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Guilherme Macedo, MD, PhD, MACG

Past President, WGO
Co-Chair, Joint Steering Committee
Porto, Portugal



Mohamed Tahiri Joutei Hassani, MD

President, SMMAD
Co-Chair, Joint Steering Committee
Casablanca, Morocco

More than 1,000 gastroenterologists and other health care professionals from 62 countries around the world convened at the Palmeraie Conference Center in Marrakech, Morocco for GASTRO 2024 from 7 – 9 November 2024. The theme of the meeting was “Premier Education – Global Connections” and reviewed the latest scientific advances in gastrointestinal research, treatment of digestive diseases and clinical practice management.

GASTRO 2024 was jointly organized by the World Gastroenterology Organisation (WGO) and the Société Marocaine des Maladies de L'Appareil Digestif (SMMAD). The conference was conducted under the high patronage of his majesty The King Mohammed VI of Morocco. WGO was proud to collaborate on this conference – our first ever joint conference in Africa!

On behalf of the Joint Steering Committee (Professors Guilherme Macedo, Geoffrey Metz, Naima Amrani, Mohamed Tahiri Joutei Hassani, Mohammed Boutaleb and Mustapha Benazzouz), as well as the Joint Scientific Program Committee (Professors Jonathan Leighton, Claudia DeFilippi, Dan Dumitrascu, Wafaa Badre, Rhimou Alaoui and Laila Amrani), we are honored to have co-hosted this outstanding conference.

The speakers, delegates, sponsors and all other attendees received a warm welcome and took advantage of the many networking opportunities with leaders in the field. The conference provided three days of academic and practical excellence, showcasing a wide selection of quality research and clinical contributions.

This conference was more than a national or regional effort but indeed had a truly global program. It drew experts from all over the world to participate, with over 32 in-

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Mahesh K Goenka, MD, DM, AGAF, MACG, FASGE, FRCP (Glasgow & London)

Director and Head, Institute of Gastrosciences and Liver Transplant Director, Medical Education Apollo Multispecialty Hospitals Kolkata, India



Nancy Fanous, PhD, MD

Consultant of Gastroenterology, Hepatology & Endoscopy Police Authority Hospitals Cairo, Egypt

Managing Editors

Zachary Blevins
Jim Melberg
Lizzie Murphy
Maria Segura

Art Production

Jennifer Gubbin

Editorial Office

WGO Executive Secretariat
555 East Wells Street, Suite 1100
Milwaukee, WI 53202 USA
info@worldgastroenterology.org



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INTERESTED IN WRITING FOR e-WGN? SUBMIT YOUR ARTICLE TODAY!

WGO is accepting article submissions for upcoming issues of *e-WGN*. Articles reach a global audience and are disseminated through WGO's mailing list and social media platforms.

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ternational experts complementing local faculty, presenting a program with numerous concurrent sessions each day. The joint effort of all the organizing societies produced an outstanding program for all participants and attendees. New research was presented and summaries of our current knowledge was provided from top experts in the field. This was an opportunity to learn the latest advances and state of the art in our discipline, as well as interact with colleagues in Morocco and from all over the world.

The Scientific Program Committee brought together internationally recognized experts and rising stars in the field. The program delivered the latest clinical updates in gastroenterology and hepatology, plus discussion of what is on the horizon that may be impactful. Abstract submission was notable, highlighted by nearly 700 posters.

A highlight of the program was the Hands-On Training, which was held each day. Additionally, many of WGO's committees were featured in the program, including Climate Change, Endoscopy, Guidelines,



Several of WGO's committees were represented, including the Media and Community Engagement Committee (MACE), some of whose members are seen here networking following a social media session.



The Opening Ceremony was a lively event, complete with a surprise appearance by traditional Moroccan musicians.

Hepatology and IBD. A Women in GI session focused on training and career advice. These committees are at the core of WGO's mission and vision and exemplify the four WGO pillars: "Train. Educate. Advocate. Inform."

The Exhibition Hall, where the host societies had booths highlighting their many programs, offered delegates a showcase of products, services and expertise from sponsors and

exhibitors from around the world.

We too hope all attendees had the opportunity to connect with your colleagues from Morocco, the rest of the Africa / Middle East region and the entire world. We cordially invite you to attend the upcoming WCOG @ AGW25 which will take place from 19–22 September 2025 in Melbourne, Australia!



The daily Hands-On Training in partnership with the WGO Rabat Training Center was very popular among attendees.



WGO President Prof. Geoffrey Metz recognized the hard work of SMMAD by presenting a plaque to Joint Steering Committee Co-Chair and SMMAD President, Prof. Mohamed Tahiri Joutei Hasani.

Message from the Editors



Mahesh K Goenka, MD, DM, AGAF, MACG, FASGE, FRCP (Glasgow & London)

Director and Head, Institute of Gastrosciences and Liver Transplant
Director, Medical Education
Apollo Multispecialty Hospitals
Kolkata, India



Nancy Fanous, PhD, MD

Consultant of Gastroenterology, Hepatology
& Endoscopy
Police Authority Hospitals
Cairo, Egypt

Dear colleagues,

With 2024 approaching to an end, we are delighted to release the fourth quarterly issue of *e-WGN* for this year.

In honor of International Volunteer Day, WGO president Dr. Geofrey Metz expresses gratitude to all members and supporters who dedicate their time and expertise to convey and support WGO's vision and mission worldwide. It is through their continuous efforts that WGO is able to expand its wings and provide high quality education and training for the global health community, and patients we serve.

For the first time, the 33rd Train The Trainers (TTT) course was conducted in Portuguese language! This intensive three-day course took place on 12-14 September in Fortaleza, Brazil, and was organized by WGO and the Brazilian Federation of Gastroenterology, with support from the American College of Gastroenterology. Dr. Sérgio Pessoa, the president of the Brazilian Federation of Gastroenterology, reported that 54 participants and 10 faculty members from eight different countries and participants

from all regions of Brazil were inter-actively engaged together via 12 modules, including lectures, small group discussions, and hands-on sessions. The diverse cultural background of the faculty and participants was an enriching experience which added to the course's great success!

As a participant, Dr. Valéria Ferreira shared her testimonial stating that the course was "Practical, Effective, and Transformative." She declared her intention to integrate all the knowledge she gained into her teaching and medical practice. She also encourages all her colleagues to engage into the extraordinary life-changing experience of the TTT!

More navigation through the world's different cultures, WGO once more spins the bonds of diversity and equity through science and knowledge. This year, GASTRO 2024 was jointly organized by WGO and the Société Marocaine des Maladies de L'Appareil Digestif (SMMAD) in Marrakesh from 7-9 November as the first ever joint conference in Africa! The joint steering committee co-chairs Dr. Guilherme Macedo & Dr. Mo-

hamed Tahiri Joutei Hassani, reported that the theme of the meeting was "Premier Education–Global Connections," where thirty two experts from all over the world complimenting local faculty shared cutting edge knowledge and updated research in the field of gastroenterology and hepatology, as well as daily hands on training. The event was a great opportunity for networking between the attendees and experts in the field, creating bridges for possible future collaboration. The field of gastroenterology & digestive endoscopy is progressing very fast and becoming more "intelligent." Human intelligence supported by advanced technology & artificial intelligence are revealing more disease secrets, and offering more diagnostic and therapeutic solutions every day. One very good example is the application of intestinal ultrasonography (IUS) in inflammatory bowel disease. Dr. Partha Pal and Dr. Mohammad Abdul Mateen provide us with an informative review about the current and future applications of IUS in diagnosing, detecting disease activity, spotting complications, and evaluating treatment response in IBD. Given its patient-friendly non-invasive nature, availability and cost effectiveness, IUS is expected to play an increasing role in IBD in the near future.

Climate change and its relation to human health and disease has been recently an issue of major importance. Pakistan is one of the five most affected countries in the world due to climate change given its geographical location and increasing change towards urbanization. Dr. Farhana Kayani and Dr. Jalal Khan emphasize that such changes lead to increasing

prevalence of certain medical conditions that affect the health of the Pakistani population, such as hepatic infections and metabolic associated liver diseases (MASLD); a situation that is also present in many other countries throughout the world. The article highlights the possible relations between climate and human health, as well as the possible preventive measures. Worth noting is that WGO is working hard with members of other

organizations to help the digestive health community face such climate induced challenges.

We encourage all colleagues to contribute to the next issue of *e-WGN* that will be released in March 2025. You can share your recent publications, success stories, your society news and activities, as well as your experience with WGO courses and committees!

We are always open to new ideas and suggestions.

Follow WGO on social media to catch up with our news and opportunities!

Last but not least, we wish you all a blessed and peaceful new year ahead.

Dr. Mahesh K Goenka, India
Dr. Nancy Fanous, Egypt



Intestinal Ultrasound (IUS) in Inflammatory Bowel Disease (IBD): A New Skill for Gastroenterologists



Partha Pal, MD

Department of Medical Gastroenterology and IBD
Asian Institute of Gastroenterology
Hyderabad, India



Mohammad Abdul Mateen, MD

Department of Diagnostic Radiology and Ultrasound
Asian Institute of Gastroenterology
Hyderabad, India

Introduction

The use of intestinal ultrasound (IUS) for the evaluation of inflammatory bowel disease (IBD) was first reported in the medical literature in 1979. Despite this early introduction, it did not become a widely adopted tool for gastroenterologists. Several factors contributed to this, including concerns over the accuracy of ultrasound compared to other imaging modalities like computed tomography (CT) or magnetic resonance imaging (MRI), and the absence of training programs tailored to the needs of gastroenterologists. Over the last decade, however, there has been a renewed interest in IUS, particularly as a point-of-care tool that gastroenterologists can use directly in their clinical practice.

The ability of IUS to provide real-time information about disease activity, complications, and treatment response, combined with its non-invasive nature, has made it a valuable addition to the clinical armamentarium for managing IBD. Unlike other diagnostic techniques, IUS is well-tolerated by patients, provides immediate results, and avoids the

risks associated with radiation exposure and sedation.

Currently, the primary clinical indications for IUS in IBD include suspected IBD, monitoring IBD activity, assessing therapeutic response, detecting complications (strictures/abscesses), and predicting postoperative recurrence in Crohn's disease (CD). In this article, we'll examine the technology behind IUS, its clinical applications, its advantages over traditional imaging methods, and the potential challenges that remain.

The Ultrasound Machine and Probes

Performing IUS requires a machine equipped with both a low-frequency curvilinear probe and a high-frequency linear probe (≥ 7 MHz). Each type of probe serves a different purpose: the low-frequency curvilinear probe penetrates deep into the body, making it suitable for identifying complications such as deep-seated abscesses, while the high-frequency linear probe provides better resolution for assessing the structure of the bowel wall.

Advances in ultrasound technology

have resulted in the development of bowel-specific probes, which employ single-crystal technology to improve image clarity and resolution across different depths. Unlike conventional probes that rely on multiple piezoelectric crystals, these dedicated bowel ultrasound probes provide higher contrast and uniform resolution, enhancing the accuracy of IUS.¹

Modern ultrasound machines also come with adjustable settings for depth, focus, color Doppler gain, and contrast, allowing clinicians to tailor the scan to the patient's anatomy. For example, increasing the depth setting allows visualization of deeper structures, but this comes at the cost of reduced frame rate and line density. Meanwhile, adjusting the color Doppler gain helps minimize background noise when evaluating bowel vascularization, and contrast adjustments help to better delineate the bowel wall layers.

IUS Examination Technique

A systematic approach is crucial when performing an IUS examination, especially in patients with suspected or known IBD. The patient should expose their abdomen up to the inguinal ligament to allow full access to the abdominal and pelvic regions.

The examination typically begins in the left iliac fossa, where the sigmoid colon is visualized by identifying the iliac vessels over the psoas muscle. From there, the operator traces the colon upward to examine the descending colon, splenic flexure, transverse colon, hepatic flexure, ascending colon, cecum, and terminal ileum. The small intestine is examined using a method known as "lawn mowing," where the clinician systematically

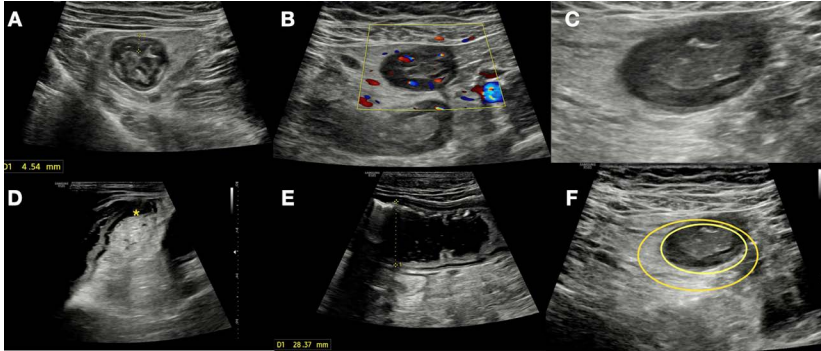


Figure 1. A. Measurement of bowel wall thickness (BWT) in cross-section; B. Bowel wall vascularization; C. Loss of bowel wall stratification; D. Stricture (*) in terminal ileum; E. Pre-stenotic dilation; F. Inflammatory fat or edema around inflamed bowel (indicated by circles-inner circle; bowel wall, outer circle: edema).

scans in vertical and horizontal planes to ensure that no part of the bowel is missed.²

During the examination, the small intestine can be distinguished from the large bowel by its characteristic peristalsis and the presence of valvulae conniventes in the jejunum, located in the left upper quadrant. In cases of Crohn’s disease, the terminal ileum is a common site of inflammation and is typically visualized in the right iliac fossa, above the iliac vessels.

Key Ultrasound Parameters

Several key parameters are assessed during an IUS examination to evaluate disease activity and detect complications. These include:

1. **Bowel Wall Thickness (BWT):** BWT is the most critical parameter in assessing IBD activity. A normal bowel wall is typically less than 3 mm thick. BWT is measured at multiple points along the bowel to ensure an accurate assessment. The average of two measurements 1 cm apart in the longitudinal plane and two measurements 90 degrees apart in the cross-sectional plane is considered the most reliable (Figure 1A).
2. **Color Doppler Signal (CDS):** The intensity of bowel vascularity is graded using color Doppler ultrasound (Figure 1B). The

modified Limberg scale (MLS) categorizes vascularity from 0 (no vascularity) (Figure 2A), 1 (few Doppler signals in bowel wall) (Figure 2B), 2 (streaks of Doppler signals in wall) (Figure 2C) to 3 (extensive vascularity extending into the mesentery) (Figure 2D). Increased vascularity correlates with active inflammation.

3. **Bowel Wall Stratification (BWS):** The layered appearance of the bowel wall on IUS resembles the structure of an “Oreo cookie” (inner hypoechoic mucosa, middle hyperechoic submucosa and outer hypoechoic muscularis). Loss of this layer pattern indicate active disease (Figure 1C).
4. **Mesenteric Fat and Lymph Nodes:** Inflammation of the mesenteric fat, known as “creeping fat,” is a hallmark of Crohn’s disease (Figure 1F). IUS can detect the presence and extent of mes-

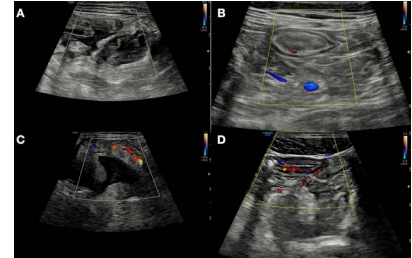


Figure 2. Modified Limberg scoring for bowel wall vascularization. A. Score 1: no Doppler signals; B. Score 1: few Doppler signals in bowel wall; C. Score 2: streaks of Doppler signals; D. Score 3: Doppler signals outside bowel wall.

enteric fat inflammation, which correlates with disease severity. Enlarged lymph nodes, often seen in areas of active disease, can also be evaluated using IUS.

5. **Complications:** IUS is highly effective in detecting complications of IBD, particularly in Crohn’s disease. Strictures (Figure 1D), fistulas (Figure 3A), and abscesses (Figure 3B-C) can be identified with high sensitivity and specificity. Strictures appear as segments of narrowed bowel lumen, often accompanied by pre-stenotic dilation (Figure 1E) and hyper-peristalsis. Fistulas and abscesses are typically visualized as hypoechoic areas adjacent to the bowel wall (Figure 3A-C).

Indications and Applications of IUS in IBD

IUS has a range of applications in IBD, from diagnosing suspected cases

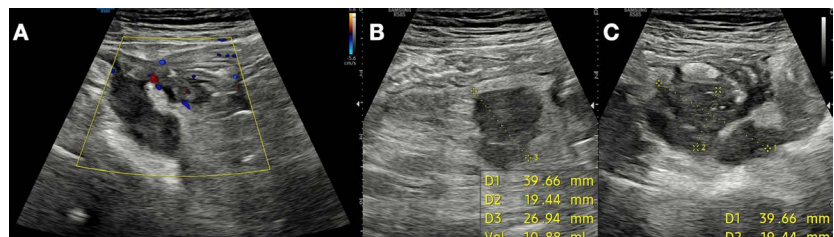


Figure 3. Fistula on intestinal ultrasound. A. Inter-bowel fistula in ileum, B-C. Quantification of various dimensions of a peri-enteric abscess and its volume.

to monitoring disease progression and therapeutic response. Below are some of the key clinical applications of IUS:

- 1. Diagnosis of Suspected IBD:** In patients presenting with gastrointestinal symptoms, IUS can be used to triage those who are likely to have IBD versus those with functional disorders like irritable bowel syndrome (IBS). Sensitivity and specificity for detecting IBD are reported to be around 85% and 95%, respectively, with IUS being particularly effective in identifying inflammation in the ileum and colon (Figure 4). However, its sensitivity for detecting rectal and jejunal lesions is lower, necessitating additional imaging or endoscopy in some cases.³
- 2. Assessment of Disease Severity:** In patients with known IBD, IUS can be used to assess the severity of disease activity (Figure 4). Several scoring systems have been developed to quantify disease activity using IUS parameters. For example, the Milan Ultrasound Criteria (MUC) for ulcerative colitis (UC) [$MUC = 1.4 \times BWT$ (in mm) + $2 \times CDS$, where CDS absent = 0 and present, = 1, $MUC > 6.3$ active disease] and the International Bowel Ultrasound Segmental Activity Score (IBUS-SAS) for CD [$= 4 \times BWT + 15 \times$ inflammatory fat + $7 \times CDS + 4 \times BWS$, at the worst-affected segment, > 48.7

active disease] provide objective measurements of inflammation.^{4,5} These scores correlate well with endoscopic findings and can be used to monitor disease progression over time.

- 3. Monitoring Therapeutic Response:** In ulcerative colitis (UC), a reduction in bowel wall thickness (BWT) of over 25% can occur within two weeks of treatment, preceding clinical and biomarker improvements. This response varies with the agent, such as infliximab and tofacitinib (2 weeks) and vedolizumab (6 weeks), with no difference after 8 weeks (Figure 4). A 30% BWT decrease correlates with a Mayo score reduction of ≥ 1 . In acute severe colitis, a $> 20\%$ BWT reduction in the sigmoid after 48 hours of intravenous steroids predicts clinical response and the need for rescue therapy by day 7.⁶ In Crohn's disease (CD), early changes in IUS at 4–8 weeks predict endoscopic response at 12–34 weeks. Transmural healing (BWT < 3 mm, normal vascularity) occurs in 42.4% by 1 year, linked to steroid-free remission and fewer surgeries (Figure 4).⁷ Infliximab levels > 5 mcg/ml and adalimumab > 10.5 mcg/ml at week 14 are associated with IUS response.⁸ Studies have shown that early sonographic changes precede clinical and

biomarker responses, making IUS a useful tool for guiding treatment decisions.

- 4. Detection of Postoperative Recurrence:** In patients with Crohn's disease who have undergone surgical resection, IUS can be used to detect postoperative recurrence. Increased BWT in the neo-terminal ileum (> 3 mm has high accuracy: 87.5% to detect endoscopic recurrence), along with elevated CDS, suggests early recurrence, allowing for timely adjustments in therapy.⁹
- 5. Evaluation of Complications:** IUS is highly effective in detecting complications such as strictures, fistulas, and abscesses, particularly in CD. The sensitivity and specificity of IUS for detecting strictures and fistulas are reported to be around 90%, making it a reliable alternative to more invasive procedures like CT enterography or MRI.²

Special Applications of IUS

In addition to its use in adult patients, IUS has several special applications, including in pediatric populations, pregnancy, and postoperative Crohn's disease:

- 1. Pediatric IBD:** IUS is particularly useful in pediatric patients, where radiation exposure from CT scans is a major concern. Dynamic sonographic imaging can provide

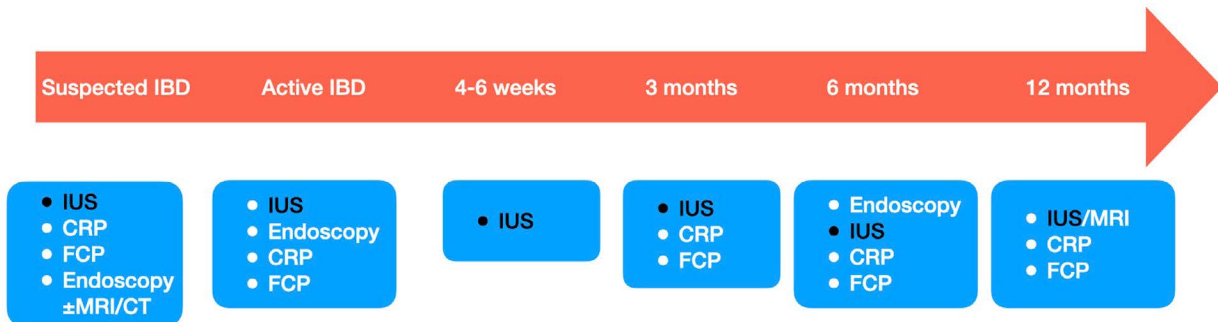


Figure 4. Role of intestinal ultrasound in treat to target algorithm for treatment of inflammatory bowel disease (IBD). IUS: intestinal ultrasound, FCP: fecal calprotectin, CRP: C-reactive protein, MRI: magnetic resonance imaging, CT: computed tomography.

valuable information about disease activity and complications, though BWT cut offs may be lower as compared to adult patients. Further validation of pediatric-specific IUS scores is needed to optimize its use in this population.

2. **Pregnancy:** The non-invasive nature of IUS makes it ideal for use in pregnant patients with IBD. While the gravid uterus can hinder the evaluation of the sigmoid colon and terminal ileum in the later stages of pregnancy, IUS can still provide valuable information about disease activity and guide treatment decisions without exposing the fetus to radiation.
3. **Postoperative Crohn's Disease:** In patients with Crohn's disease who have undergone surgical resection, IUS can be used to detect postoperative recurrence. Increased BWT in the neo-terminal ileum (>5.5 mm indicate \geq Rutgeerts i3 recurrence).⁹ IUS with fecal calprotectin can predict up to 75% of postoperative endoscopic recurrence at 1 year.¹⁰

Advantages of IUS Over Other Imaging Modalities

IUS has several advantages over other imaging modalities like CT, MRI, and colonoscopy, particularly in the context of IBD management:

1. **Non-invasive and Patient-friendly:** IUS does not require bowel preparation, sedation, or invasive procedures like colonoscopy, making it more comfortable and ideal for frequent follow-ups in IBD management.
2. **Real-time Results:** IUS provides immediate feedback, allowing for quicker clinical decision-making compared to MRI or CT, which require longer scheduling and reporting times.
3. **Cost-effective:** IUS is less expensive than MRI or CT and does not require contrast agents or seda-

tion, making it ideal for resource-limited settings. This makes IUS an ideal tool for low- and middle-income countries where access to advanced imaging may be limited.¹¹

4. **No Radiation Exposure:** IUS uses sound waves, avoiding radiation exposure, making it safer for repeated use, particularly for children and pregnant patients.
5. **Widespread Availability:** Ultrasound machines are accessible in most clinical settings, including remote areas, making IUS highly available for timely diagnosis and monitoring. The portability of ultrasound devices allows IUS to be performed at the bedside, in outpatient clinics, or during hospital rounds.¹¹

Challenges in Adopting IUS

Despite its many advantages, there are several challenges that have hindered the widespread adoption of IUS in clinical practice, particularly among gastroenterologists:

1. **Operator Dependency:** Accuracy depends on the operator's skill, leading to variability. Proper training is necessary to ensure consistent results.
2. **Learning Curve:** While ultrasound is commonly used by radiologists, it is less familiar to many gastroenterologists. However, the learning curve for competency in IUS ranged from 100-200 cases based on prior exposure.¹² A robust training infrastructure and formal certification programs are needed to overcome this challenge.
3. **Limited Availability of Training Programs:** Although interest in IUS has grown, there are still relatively few structured training programs that offer comprehensive education in IUS for gastroenterologists. Some international organizations, like the International Bowel Ultrasound Group (IBUS),

have begun offering hands-on courses and workshops, but more widespread training initiatives are needed.

4. **Limited Access to Advanced Ultrasound Equipment:** Some settings may lack high-quality machines with specialized bowel probes, which are essential for optimal imaging in IBD. However, feasibility of IUS with existing mid-end machines have been shown in a recent study.¹

Future Directions in IUS

As IUS continues to evolve, several advancements and innovations are on the horizon that could further enhance its utility in managing IBD:

1. **Elastography:** Elastography can help to assess bowel "stiffness," quantitatively based on the strain ratio (ratio of deformability to applied stress in bowel wall and mesenteric fat). A strain ratio >2 predicted fibrotic stricture and need for surgery.¹³ Stiffness >21 kPa on shear wave elastography was shown to predict fibrotic strictures with good accuracy (~88%).¹⁴
2. **Contrast-enhanced Ultrasound (CEUS):** CEUS involves the use of intravenous microbubble contrast agents to enhance the visualization of blood flow within the bowel wall. This technique could improve the assessment of bowel vascularity and help differentiate between active inflammation and other causes of bowel thickening (based on peak enhancement, wash-in rates and time-to-peak etc.). CEUS has shown promise in several studies, but its role in routine clinical practice is still being explored.
3. **Artificial Intelligence (AI) and Machine Learning:** AI could standardize IUS interpretations, reduce operator dependency, and objectively quantify disease activity.

4. Expansion of Training Programs:

More international societies are developing and expanding formal IUS training programs, potentially increasing its adoption in clinical practice.

5. Telemedicine and Remote IUS:

Remote consultation of IUS images could be incorporated into telemedicine, especially in resource-limited areas.

Conclusion

IUS has emerged as a valuable tool in IBD, offering a non-invasive, real-time, and patient-friendly alternative to traditional imaging modalities. Its ability to assess disease activity, monitor therapeutic response, and detect complications has made it an indispensable tool for gastroenterologists, particularly in the management of IBD. Despite some challenges related to operator dependency and limited access to training programs, the growing interest in IUS and advancements in ultrasound technology are likely to increase its adoption in clinical practice.

As the field continues to evolve, innovations such as elastography, contrast-enhanced ultrasound, and artificial intelligence hold the potential to further enhance the accuracy and utility of IUS. With the expansion of training programs and increased awareness of its benefits, IUS is poised to play an increasingly central role in the personalized management of IBD, improving outcomes and quality of life for patients around the world.

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WCOG @ AGW 25

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WORLD CONGRESS of GASTROENTEROLOGY @ AUSTRALIAN GASTROENTEROLOGY WEEK

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Melbourne Convention and Exhibition Center

SAVE THE DATE



Climate Change and Liver Diseases in Pakistan: A Threat to Human Well-being



Farhana Kayani, MD, FCPS (Gastroenterology)

Assistant Professor, Gastroenterology Department
Sheikh Khalifa Bin Zayed Hospital
Quetta, Pakistan



Jalal Khan, MD, FCPS (Internal Medicine)

Assistant Professor, Medicine Department
Bolan Medical College
Quetta, Pakistan



Climate change poses a fundamental threat to global health, affecting the social and environmental factors influencing the health of the human system. An attempt is being made by a few societies to tackle this neglected link between climate change and health. An increase in the global burden of disease due to polluted air, polluted drinking water, food insecurity, etc., is found to have an intricate relationship with liver diseases also.

Liver disease accounts for 4% of all annual deaths globally.¹ Risk factors such as human behavior, geography, social and economic context, and environmental exposure are likely to increase the incidence of liver diseases, thus contributing to the anticipated increase in the global burden of liver disease. Climate change influences liver diseases through various mechanisms, leading to rising figures in metabolic dysfunction-associated liver

disease (MASLD), viral hepatitis, liver cancers, and deterioration of chronic conditions, as all these are susceptible to the effects of climate change.

Pakistan lies in the world within the latitude and longitude of 30°00 N and 70°00 E. It is the third-largest country by area in Asia and the sixth-largest country in the world, with a population of approximately 220 million people. It has the second-highest peaks in the world, with large glaciers at one end and plains of the Indus and deserts at the other end. Nearly one-third of the population has an income of less than USD 3.00 per day (poverty threshold).²

Pakistan is one of the five most affected countries in the world due to climate change from the year 1999-2018.³ The main reason for climate change is greenhouse gas emissions (CO₂, CH₄, N₂O, and H₂O), particularly due to continuous migration of people from rural to urban areas (urbanization), the increased use of fossil fuels for economic growth, production of increased industrial waste, transportation, and scanty of clean and pure water.

Because of Pakistan's geographical location, the effects of climate change are quite severe. The melting of glaciers at a faster rate and the shortage of water resources lead to an increased blow to the economy due to its effect on agricultural and energy security. Deforestation over the decades with unseasonal rains, unpredictable flooding droughts, varying temperature, intense heat waves, hurricanes, landslides, etc., led to the loss of livestock and human lives, decreased agricultural produce, soil erosion, and contributed to the waterborne and vector-borne illnesses.⁴

An increase in the frequency of viral hepatitis, especially those related to waterborne and foodborne infections (hepatitis A and E), occurs after the rainy and flooding season.⁵ Due to the increasing prevalence of extreme weather events, frequent flooding in different areas of Pakistan has exacerbated the spread of both hepatitis A and E. Besides the potential for an increasing number of infections, rising temperatures have been shown to increase viral pathogenicity, inducing viral replication and mutations, thus increasing infectivity. Not only hepatotropic, but the incidence of non-hepatotropic viral infections is also growing as dengue infection, malaria, and typhoid infections are found to affect the liver in severe cases. Moreover, mass population movements from people living in more endangered areas, generating large settlements with poor sanitation, also predisposes to the spread of hepatitis A and E.

The incidence of hepatitis B and C is also increasing because of social and economic instability due to climate issues. The poor healthcare systems and decreased facilities expose them to increased risk factors for hepatitis B and C, namely the use of intravenous drugs and increased transmission in healthcare facilities due to improper disposal of injections and syringes.

The increase in the prevalence of MASLD is due to obesity and metabolic syndrome. Due to erratic weather conditions, exposure to droughts, and increased floods with the recent locust attacks in 2020, a big blow to the agricultural economy was made in Pakistan. These dietary patterns are expected to be severely impacted by human-induced climate

change, leading to limited natural and organic food product supply, causing consumption of highly processed foodstuffs to be less expensive, contributing greatly to worse outcomes, thus increasing the obesity epidemic (MASLD).⁶ Further, air pollution promoting oxidative stress with impaired insulin resistance increases the risk of MASLD. Increased use of motorized transportation and decreased outdoor physical activity, increased depression with a feeling of being helpless leads to increased steroid release in the body, which are also contributing factors.

Many scientific societies are taking a strong stance by engaging patients and healthcare staff to promote better healthcare habits, as medical practice has a significant impact on climate change. The World Gastroenterology Organisation is working with members of other organizations to help the digestive health community meet the challenge.⁷

The first step would be to educate the masses by advertising and holding seminars/webinars. Education and knowledge about proper diet are important; as with decreased use of highly processed food and proper exercise with physical activity, the emerging issue of MASLD can be dealt with. By saving energy and using the concept of green endoscopy, we can reduce the threat imposed secondary to climate change. Masses should be encouraged to drink boiled water. Moreover, proper handwashing and following proper hygiene should become a routine exercise. Another challenge that needs to be addressed is air pollution, as control of air pollution by switching from fossil fuel to renewable sources of energy (wind,

solar) is necessary for the health and well-being of the Pakistani population.

Acknowledging the pivotal relationship between climate change and liver diseases is essential for promoting a healthier and more sustainable future.

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WGO Train the Trainers Fortaleza 2024



Sérgio Pessoa, MD

President, Federação Brasileira de Gastroenterologia
Hospital Geral de Fortaleza
Fortaleza, Brazil



Countries represented at
TTT Fortaleza

The Portuguese language, with its deep and rich historical roots, plays a significant role in global communication. Officially spoken in nine countries, including Brazil, Portugal, Angola, Mozambique, and others, Portuguese is the native language of approximately 265 million people, making it the fifth most spoken language in the world. Its relevance is not only due to the number of speakers but also because of its cultural, economic, and political influence in international relations. In scientific and medical events, the use of Portuguese facilitates access to knowledge for communities that might otherwise be excluded from the global dialogue, promoting inclusion and the dissemination of information in a language that unites diverse nations and cultures.

WGO is pleased to announce our first Portuguese-language Train the Trainers workshop as a great success!

The 33rd WGO Train the Trainers (TTT) workshop took place this past 12–14 September 2024 in Fortaleza, Brazil. This interactive workshop, organized by the World Gastroenterology Organisation (WGO) and the Federação Brasileira de Gastroenterologia, with support from the American College of Gastroenterology, was made up of 12 modules, including lectures, small group discussions, and hands-on sessions while creating the opportunity for everybody to engage in an open discussion on many topics related to teaching and training. The TTT Fortaleza 2024 workshop was a fine addition, and being the first Portuguese workshop, it opened the WGO Train the Trainers program to many societies in the Lusophone World (Mundo Lusófono).

In particular, TTT Fortaleza 2024 was an intensive three-day course focused on improving the abilities and educational skills of trainers in

the field of digestive health. TTT Fortaleza 2024 brought together renowned faculty members from WGO (trainers) and participants (trainees) from eight different countries and settings around the world, in an enabling environment to improve their potential for teaching. Going beyond seminars, the workshop also sought to bring the participants and faculty together through a variety of team building and small group activities. For the first time ever, this TTT had a majority female participation.

The cultural night highlighted the diverse backgrounds of our faculty and participants, who came from a total of eight countries and from every region of Brazil. During the workshop, we were treated to a tour of Fortaleza as well as amazing Brazilian food, particularly from the state of Ceará.

We wish to thank our esteemed faculty: Profs. Flávio Ejima (Brazil), Mariana Gouveia (Brazil), Ricardo Küttner-Magalhães (Portugal), Susana Lopes (Portugal), Guilherme Macedo (Portugal), Liliana Mendes (Brazil), Carolina Olano (Uruguay), Mario Reis (Brazil), Rosamar Rezende (Brazil) and Eduardo Rodrigues-Pinto (Portugal). Three of WGO's Training Centers were represented on the faculty: Brasília and Porto Alegre in Brazil and Porto in Portugal.

A truly once in a lifetime workshop, the invaluable impact of the training and guidance provided on the field of adult education combined with the breathtaking adventure that is Fortaleza is hard to put into words. One of the participants has offered her testimonial, which is also featured in this issue of *e-WGN*.

Train the Trainers Fortaleza 2024 – “Practical, Effective, and Transformative”



Valéria Ferreira de Almeida e Borges, MD

Universidade Federal de Uberlândia (UFU)
Universidade Federal da Bahia (UFBA)
Uberlândia, Brazil

Participating in WGO’s TTT program was a transformative and unique experience. The knowledge I gained on adult education, the Pendleton’s Rules feedback method, handling struggling students, teaching skills, and bedside teaching, among many other concepts, provided me with an entirely new perspective on the practice of preceptorship. I plan to integrate everything I learned into my work as a preceptor for a gastroenterology medical residency in a public university hospital in Brazil.

Concepts such as professionalism, the learning pyramid, the pillars of “set, dialogue, closure,” Bloom’s Taxonomy, the importance of effective communication and conflict resolution, CAT, and RAMBOMAN are now central to my educational practice. These insights have had a profound impact not only on my teaching but also on fostering a more productive and harmonious learning environment.

I strongly encourage anyone who has yet to participate in WGO’s TTT program to take advantage of this opportunity. No preceptorship course I have attended before has been as practical, effective, and transformative as this one. What I gained as a teacher and gastroenterologist exceeded my expectations—it was extraordinary!



Advanced TTT in Leadership and Management in Porto, Portugal: 3rd Time Was a Charm!



Kelly W. Burak, MD, FRCPC, MSc (Epid)

Chair, WGO Train the Trainers Committee
University of Calgary Liver Unit
Calgary, Canada



Guilherme Macedo, MD, PhD, MACG

Past President, WGO
Centro Hospitalar Sao Joao
Porto, Portugal



Faculty and participants at the Porto TTT.

After successful courses in 2013 and 2018, the World Gastroenterology Organisation (WGO) was proud to partner with the WGO Training Center in Porto, Portugal to host the 3rd edition of this Advanced TTT Course on 7–8 October 2024. The program focused on improving a deeper understanding of the skills needed to excel in leadership and

management. Eighteen participants from nine countries were immersed in an intensive two-day experience. New this year, approximately two-thirds of participants were not alumni of a previous TTT, and we also had industry partners in attendance.

The remarkably talented faculty of this course included past presidents of WGO and the American College

of Gastroenterology (ACG), and the President-Elect for both partner organizations (see below). Each of the faculty presented a lecture, including new modules on “Leading with Emotional Intelligence” and “Diversity, Equity, and Inclusion in Leadership,” which were very well received. The faculty also shared their wealth of personal experience during a panel discussion, and we welcomed the mayor of Porto to share his insights on leadership during a special guest lecture.

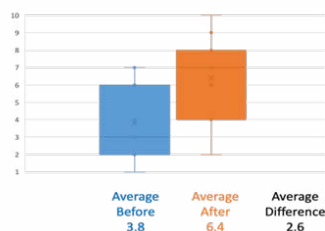
This year, the curriculum was updated to reflect the philosophy of TTT, that adults learn best through active learning and while having fun. Three workshops, that have recently been introduced into the traditional TTT, were updated and included in the new Advanced TTT program: “Conflict Resolution and Negotiation Skills,” “Coaching for Change,” and “Promoting Wellness and Preventing Burnout.” These were joined by a new workshop on “Strategic Planning” that took participants through a simulation exercise to develop a vision, mission, and strategic objectives for



Left panel: TTT Faculty Jack DiPalma, Susanna Lopes, Guilherme Macedo, Kelly Burak, Amy Oxentenko, Carolina Olano and Vivek Kaul were inspired by a visit from Porto FC mid-fielder and Team Canada Vice-Captain Stephen Eustaquio (top right) during Faculty Prep Day. Right panel: Dr. Amy Oxentenko, President-Elect of the ACG, and Dr. Carolina Olano, President-Elect of WGO, share their commitment to the Train the Trainers program going forward.



Being a Leader in Medicine



a new GI Division, which one group named “Astro Gastro,” using the Balanced Score Card approach.

The self-efficacy post-course survey showed statistically significant increase in confidence on all course objectives, which included:

- 1) Being a professional
- 2) Establishing and working in teams
- 3) Communicating effectively in-person and online
- 4) Ensuring patient-centered and quality care
- 5) Resolving conflicts
- 6) Coaching to change behaviors
- 7) Advocating for diversity, equity, and inclusion
- 8) Using emotional intelligence in leadership
- 9) Managing your time wisely
- 10) Developing a strategic plan
- 11) Promoting wellness and career longevity
- 12) Being a leader in medicine.

The impact of this updated Advanced TTT in Leadership and Management was apparent from the participant feedback received.

“It was a very inspiring course.”
Samar Zahran, Egypt

“The course was great and of course is still shaking ideas inside!”
Paula Carfagnini, Argentina

“Thank you very much for this wonderful opportunity to learn, network and enjoy with WGO.”
Brindusa Truta, USA, California and ACG Member

So once more, TTT has evolved to be even more mindful and transformative, while navigating the new challenging times that all leaders face. This course allowed participants to reflect on their own individual strengths and those of the teams they lead, while learning new skills to help them succeed in the future. We believe that those who participated will not soon forget these lessons learned and left the meeting with a commitment to change.

Course Reflections

Describe in one word your TTT experience:



A Special Thank You to All WGO Volunteers



**Geoffrey Metz, AO, MBBS (Hons), FRACP, MD,
FRCP (UK), FACP, FACG President**

President, WGO
Epworth Hospital
Richmond, Australia

In honor of International Volunteer Day last week, I wish to extend a wholehearted thank you to all involved in the work of WGO, helping to fulfill our vision to be the global guardian of digestive health. Your unwavering commitment to WGO is very much noticed and appreciated. We could not do what we do without the support of our volunteers and members.

I appreciate that you donate your time and expertise to contribute to the important work that helps WGO achieve its mission. Together, we can continue to promote an awareness of the worldwide prevalence and optimal care of gastrointestinal and liver disorders. We fight to improve the care of these disorders through providing accessible, high-quality, and independent education and training.

Thank you again for your dedication to WGO, the global gastroenterology community, and the patients we serve!

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Thank You Volunteers 

WGO Guidelines and Cascades – 2024 in Review

WGO's Guidelines and Cascades continue to be the most visited area of the WGO website, accounting for over one-third of all traffic.

The most accessed Guidelines are:

- 1) Probiotics and Prebiotics
- 2) Acute Diarrhea
- 3) *Helicobacter pylori*

Users from all across the globe utilize WGO's Guidelines, with the most visitors from:

- 1) USA
- 2) Brazil
- 3) India

Work continues on updates to the GERD, HCC, Hepatitis B and IBD Guidelines, which we expect to complete soon.

Guidelines in the *Journal of Clinical Gastroenterology*

The *Journal of Clinical Gastroenterology (JCG)* is the official publication platform for the World Gastroenterology Organisation's Global Guidelines in the English language. This collaboration also covers WGO society news in each issue, as well as WGO review articles in the JCG. Additionally, WGO is represented in the JCG Editorial Board. The Obesity and Probiotics & Prebiotics Guidelines were published in the JCG and available for viewing at <https://journals.lww.com/jcge/pages/default.aspx>.

Obesity Guidelines Translations

In 2024, WGO released the executive summary of the updated Obesity Guideline in Mandarin and Portuguese translations. This is in addition to the English and Spanish versions

published earlier. These guidelines can be viewed and downloaded at <https://www.worldgastroenterology.org/guidelines/obesity>.

In addition to the summary, the "Methodology and results of a joint IFSO-WGO Delphi Survey of 94 intercontinental, interdisciplinary experts in obesity management" paper is also available in English, Mandarin, Portuguese and Spanish on WGO's website.

Probiotics and Prebiotics Guidelines Translations

The updated Probiotics and Prebiotics Guidelines are also available in English, Mandarin, Portuguese and Spanish language translations. They can be viewed at <https://www.worldgastroenterology.org/guidelines/probiotics-and-prebiotics>.



DONATE TODAY

Contributions to WGO support and expand the educational, training, research, and awareness programs and initiatives of WGO by strengthening the reach of WGO to areas in the world that benefit directly from the education offered through programs such as Training Centers, Train the Trainers, World Digestive Health Day, Global Guidelines, and international meetings such as the World Congress.

DONATE HERE

Calendar of Events

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

Train the Trainers Manila

When: March 6, 2025 - March 8, 2025

Location: Manila

Country: Philippines

Organizers: World Gastroenterology Organisation and the Philippine Society of Gastroenterology

Website: <https://www.worldgastroenterology.org/education-and-training/train-the-trainers/upcoming-workshops>

World Congress of Gastroenterology @ Australian Gastroenterology Week 25

When: September 19, 2025 - September 22, 2025

Location: Melbourne Convention and Exhibition Center

Address: Melbourne, Australia

Organizers: World Gastroenterology Organisation and Gastroenterological Society of Australia

Website: <https://www.worldgastroenterology.org/>

CALENDAR OF EVENTS

Saudi Digestive Disease Forum 2024

When: December 14, 2024 - December 16, 2024

Location: Jeddah

Country: Saudi Arabia

Organizer: Saudi Gastroenterology Association

Website: www.saudigastro.com

2025 Annual Meeting

When: February 6, 2025 - February 8, 2025

Location: Lillehammer

Country: Norway

Organizer: Norwegian Gastroenterology Association

Website: <https://www.legeforeningen.no/foreningsledd/fagmed/norsk-gastroenterologisk-forening/>

4emes Journees Scientifiques de la SOMMAD

When: February 6, 2025 - February 7, 2025

Location: Hotel Granada Amitie

Address: Bamako, Mali

Organizer: Societe Malienne des Maladies de l'Appareil Digestif (SOMMAD)

Website: www.sommad.ml

Joint CDDW-CLM Conference 2025

When: February 25, 2025 - March 2, 2025

Location: Quebec City, Quebec

Country: Canada

Organizers: Canadian Association of Gastroenterology and Canadian Association for the Study of the Liver

Website: <https://cddw-clm.ca/>

28th Annual Meeting

When: March 12, 2025 - March 14, 2025

Location: Madrid

Country: Spain

Organizer: Asociación Española de Gastroenterología (AEG)

Website: <https://www.aegastro.es/>

2025 Annual Meeting of the Philippine Society of Gastroenterology

When: March 12, 2025 - March 15, 2025

Location: Grand Hyatt

Address: Manila, Philippines

Organizer: Philippine Society of Gastroenterology

Website: <https://psgastro.org/>

The 55th Annual Meeting of GEST

When: March 22, 2025 - March 23, 2025

Location: Taipei

Country: Taiwan

Organizer: The Gastroenterological Society of Taiwan

Website: <https://www.gest.org.tw>

APASL 2025

When: March 26, 2025 - March 30, 2025

Location: China National Convention Center

Address: Beijing, China

Organizer: Asian Pacific Association for the Study of the Liver

Website: <http://www.apasl2025beijing.com/>

Digestive Disease Week (DDW) 2025

When: May 3, 2025 - May 6, 2025

Location: San Diego, California

Country: USA

Organizers: AGA, AASLD, ASGE

Website: <https://ddw.org/>

Liver Congress 2025**When:** May 7, 2025 - May 10, 2025**Location:** Amsterdam**Country:** Netherlands**Organizers:** EASL**Website:** <https://www.easlcongress.eu/>**Semana Digestiva 2025****When:** May 28, 2025 - May 30, 2025**Location:** Gondomar**Address:** Porto, Portugal**Organizer:** Sociedade Portuguesa de Gastrenterologia**Website:** www.semanadigestiva.pt**Semana Panamericana de Enfermedades Digestivas 2025****When:** August 28, 2025 - August 30, 2025**Location:** Lima Centro de Convenciones**Address:** Lima, Peru**Organizers:** Sociedad de Gastroenterología del Perú, Organización Panamericana de Gastroenterología and Sociedad Interamericana de Endoscopia Digestiva**Website:** <https://sped2025.org/>**IFSO World Congress 2025****When:** September 9, 2025 - September 12, 2025**Location:** Santiago**Country:** Chile**Organizer:** International Federation for the Surgery of Obesity and Metabolic Disorders (IFSO)**Website:** <https://ifso2025.org/>**EUS-ENDO International Live Course 2025****When:** September 11, 2025 - September 13, 2025**Location:** IRCAD**Address:** Strasbourg, France**Organizer:** Course Director: Marc Giovannini**Website:** <https://eus-endo.org/>**ALEH Congreso 2025****When:** September 29, 2025 - October 1, 2025**Location:** Lima**Country:** Peru**Organizer:** ALEH**Website:** Congresoaleh.com**UEG Week 2025****When:** October 4, 2025 - October 7, 2025**Location:** Messe Berlin**Address:** Berlin, Germany**Organizer:** UEG**Website:** <https://ueg.eu/week>**ACG Annual Scientific Meeting and Postgraduate Course 2025****When:** October 24, 2025 - October 29, 2025**Location:** Phoenix, Arizona**Country:** USA**Organizer:** American College of Gastroenterology**Website:** <http://www.gi.org>**JDDW 2025****When:** October 30, 2025 - November 2, 2025**Location:** Kobe**Country:** Japan**Organizer:** Organization of JDDW**Website:** <https://www.jddw.jp/jddw2025/en/>**The Liver Meeting 2025****When:** November 7, 2025 - November 11, 2025**Location:** Washington, DC**Country:** USA**Organizer:** AASLD**Website:** <https://www.aasld.org/the-liver-meeting>**WGO Member Societies
Submit Your Event**

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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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