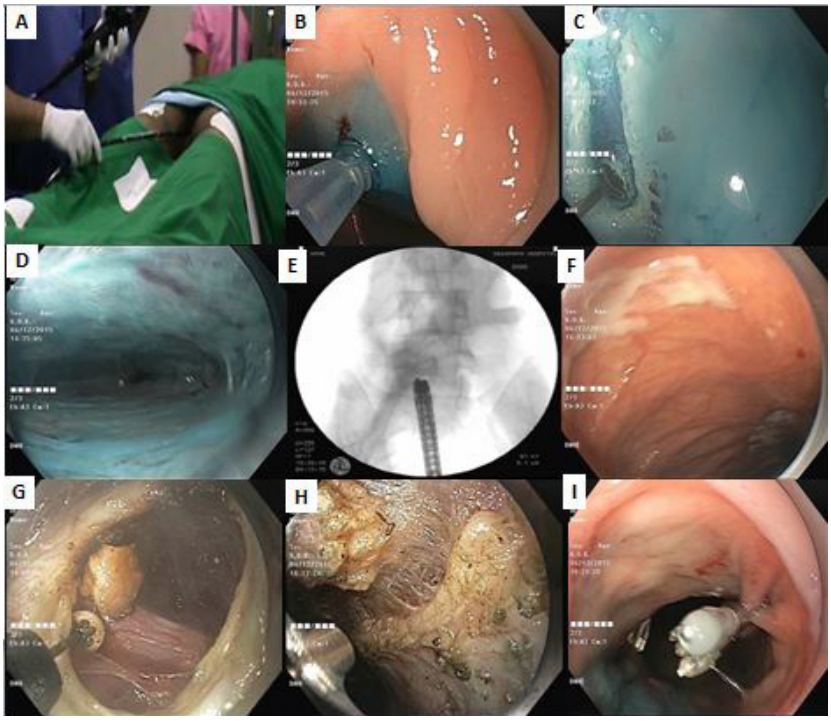

Figure 4 PREM Procedure Steps

is the predominant mechanism. In a recent prospective study that critically evaluated follow up parameters, outcomes after G-POEM were reported at a modest 56%.[10]

PREM for Hirschsprung's Disease and Megacolon

Hirschsprung's disease is characterized by aganglionosis of Auerbach and Meissner plexuses starting from the rectum and extending proximally, resulting in a functional obstruction. Using the principles of TSE, per rectal endoscopic myotomy (PREM) has been conceptualized and performed for patients with adult, pediatric and infantile Hirschsprung's disease (Figure 4). Results of a case series report excellent functional outcomes in terms of relief of constipation, laxative usage, and overall functional bowel scores at medium and long term follow up.[18] With more data regarding its outcomes, this procedure promises to be a blessing for patients with Hirschsprung's disease, wherein until recently surgical pull through was the only alternative and carried significant morbidity.

Other Novel Applications and Future Directions

Wagh and Draganov described peroral endoscopic tunneling for restoration of the esophagus (POETRE) for patients with complete esophageal obstruction.[19] This technique is a very attractive minimally invasive option for such patients where the alternative is surgery with high morbidity.

Submucosal endoscopy has been experimentally used to implant devices within the submucosal space and deep muscle layers. Electrostimulation of the lower esophageal sphincter for treatment of gastroesophageal reflux (GER) has been attempted in animal models.

TSE provides a relatively safe access route to enter the peritoneal or mediastinal cavity. Inoue et al. described the first NOTES anterior partial fundoplication (POEM+F or POEF) performed prophylactically to prevent or to treat post POEM reflux (GER).[20, 21] One year follow up results of POEM+F have demonstrated an intact wrap in 83% patients and an impressive control of post POEM GER.[22] TSE guided peritoneoscopy or mediastinoscopy have been evaluated in animal studies and have the potential to be used as an alternative to laparoscopy for staging of GI malignancies.

Disease / Disorder	Name of the Procedure	Acronym
Achalasia cardia	Peroral endoscopic myotomy	POEM
Refractory gastroparesis	Gastric peroral endoscopic myotomy	G-POEM
Zenker's diverticulum	Zenker's peroral endoscopic myotomy	Z-POEM
Epiphrenic diverticulum	Diverticular peroral endoscopic myotomy	D-POEM
Hirschsprung's disease/acquired megacolon	Per rectal endoscopic myotomy	PREM
Subepithelial lesions	Submucosal tunneling endoscopic resection/ peroral endoscopic tumor resection	STER/POET
Subepithelial lesions	Endoscopic full-thickness resection	EFTR
Total esophageal obstruction	Peroral endoscopic tunneling for restoration of esophagus	POETRE

Table 1. Types of Third Space Endoscopic procedures and their clinical applications

Training in TSE procedures, Future Research, and Perspectives

Most TSE procedures are relatively new. POEM is the most widely studied and its position is reasonably well established within treatment algorithms. For most other procedures, available data is predominantly in form of single or multicenter case series and non-randomized retrospective studies. Few meta-analyses have been published in the last few years; however, because these too are based on single arm case series, the quality of the data is average. The relative rarity of several of these procedure indications pose a further challenge to conduct well designed prospective randomized trials. Hopefully, as TSE enters the second decade of its inception, we can gather more information on these procedures in a prospective fashion.

Training for TSE procedures differs as compared to conventional interventional endoscopy because these procedures are predominantly surgical in nature. There is often a debate as to who should perform these procedures – physician gastroenterologists or surgeons? The answer is not easy. Being surgical procedures, it is logical that surgeons may be more inclined (or better suited) to perform these procedures. However, the majority of global surgical curricula currently provide minimal exposure to flexible endoscopy. Physician gastroenterologists on the other hand, although well trained for flexible endoscopy, lack the surgical mindset (and training) that is often required to undertake these procedures. It is possible that with the advent of these and similar procedures, conventional surgical and endoscopy teaching curricula may undergo appropriate restructuring to provide the (interested) trainees with adequate and optimal instruction and exposure to this specialty.

Credentialing and accreditation for these procedures remains a further challenge. The American and European Societies for Gastrointestinal Endoscopy (ASGE and ESGE) have formulated guidelines for training in ESD and POEM. Although good as a starting point, most of these

guidelines require further revision and refinement before they can become applicable at large.

Conclusion

Gastrointestinal endosurgery (GIES) has always been the final frontier for flexible endoscopic interventions. With the advent and rapid development of TSE, this dream has the potential to be fully realized. However, as is true for any new specialty, several challenges have been identified. As TSE enters its adolescence, one can expect that the technique will further evolve, will create excitement within the GI-surgery community, but may also raise several controversies that will require resolution before it matures into a responsible, widely adopted and established adult specialty. Collaboration and partnership between the gastroenterologists and surgical colleagues will be key in advancing this field and ensuring the best outcomes for our patients.

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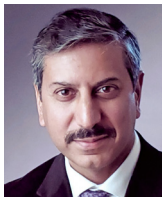
At the Frontiers of GI-Endosurgery: A Conversation with Dr. Amol Bapaye from the Shivanand Desai Center for Digestive Disorders, Deenanath Mangeshkar Hospital & Research Center, Pune, Maharashtra, India



Vivek Kaul, MD

Chair, WGO Endoscopy, Other Procedures and Outreach Interest Group
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One of the most fast-paced and exciting advances in gastroenterology has been the development of "third space" endoscopy and the advent of "endosurgical" procedures. These relatively new endoscopic interventions have further blurred the boundaries between endoscopy and surgery while heralding an entirely new subspecialty in modern gastroenterology practice.

In this edition of *e-WGN*, Dr. Amol Bapaye, Director of Endoscopy at the DMHRC in Pune, India, has very eloquently summarized the current state of the science vis-à-vis GI-endosurgery and where the field may be heading in the future. He has provided valuable insights into the appropriate current positioning of these procedures and the various aspects that go into clinical decision making when contemplating these interventions as part of a multidisciplinary team.

I had the opportunity to further explore several aspects related to the field of "GI-endosurgery" with Dr. Bapaye and the challenges and opportunities that await us as we carry this paradigm forward into the future. It is clear from this dialogue that we have come a long way in a relatively short period of time, that the future is promising, and that much of the effort going forward will focus on refining the devices, techniques, and concepts to lend further sophistication to our endeavors in this realm.

Vivek Kaul (VK): Dr. Bapaye, please share with us briefly your own journey into this "space" {pun intended}! How and why did you decide to get involved with this niche area? Where and how did you train for this? Please provide some historical perspective from your early years.

Amol Bapaye (AB): I was privileged to be trained as a surgeon before I took up flexible interventional endoscopy as a specialty. I have been practicing exclusively as an interventional endoscopist for last 25 years. Although I have been happy to perform the standard endoscopic intraluminal interventions, I was always attracted towards endoscopic resections and third space endoscopic procedures, particularly because they provided me with the satisfaction of performing surgery.

When we started endoscopic resections and third space endoscopy 12 years ago, training opportunities were very limited. A majority of my training was by watching videos borrowed from experts or by attending procedures performed by these experts during conferences and workshops (predominantly Japanese and other Far Eastern countries). I had limited opportunity for animal training on cadaver models. I also watched and rehearsed the procedural steps repeatedly whenever I found an opportunity and tried to correlate and implement surgical principles within the framework of flexible endoscopy. All these factors helped to build our confidence that we could perform these procedures on patients.

We began with small steps – selecting small approximately 2 to 3 cm lesions in relatively easy locations (e.g. rectum or gastric antrum) but which preferentially were considered suitable for enbloc resection with ESD. Sometimes we needed to complete

the resection using a hybrid technique or occasionally do a completion piecemeal EMR if enbloc was not feasible. After two years of practicing ESD, we ventured into third space and POEM. Our first POEM took us four hours, but by this time we were very comfortable with the tissue planes and the patient did exceedingly well. During these initial years, we always collaborated and discussed the patient with our in-house surgeon and requested him to be standby for any surgical emergency that could emerge during the procedure. Fortunately, emergency surgical intervention was never required. That doesn't mean that we did not fail or did not have complications, it just means that we were able to tackle these effectively without significant morbidity. Therefore, even in cases of failure, the patient could be subjected to an elective surgery subsequently, with proper planning. Within a year, our confidence grew, and we could tackle larger and more challenging lesions. We were the first in India to perform the G-POEM procedure, and subsequently went on to report the world's first PREM procedure for Hirschsprung's disease.

Disseminating education and awareness within the community was the next goal. We conducted awareness programs amongst physicians, surgeons, and oncologists to impress upon them the benefits of these techniques and to help spread the word. Later, we began a hands-on training program eight years ago, which is still conducted annually and is very popular. However, due to the high demand and limited resources at hand, we still can provide training to only a handful of candidates every year.

VK: Based on your experience, what are the key resources needed if one were to contemplate setting up a program like yours in their own region or community? Also, what are the challenges and hurdles?

AB: There are three key points to consider before setting up such a program – a stepwise, often prolonged, and intensive training; a very high commitment to be willing to perform long and complex endosurgical procedures; and availability of a patient base that allows the center or person to practice this specialty and flourish. Of course, on-ground resources are important – especially the proper equipment and a team; however, these are relatively easy to procure/develop if the above three primary objectives are in place.

Of course, there will be challenges; however, with perseverance, patience, and determination, these can be overcome. It is important to remember that despite the best of training, one can face difficulties and unforeseen scenarios, and one must be able to think on their feet so that these challenges can be overcome. In short, one needs to start thinking like a surgeon while performing these procedures. Change your mindset – the situation will change itself for the better when you make the appropriate decisions keeping the patient's best interest in mind!

At the same time, it is important to remember that endosurgery is not for every endoscopist! It requires considerable skill, mindset, and commitment that should not be taken casually. In addition, these procedures cannot be performed occasionally or in isolation. A critical, consistent volume is required to maintain continued proficiency and collaboration with other specialties, especially surgical colleagues, is very important.

VK: What is the importance of a multidisciplinary team (MDT) in this context? What is your advice for partnering with surgical colleagues, getting their "buy-in," and approaching this with a team concept?

AB: An MDT approach is highly recommended to develop and establish an endosurgery program. It is important to bring your surgical colleagues on board with this and to make them understand that endosurgery is not competitive but that it is complementary! Talk to them! Show them videos, provide reading material, involve them in the decision-making process! No procedure is sacrosanct surgical or endoscopic – each modality has its advantages and limitations. Together, they flourish.

Dr. Bapaye (right) during an endoscopy procedure.

Another factor is adverse events. Your surgeon colleagues are the ones who can bail you out of a difficult situation, so tell them that upfront! Discuss with the hospital management regarding potential reimbursement issues and the business plan side of things. An MDT program is always more likely to run smoothly and be successful, as compared to one that is individual driven in isolation.

VK: If someone wants to learn some or most of these procedures, how would one go about it? Is there some thought about developing training and proctoring resources around the world that would be accessible to trainees from low- and medium-resource regions of the world?

AB: Training is a very important factor before embarking on GI endosurgery. Unfortunately, presently there is no single best way to obtain this training. Most currently available training programs are like a surgical apprenticeship where the trainees spend considerable amount of time with an expert to observe, assist, and subsequently perform these procedures under supervision. Such training is labor-intensive, and even at these programs, on-patient/hands-on experiences are often limited and learning curves for these procedures are long. Adequate competency often cannot be guaranteed as skill sets and opportunities can differ among trainees. Furthermore, such programs are very limited in number and are concentrated at major global training centers. Waiting lists for enlisting at such a program are typically long – possibly few years and getting into one of these programs can be challenging.

Hands-on training workshops on cadaveric or live animal models are an effective alternative modality to train endoscopists, although presently they cannot completely replace apprenticeship-based training.

In my opinion, two key resources require exploration for training purposes – artificial intelligence and robotics to create suitable simulators, and distance learning and mentoring platforms. High-quality simulators, as in laparoscopy training, can largely substitute for animal model training. Although handling and training of live tissue is desirable, with the appropriate type of simulators, this can be largely replaced. Such simulators can also reduce the dependance on animal or tissue training and make the candidate ready for on-patient training.

Distance learning and mentoring platforms are another effective tool that can be explored. Although these may be less effective as primary training tools, their role cannot be overemphasized when the trainee returns to their parent location and begins a new program. Using these tools, the mentor can supervise and guide the trainee during the initial procedures and can thereby continue the training process. Such platforms can reduce the actual requirements of the trainee for the hands-on patient experience during the initial training period and can therefore enhance the training program overall.

VK: What are your thoughts on the role of our industry partners in the further development of this field? How can we best harness the potential synergies that exist in that collaboration?

AB: Presently, most endosurgical procedures are being performed using the same or similar endoscopes and accessories that were used for conventional intraluminal procedures. As these procedures evolve in their complexity and outreach, surgical principles come into play, and it is important to think and plan the procedure accordingly (i.e., like a surgeon).

Currently, although we are performing surgery, two major surgical aspects – retraction and triangulation- are either lacking or difficult to implement using current endoscopic technology. We need to partner with our industry colleagues to brainstorm and develop new endoscopic surgical platforms that are work-efficient, ergonomically superior and those that permit retraction and triangulation. Robotics have revolutionized surgery with dramatically improved procedure times and patient outcomes, and it is time that such technologies are designed for flexible endoscopy. We need more dedicated, structured time at our national and international meetings to interface with industry so we can innovate and develop the next generation of endo-surgical technologies which will address the specific unmet needs for these procedures.

VK: Is there a plan to generate long term safety and comparative outcomes data for many of these newer procedures to move the needle from a "proof of principle" stage to a more widely adopted clinical paradigm?

AB: Indeed, there is a need and a plan, but there are challenges as well. As I mentioned in the article, the majority of these procedures are for uncommon indications. Finding the adequate numbers at one center to conduct a well-designed randomized study is often difficult. Multicenter collaborative studies is a possible way forward to circumvent this challenge. However, even for multicenter collaborative studies, it is important to realize that because these are surgical procedures, several technical nuances are involved that can affect patient outcomes including success rates, recurrence, and adverse events. Therefore, it is important that participating centers have comparable proficiency and knowledge about these procedures and techniques as well as standardized case selection and management protocols.

Nevertheless, given the pace at which this field has developed during the last decade, I have no doubt that in the coming years, we shall have

conclusive and convincing data on a majority of these procedures from international collaborative efforts. The other area of research that requires focus is to position these procedures within prevalent treatment algorithms. This requires well designed comparative studies with prevalent modalities.

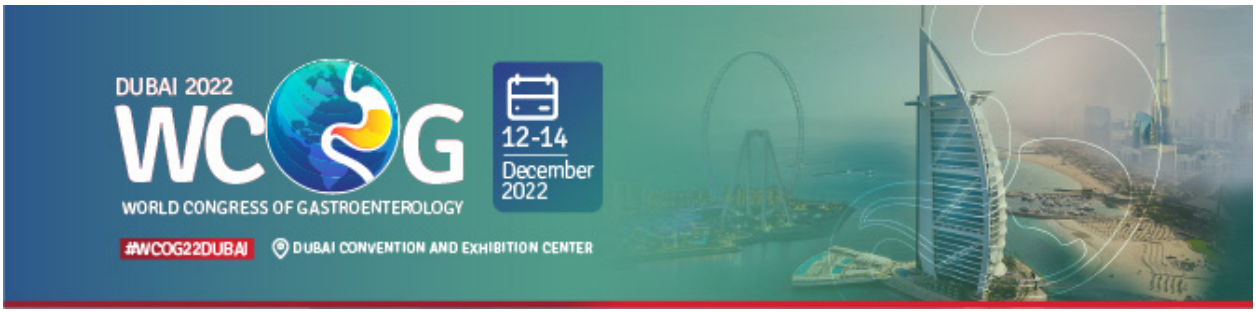
VK: What role can national and global GI societies play with regards to further advancing the field of GI-endosurgery?

AB: Global and national societies can play a major role in advancement of endosurgery as a specialty. First, using their resources and networks, our societies can create a suitable curriculum and platform for training of interested candidates in this specialty. Second, societies can help establish suitable guidelines for competency certification, accreditation and credentialling for these procedures. Third, societies can liaison with insurance and healthcare providers to generate suitable reimbursement codes that can be implemented while billing for these procedures. Finally, societies can help spread awareness amongst the medical and general GI-surgical community regarding these new procedures and thereby, over time, increase the patient base who can undergo these procedures.

VK: What excites you most about the future of GI endosurgery and about gastroenterology in general, especially as we emerge from a long and difficult global pandemic?

AB: Clinical opportunities in gastroenterology and GI endoscopy are limitless, with new and exciting possibilities emerging with changing times. The field of GI endosurgery has presented us with enormous opportunities to improve patient care and outcomes. Furthermore, the specialty is growing rapidly and promises to change the future of how we can deal with surgical GI diseases in a few years from now. There is tremendous excitement and optimism regarding GI endosurgery. A constant and positive interplay and interaction between GI endoscopists and surgeons is, however, extremely important for the development of this branch. As the world emerges from the dark night of a long and difficult global pandemic, we as GI specialists can look forward to the dawn of a new era of collaborative GI endosurgery driven by endoscopists and surgeons together in a collaborative manner.

World Congress of Gastroenterology 2022 in Dubai: An in-person event!



On behalf of the World Gastroenterology Organisation (WGO) and the Emirates Gastroenterology & Hepatology Society (EGHS), we are excited to collectively welcome attendees to the World Congress of Gastroenterology (WCOG) in Dubai on 12-14 December 2022.

The WCOG provides an opportunity for professionals in the fields of gastroenterology, hepatology, endoscopy, and related disciplines to connect with colleagues to learn about the latest research and advancements as well as to actively participate in this rapidly advancing field. There are great opportunities to earn CME credits while learning through post-graduate teachings.

Top experts from around the globe will be featured throughout this state-of-the-art scientific program. We promise to provide an immersive learning experience presented by exceptional international and regional faculty who will engage all attendees.

A few highlights of the comprehensive scientific program include:

- Inspiring Keynote Lectures
- Scholarly Post-graduate Courses
- Innovative Live Endoscopy Sessions
- Intriguing Case-based Video Presentations
- Instructive Hands-on Workshops
- Creative Peer-reviewed Oral and Poster Sessions

A peek into the scientific program topics:

- Hepatitis D Challenges
- Women's Health in IBD
- Mentoring GI Fellows & Trainees
- Pro-Con Liver Session
- IBD Symposiums
- Complementary & Alternative Medicine
- Liver Transplantation
- Irritable Bowel Syndrome
- COVID & Gastroenterology
- Autoimmune Liver Disease
- Coloproctology
- Celiac Disease
- Endoscopy – Artificial Intelligence
- Gastric Disorders
- Acute Colorectal Diseases
- Interventional Endoscopic Ultrasound
- All Pancreas
- Autoimmune Disorders & the Gut
- Challenging Issues with ERCP
- CRC
- GI in Sub-Saharan Africa

Don't miss the following special sessions:

- Women in GI
- WGO Advance Train the Trainers
- Digestive Health Challenges in the Developing World
- WGO Climate Change
- WDHD 2022 – Colorectal Cancer
- Young Clinician's Program
- Difficult Colonoscopy

Registration is open and we invite everyone to participate in this premier event, which will include a rich cultural and social program in the incredible and unforgettable destination of Dubai. For complete details on the World Congress of Gastroenterology, please visit wcog2022.org.

WDHD 2022: Getting Back on Track with Colorectal Cancer Prevention Efforts

Each year, the World Gastroenterology Organisation (WGO) celebrates World Digestive Health Day (WDHD) by initiating a worldwide public health campaign that focuses on a particular digestive or liver disorder in order to increase awareness of prevention, prevalence, diagnosis, management, and treatment of the disease or disorder worldwide. This year's campaign *Colorectal Cancer Prevention: Getting Back on Track*, led by co-chairs Drs. Aasma Shaukat (USA) and Michal Kaminski (Poland), was held on Sunday, 29 May 2022.

Dr. Aasma Shaukat

Dr. Michal Kaminski

Colorectal cancer (CRC) is the second leading cause of cancer-related death in the world. The majority of CRCs progress through the adenoma-carcinoma sequence, presenting opportunities to remove precursor lesions and prevent cancer or to identify CRC in its earliest, curable stages. There are also several modifiable dietary, lifestyle, and environmental risk factors for CRC. When detected in the preclinical stages, CRC tends to be localized and often curable with surgical resection with an excellent prognosis.

CRC screening efforts are directed towards the detection of early stage colorectal cancer and removal of pre-neoplastic lesions. There are several screening modalities that are effective and cost-effective, such as fecal immunochemical test, flexible sigmoidoscopy, CT colonography, and colonoscopy. In the last decade, studies have highlighted a worrisome increase in CRC incidence among younger individuals. In addition, the COVID-19 pandemic disrupted CRC screening programs and created a backlog of endoscopy procedures across the world.

By increasing worldwide awareness of the risk factors of CRC, benefits of screening, and practical tools to implement CRC screening programs, we can affect overall human health across the globe, in particular among low- and middle-resource countries. The WGO global network of WGO member societies, partners, and sponsors is ideal for raising this level of awareness.

In addition to efforts organized

locally by WGO member societies, WGO members were encouraged to engage with the awareness campaign online through social media by using the hashtags #WDHD2022, #GettingBackOnTrack, #ColorectalCancer, and #ColonCancer. You are invited to see more activities from WDHD 2022 by viewing these hashtags on Facebook, Twitter, Instagram, and LinkedIn.

As an additional method to raise awareness of CRC, WGO members were asked to take a Selfie Card photo, amplifying short messages related to CRC prevention and screening efforts. Healthcare professionals and the public shared their photos with WGO, with submissions received from all parts of the world. WGO is delighted to feature some of these photos in this issue of *e-WGN* as well as on WGO's social media channels.

Activities of WDHD 2022 extend beyond the singular day of 29 May. Additional education is being planned in a webinar format, and the World Congress of Gastroenterology in Dubai will feature sessions dedicated to the topic of colorectal cancer. The WDHD website (wdhd.worldgastroenterology.org) remains as a year-round resource for information pertaining to the 2022 WDHD campaign.

WGO Lagos Training Center Colorectal Cancer Awareness Endoscopy Workshop

Ganiyat Oyeleke, MBBS, FMCP

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Department of Internal Medicine, Lagos University Teaching Hospital
Lagos, Nigeria

Nigeria, located in West Africa, is the most populous country in Africa with an estimated population of over 200 million. The World Gastroenterology Organisation (WGO) Lagos Training Center was inaugurated on 18 April 2015 as the 17th WGO Training Center globally. This Training Center located in city of Lagos, the commercial capital of the country, is the first and only WGO Training Center in West Africa and currently caters for trainees both within the country and the sub-region. It was set up in partnership with the Society for Gastroenterology and Hepatology in Nigeria (SOGHIN), Lagos University Teaching Hospital (LUTH), Karl Storz (KS), and supported by the South African Gastroenterology Foundation (SAGF).

The WGO Training Center is located on the third floor of the LUTH Accident and Emergency Building and provides daily training opportunities for clinical residents, fellows, nurses, and other support staff. In addition, formal quarterly workshops, endoscopy seminars, didactic lectures, and hands-on sessions on live cases and synthetic models are available in diagnostic and therapeutic upper endoscopy and colonoscopy. The formal trainings are supported by WGO through educational and training grants. Since inception of the WGO Training Center, we have hosted 15 WGO grant awardees from different parts of the country. Professor Olufunmilayo Lesi was the pioneer director of the center until 2019 when she handed over to Dr. Ganiyat Oyeleke.

The most recent training was held on 11 and 12 March 2022 as a two-day event to raise awareness about colorectal cancer. The first day consisted of the hands-on session at the WGO Training Center in Lagos and the second day was virtual. This event was a collaboration between Massachusetts General Hospital Division of Gastroenterology, MGH Center for Global Health, WGO Lagos Training Center, LUTH, SOGHIN, Pan-African Organization for Health, Education and Research (POHER), and African Association of Future Gastroenterologists (AAFG). The course directors were Dr. Ganiyat Oyeleke (WGO Lagos Training Center Director, Lagos University Teaching Hospital, Nigeria) and Dr. Akwi Asombang (Interventional Gastroenterologist, Director of Gastroenterology Global Health at Massachusetts General Hospital, USA).

Day 1: Hands-on Workshop

We had a total of 30 in-person participants (trainees) including 14 nurses (13 females and one male) and 16 doctors (ten females and six males) from different parts of the country. There were five GI physicians (Dr. Ganiyat Oyeleke, Prof. Olokoba, Dr. Oluyemi, Dr. Owoseni, Dr. Nwoko), one pediatric gastroenterologist (Dr. Adeniyi), three GI surgeons (Dr. Osinowo, Dr. Balogun, Dr. Makanju), three endoscopy nurses (Matron Agu, Matron Adedeji, Matron Adeleke), and three endoscopy technicians amongst the trainers. All attendees were from within Nigeria. A majority of the physician attendees had basic diagnostic upper GI endoscopy experience and were interested in broadening their skills and learning new

Gathering of course directors, trainees, and participants from the first day of the course.
Front row from left: Dr. Osinowo, Matron Adedeji, Dr. Adeniyi, Prof. Olokoba, Dr. Owoseni, Matron Agu, Dr. Oyeleke
Back row: trainees/participants.

skills. There were four stations, which included the upper GI station, lower GI station, cleaning/disinfection station, and the virtual training station anchored by Mr. Tony Rahme of Karl Storz. Attendees were grouped into each of the stations and subsequently rotated based on their skills and individual preferences. Altogether, four diagnostic upper GI, two endoscopic variceal ligations, two percutaneous endoscopic tube (PEG) placements, and three diagnostic colonoscopies were done during the workshop with participants having hands-on experience. The cleaning/disinfection station was particularly mostly visited by the nurses. They found this very practical and beneficial to their practice. A pre- and post-workshop evaluation was conducted to assess participant skills and feedback of the concluded program. Attendees provided positive feedback to faculty and requested an extension of learning days for subsequent workshops.

Day 2: Didactic and Virtual Webinar on Colorectal Cancer in Africa

The didactic program focused majorly on colorectal cancer updates in Africa. This was a virtual session in collaboration with Harvard Medical School postgraduate education providing support for continued medical education (CME). There was an array of speakers from various parts of the African continent. This event was also well attended with over 100 participants. Dr. Akwi Asombang (Massachusetts General Hospital - MGH) and Dr. Ganiyat Oyeleke (WGO-Lagos Training Center & LUTH) gave a welcome address and opening remarks, and Dr. Nkengeh Tazinkeng (MGH GI Global health research assistant) moderated the event.

Topics discussed included the following:

- Magnitude and epidemiology of colorectal cancer in Africa – Dr. Leolin Katsidzira, Zimbabwe
- Colonoscopy bowel preparation-Global history – Dr. Harlan Rich, USA
- The role of a nurse in endoscopy – Johnson Ogundare, USA
- Colorectal cancer screening and surveillance in Africa – Dr. Adedapo Osinowo, Nigeria
- Endoscopic management of colon polyps – Dr. Ahmad Madkour, Egypt
- Surgical management of colon cancer – Dr. Larry Akoko, Tanzania
- Role of chemotherapy and radiation therapy in management of CRC – Dr. Fidel Rubagumya
- Family history and genetics of CRC – Prof. Paul Goldberg, South Africa
- Palliative care in CRC – Dr. Bethany Rose Daubman, USA

The successful program was not without challenges, and these included limited endoscopic accessories, training models for attendees, and logistical support.

Our next step in the partnership between MGH Gastroenterology, Center for Global Health, and WGO Lagos Training Center is to continue quarterly workshops that would include both didactics and hands-on sessions. Through our joint partnership, we hope to expand the workshops by extending attendance to gastroenterologists in the African continent and develop collaborations with medical device companies for event support.

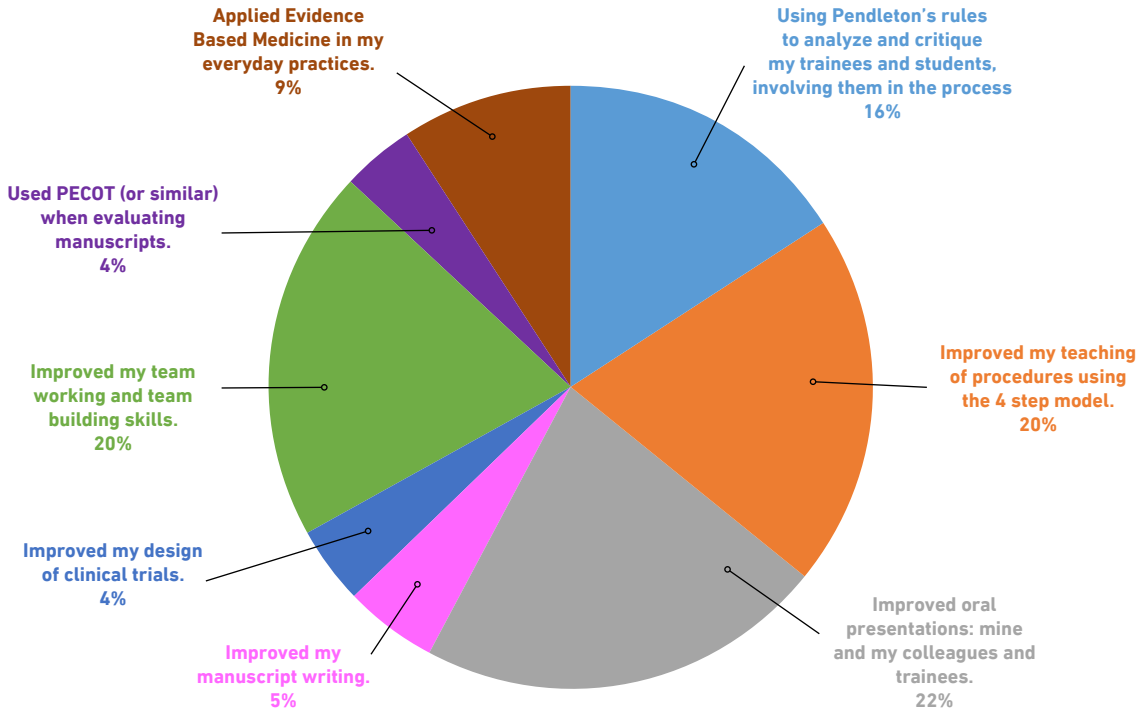
WGO Train the Trainers Alumni Testimonials

Developed in 2001, the Train the Trainers (TTT) program concentrates on expanding the educational skills of educators in the fields of gastroenterology, hepatology, endoscopy, and GI surgery, who are responsible for teaching, using current educational techniques and philosophies. It brings together faculty and participants from across the globe in an intensive and interactive workshop, characterized by numerous hands-on sessions with many opportunities for discussion. TTT is dedicated to the development of teaching and training skills.

Over the past 20 years, 28 workshops have been held in 18 different countries across six continents with over 1,100 alumni from more than 90 countries.

A map of where TTT alumni live

A few alumni at the TTT Alumni Luncheon at the WCOG Istanbul in 2019



In a recent survey to alumni, we asked them, "What 3 Specific Changes Did You Make in Your Practice After?"

TTT: 2005 – Punta del Este, Uruguay

Roque Sáenz, MD, FASGE

Chile

TTT induced a long-lasting change in my professional life.

After been part of a TTT, you become really different. You get plenty of new tools in education and research, but you also belong to a new group of colleagues becoming friends you frequently meet in courses and congresses, you recognize in publications, and, lately, you could interact with in the new virtual era.

I have been fortunate to participate in several TTTs, mostly in Latin America, as a trainee *(I want to remain always a trainee)* in the Punta del Este event in Uruguay and thereafter I was invited to join the Trainers Group.

I was the "selected expert" in the first session in Punta del Este and a signaled victim to make clear that positive critiquing was a must, avoiding the referred experience to anyone.

Pendleton's rules are in my soul as a trainer, always. I was once part of the exercise showing how not to give feedback. This exercise will forever leave strong memories of what should be avoided in our teaching process.

The transition from Unconscious Incompetent to Conscious Incompetent and later to Conscious Competent is quite clear. AND, OR, NOT, have been of help in our searches. Leadership, evaluation/assessment, EBM, CATs, critical approach to literature, CONSORT and RCTs, team building, presentations, mentoring, and professionalism are unforgettable chapters.

Organizational aspects are difficult, but with the expertise and support of the WGO/TTT team, the meetings become real. Financial aspects are in the basis of the possibilities of success, and organizational fundraising for this purpose is an issue.

We organized our TTT as a joint venture of two countries (Chile/Argentina) in 2009, and we had the excellent involvement of Prof. Dudy Zagalsky as a successful organizing partner. It was a compromise of the two national societies of gastroenterology and their involvement made important economical and logistic partnerships.

Shorter TTTs or thematic ones came thereafter, focusing on important necessary items.

We did a second local TTT in our own language, trying to disseminate the experience in our local gastroenterologists. Local former TTT trainees assumed the responsibility to act as trainers. Prof. Eammon Quigley helped us in such enterprise some months after the wonderful previous experience.

The tournament, the social night, and the last interactive session were unforgettable.

I had a wonderful experience in the Bogota TTT, which was really interactive with plenty of interventions, probably due to the presence of about ten gastroenterologists and epidemiologists among the trainees and the fact that it was completely in the Spanish language.

Every week, I run a 2-hour seminar called "Training Tools," which is based on the TTT experience, and it works as a permanent application of such concepts.

Dear friends, real TTT friends, we became a solid group as alumni and are ready for new requirements and challenges.

In a few days' time, you get new attributes, useful knowledge, and you become a better trainer. And, you gain best friends forever.

2005 – Punte del Este, Uruguay – Attendee Group Photo

Porto Alegre Training Center Testimonial

Nelson David Suarez Uribe, MD

Santa Maria, Colombia

My experience at the Porto Alegre Training Center of the World Gastroenterology Organisation (WGO) in 2021 marked my professional life. When I met Dr. Mário Reis, Director of the Porto Alegre Training Center, I saw in him as an example to follow, as research has always been one of my great goals in my professional training. WGO gave me the opportunity to take the training course at a hospital recognized in the country for its academic and professional level, the Hospital de Clínicas de Porto Alegre (HCPA), in which thousands of patients pass through during the year to receive specialized care by the different professionals in the hepatology area.

The gastroenterology and hepatology service of said hospital has been characterized and differentiated by its broad organization. Through the WGO course, they allowed me direct contact with the hepatology service in all its areas.

Despite taking my course during the COVID-19 pandemic with many limitations for the development of routine activities, all the activities proposed by the program were carried out thanks to the agility of the different teachers and residents of the service, giving the most benefit to each of the activities.

The role of WGO and its interest in encouraging students to continue studying in large Training Centers with the guidance of people trained in different areas is remarkable. In addition, as part of the academic activities of this Training Center, it participates in Project ECHO, addressing different topics and clinical cases of hepatology. Every Wednesday, this activity was carried out in virtual format with the participation of the best hepatologists of the country.

I am a doctor with a degree in Colombia. I came to Brazil with the aim of continuing my specialization studies having already heard a lot about WGO. I learned about the liver course and after receiving all the advice from the director, Dr. Reis, I completed the registration process. Everything proceeded very quickly, although I was still full of uncertainties and distrust of being able to enter this great Training Center. However, I received the news by email of being admitted to be a student of WGO, and in addition to that, with the financial support that allowed me to pursue this opportunity. Throughout this period, I got to know the different fields of hepatology including liver transplantation. In this Training Center, the outpatients are divided by pathologies - for example: viral hepatitis, fatty liver disease, hepatocarcinoma, among others. Attention to hospitalized patients was divided into patients admitted for hepatology itself and consultancies that were patients hospitalized for other specialties that needed help from the specialty in hepatology. All this allowed me to attend separately to the demands of each sub-area and then to study for a comprehensive management of the patient. I was faced with many realities, including how neglected some liver diseases are.

I will carry the words of Dr. Mario Reis for the rest of my life, "Remember Nelson, a patient with metabolic syndrome will always deserve a liver investigation." That is how I learned the importance of making an early diagnosis of any liver disease.

I thank WGO and all the members or professionals linked to the education center in Porto Alegre for this opportunity, mainly to its director, Dr. Mário Reis, for his unconditional support and sharing of his knowledge in all the activities developed during this time.

Brazilian Digestive Week (SBAD) 2021

Decio Chinzon, MD

President, Brazilian Federation of Gastroenterology 2021-2022
Doctor in Clinical Gastroenterology, University of São Paulo
Assistant Professor, University of São Paulo
Post-Graduate Professor, Discipline of Gastroenterology, University of São Paulo
São Paulo, Brazil

The Brazilian Digestive Week (SBAD) is the most important annual event on our calendar, organized jointly by the Brazilian Federation of Gastroenterology (FBG), the Brazilian Society of Digestive Endoscopy (SOBED), and the Brazilian College of Digestive Surgery (CBCD).

In 2021, it was held between November 25th and 28th with a structured and comprehensive scientific program, promoting knowledge, interaction, and exchange of experiences among specialists. The scientific program was developed by FBG with the participation of several departments that belong to our federation, such as: Nucleus for the Studies of *H. pylori* and Microbiota, Jovem Gastro, Study Group on Inflammatory Bowel Disease, Digestive Motility and Neurogastroenterology and Hepatology, with each department developing a postgraduate course.

SBAD's numbers confirm the success of the event with around 7,000 registered and an average of 3,500 connected on each day of the event. It was four days of intense scientific content.

SBAD representatives gathered to deliver remarks.

Multiple sessions were held simultaneously and virtually during SBAD 2021.

In 2022, the SBAD is scheduled to be held in Florianópolis, Santa Catarina, Brazil. We look forward to all fellow gastroenterologists for this important meeting and scientific update.

62nd Annual National Conference of the Indian Society of Gastroenterology – ISGCON

Parimal Lawate, MD, DM

Organising Chairman, ISGCON
Jehangir Hospital and Research Center
Pune, India

Amol Bapaye, MD, MS, FISG, FSGEI, FASGE, FJGES

Organising Secretary, ISGCON
Deenanath Mangeshkar Hospital and Research Center
Pune, India

The Indian Society of Gastroenterology (ISG) is the national body of gastroenterologists from India with Dr. Mahesh Goenka and Dr. Govind Makharia as president and secretary, respectively.

The 62nd conference of ISG was first conceived as an onsite physical event after abatement of the second wave of the pandemic but had to be later converted to hybrid due to COVID resurgence. Despite these unforeseen difficulties, the event was received with great enthusiasm and appreciation from within India and globally with a massive 3,000+ attendance and 205 faculty from India and 12 other countries.

The hybrid conference was conducted on February 12-13, 2022 by the ISG and was hosted on their behalf at Pune by the Maharashtra State Chapter of the ISG (MAHAISG), Pune Society of Gastroenterology (PSG), and Deccan Society of Gastrointestinal Endoscopists (DSGE). The meeting was also supported by the Society of Gastrointestinal Endoscopy of India (SGEI) and Indian National Association for Study of Liver (INASL).

The conference was inaugurated virtually at the hands of veteran gastroenterologist Prof. Jang Bahadur Dilawari, the father figure of gastroenterology in India. During his address, Prof. Dilawari presented his views on the global and Indian gastroenterology developments and provided thoughtful insights on how and where this specialty is headed in future. The function was concluded by paying homage to the world famous Bharat Ratna Late Lata Mangeshkar by playing a recorded recital of the Indian national song "Vande Mataram" in her voice.

All scientific sessions were received as pre-recorded video lecture presentations, which were streamed live on the virtual platform using high definition video streaming and were also simultaneously streamed on the large LED screens in the conference halls. The congress featured a tightly packed scientific program, which consisted of four customary orations, 72 lectures delivered by global and Indian experts, one panel discussion, and four symposia on contemporary and controversial issues in gastroenterology, hepatology and endoscopy. 505 research abstracts across 13 organ-system categories were presented during the conference. Three competitive sessions were held – a plenary session featuring the six best abstracts for oral presentation, a Young Investigator Award session featuring another six best abstracts for oral presentation, and an Endoscopy Video Forum wherein eight best videos were presented by participants.

In his Presidential Oration, Dr. Rakesh Kochhar, President – ISG, presented valuable insights into the evolution of treatment on inflammatory bowel disease over the decades and the future challenges. The "PN Chuttani Memorial Oration" was delivered by Dr. Anil Arora and was titled "Menace of Hepatitis B – Changing goalposts in the long dark tunnel." Dr. Rakesh Kochhar also delivered the "Dr. C. M. Habibullah Memorial Oration," wherein he presented the experience of the PGI team regarding acute pancreatitis in

Hybrid ISGCON 2021 e-platform

Hybrid ISGCON 2021 Virtual Conference Lobby

his talk titled "Organ failure in acute pancreatitis – PGI experience and lessons learnt." Dr. Usha Dutta delivered the "Dr. R. K. Tandon Memorial Oration" titled "Promoting healing in IBD – A mucosal perspective."

The 72 lectures presented during the conference included 24 by international experts and covered diverse as well as focussed topics related to gastroenterology, hepatology, and endoscopy. Prof. Geoffrey Metz from Australia delivered a talk on "Climate Change – what the Gastroenterologist should know," while Prof. D. Nageshwar Reddy from Hyderabad, India spoke about "Green Endoscopy."

During the valedictory function, Prof. Rakesh Kochhar presented Prof. Mahesh Goenka with the presidential medal, who took charge as the incoming president of the ISG. In his incoming address, Dr. Goenka thanked the ISG members for their support and provided a roadmap for the activities for the society activities for the upcoming year. Dr. Govind Makharia, Secretary General of ISG, announced the next annual conference ISGCON 2022 at Jaipur.

The conference proceedings and archives, including the orations, lectures, other presentations, and posters, remain available to all registered delegates for a period of one-year on the conference portal. Those interested can still register and access these archives by visiting the conference website https://www.isgcon2021.com or the official website of the Indian Society of Gastroenterology https://www.isg.org.in.

Hybrid ISGCON 2021 – Inauguration function

Hybrid ISGCON 2021 – Onsite Conference Halls

WGO Guidelines and Cascades News

Since 2019, WGO has published two new Guidelines: the **Pancreatic Cystic Lesions** and **Digestive Tract Tuberculosis** Guidelines as well as an updated ***Helicobacter Pylori*** Guideline. WGO now has a library of 27 Global Guidelines, which are written from a viewpoint of global applicability. Each Guideline goes through a rigorous process of authoring, editing, and peer review, and is as evidence-based as possible. WGO is the only organization whose guidelines have adopted a global focus. Each WGO Guideline is available in English, French, Mandarin, Portuguese, Russian, and Spanish and is updated as new information and evidence is available.

The three Guidelines uniquely feature **cascades,** which are intended to highlight appropriate, context-sensitive, and resource-sensitive management options for all geographical areas, regardless of whether they are "developing," "semi-developed," or "developed." WGO cascades are context-sensitive, and the context is not necessarily defined solely by resource availability.

Pancreatic Cystic Lesions

Under the leadership of Juan Malagelada (Chair, Spain) and Nalini Guda (Co-Chair, USA), this Guideline aims at providing physicians worldwide with a reasonable, up-to-date approach in the management of pancreatic cystic lesions. Since pertinent diagnostic and therapeutic resources are not uniformly available in different areas of the world, this Guideline is meant to be used as appropriate, keeping in mind the local resources and patient preferences.

Digestive Tract Tuberculosis

Tuberculosis (TB) is an infectious disease caused by *Mycobacterium tuberculosis*, typically causing pulmonary TB. TB is the ninth most frequent cause of death worldwide and is the leading cause due to a single infectious agent, ranking above human immunodeficiency virus/acquired immune deficiency syndrome (HIV/AIDS). This Guideline was chaired by Mohamed Tahiri (Morocco) and K.L. Goh (Malaysia).

Helicobacter Pylori

Peter Katelaris (Co-Chair, Australia) and Richard Hunt (Co-Chair, United Kingdom) led the development of this important update. *Helicobacter pylori* continues to be a major health problem worldwide, causing considerable morbidity and mortality due to peptic ulcer disease and gastric cancer. The burden of disease falls disproportionately on less well-resourced populations. As with most infectious diseases, the greatest impact on reducing this burden comes from improvements in socioeconomic status, which interrupt transmission. This has been observed in many regions of the world, but the prevalence of infection remains high in many regions in which improvements in living standards are slow to occur.

All Guidelines are available at worldgastroenterology.org/guidelines.

Calendar of Events

Due to uncertainties of scheduling from the COVID-19 situation, please check the WGO Meetings and Events Calendar for the latest updates at https://www.worldgastroenterology.org/meetings/meetings-and-events-calendar

WGO RELATED EVENTS

World Congress of Gastroenterology 2022

When: December 12, 2022 - December 14, 2022
Location: Dubai, United Arab Emirates
Organizers: WGO and the Emirates Gastroenterology and Hepatology Society
Website: https://wcog2022.org/

CALENDAR OF EVENTS

BSG LIVE'22

When: June 20, 2022 - June 23, 2022
Location: Birmingham, United Kingdom
Organizer: British Society of Gastroenterology
Website: https://live.bsg.org.uk/

International Liver Congress™ 2022

When: June 22, 2022 - June 26, 2022
Location: London, United Kingdom
Organizer: EASL
Website: https://easl.eu/event/international-liver-congress-2022/

Semana Digestiva 2022

When: June 22, 2022 - June 25, 2022
Location: Super Bock Arena
Address: Porto, Portugal
Organizer: Sociedade Portuguesa de Gastrenterología
Website: https://www.spg.pt/evento/semana-digestiva-2022/

Viva La Vida - 21st Annual Gastroenterology and Hepatology Course

When: July 26, 2022 - July 29, 2022
Location: Cancun, Mexico
Organizers: Asociación Mexicana de Gastroenterología and Johns Hopkins University
Website: https://www.gastro.org.mx/eventos/2022/viva-la-vida-21st-annual-gastroenterology-and-hepatology-course

IFSO 2022

When: August 23, 2022 - August 27, 2022
Location: Miami, Florida, USA
Organizer: International Federation for the Surgery of Obesity and Metabolic Disorders (IFSO)
Website: https://www.ifso2021.com/

GESA AGW 2022

When: September 10, 2022 - September 11, 2022
Location: International Convention Centre
Address: Sydney, Australia
Organizer: Gastroenterological Society of Australia
Website: https://agw.gesa.org.au/

EUS-ENDO International Live Course 2022

When: September 15, 2022 - September 17, 2022
Location: Aix-en-Provence, France
Organizer: Dr. Marc Giovannini
Email: audrey.soulier@mcocongres.com
Website: https://eus-endo.org/en/

Gastro 2022 Argentina

When: September 15, 2022 - September 17, 2022
Location: Mendoza, Argentina
Organizers: FAGE, FAAED and SAGE
Website: gastro2022.org

18th ISDE World Congress

When: September 26, 2022 - September 28, 2022
Location: Tokyo, Japan
Organizers: International Society for Diseases of the Esophagus and Japan Esophageal Society
Website: https://isde.net/ISDE-World-Congress

XV Congreso Paraguayo de Gastroenterologia y Endoscopia Digestiva

When: September 28, 2022 - September 30, 2022
Location: Asuncion, Paraguay
Organizer: Sociedad Paraguaya de Gastroenterología
Website: www.spge.org.py

ACG 2022 Annual Meeting

When: October 21, 2022 - October 26, 2022
Location: Charotte, North Carolina, USA
Organizer: American College of Gastroenterology
Website: http://www.gi.org

JDDW 2022 - Japan Digestive Disease Week 2022

When: October 27, 2022 - October 30, 2022
Location: Fukuoka, Japan
Organizer: Organization of JDDW
Website: http://www.jddw.jp/english/index.html

Asian Pacific Digestive Week APDW 2022

When: November 17, 2022 - November 21, 2022
Location: Xi'an, China
Organizer: APAGE
Website: https://www.apage.org/index.html

Semana Nacional de Gastroenterología 2022

When: November 18, 2022 - November 22, 2022
Address: Centro Internacional de Congresos de Yucatán
Location: Merida, Mexico
Organizer: Asociación Mexicana de Gastroenterología
Website: https://www.gastro.org.mx/eventos/2022/semana-nacional-de-gastroenterologia

6th Korea Digestive Disease Week (KDDW 2022)

When: December 1, 2022 - December 3, 2022
Location: Grand Hyatt Incheon
Address: Incheon, Korea
Organizer: Korean Society of Gastrointestinal Endoscopy
Email: kddw@conventionpm.com
Website: www.kddw.org

JDDW 2023 - Japan Digestive Disease Week 2023

When: November 2, 2023 - November 5, 2023
Location: Kobe, Japan
Organizer: Organization of JDDW

JDDW 2024 - Japan Digestive Disease Week 2024

When: October 31, 2024 - November 3, 2024
Location: Kobe, Japan
Organizer: Organization of JDDW
Website: http://www.jddw.jp/english/index.html

WGO Member Societies Submit Your Event

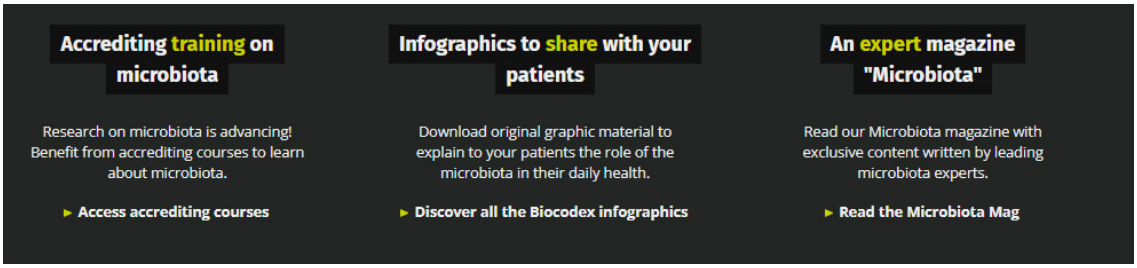
Are you a WGO Member Society wanting to share your event with WGO readers? Visit https://www.worldgastroenterology.org/forms/submit-event.php to submit your event for publication in WGO's website conference calendar as well as the quarterly *e-WGN* calendar of events!

www.biocodexmicrobiotainstitute.com/pro:
an international hub of knowledge dedicated to microbiota!

Biocodex Microbiota Institute is an international scientific institution that aims to foster health through spreading knowledge about the human microbiota. To do so, the Institute addresses both healthcare professionals and the general public to raise their awareness about the central role of this still little-known organ of the body.

It is designed to provide you with reliable, updated, and adapted content. It is also designed to reflect the dynamism and innovation of the human microbiota.

Available in 7 languages (English, French, Spanish, Russian, Polish, Turkish, and Portuguese), this online international hub provides Healthcare Professional with the latest scientific news and data about microbiota including the Institute's exclusive content such as Microbiota magazine, thematic folders, continuing medical education (CME) courses and interviews with experts. Check them out!



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