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ORAL PRESENTATIONS

SESSION 01: MICROBIOTA IN HEALTH AND DISEASE

01.05.

GAIN-OF-FUNCTION TLR4 VARIANTS AND *HELICOBACTER PYLORI*-RELATED GASTRIC CANCER

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Objective: Toll-like receptor 4 (TLR4) is implicated in the host immune response to Helicobacter pylori, and the magnitude of the resulting inflammatory response is considered a major driver of gastric carcinogenesis.
Materials and Methods: In this study, the association between clinically relevant *TLR4* variants and gastric cancer (GC) etiology was evaluated across multi-ethnic case-control studies (Australian Caucasian, Colombian Mestizo, Han Chinese) comprising over 1,200 patients representing Correa's cascade. We investigated the gain-of-function *TLR4* rs11536889 variant in gastric epithelial and macrophage cell lines, and examined its role in inflammation, antimicrobial defense, and cancer traits in response to *H. pylori*. Host transcriptomics of gastric tissue (bulk RNA-seq) and systemic inflammation (multiplex ELISAs) were further interrogated in clinical patients and correlated with rs11536889 carriage.
Results: Overall, we uncovered a genetic profile collectively suggesting gain-of-function variants within the TLR4 signaling complex increase GC risk in high-risk populations (e.g., rs11536889, OR: 3.50, $P_{adj:}$ 0.01). Mechanistically, rs11536889-carrying macrophages showed increased NF-κB and FOXP3 abundance, with downstream transcriptional influences on interferon and JAK/STAT signaling. Further, these cells secreted a dysregulated inflammatory profile marked by profoundly reduced IL-1Ra production and elevated IL-10, which was exacerbated upon repeated stimulation. By contrast, gastric epithelial cells carrying rs11536889 produced an aberrant inflammatory response to *H. pylori*, marked by limited NF-κB activation and reduced IL-8. Circulating cytokine profiling reflected a reduced IL-1Ra expression profile in high-risk individuals presenting with gastric precancerous lesions.
Conclusions: This genetic study into the TLR4-*H. pylori* interaction implicates a novel biomarker (rs11536889) for personalized intervention campaigns leveraging IL-1Ra intervention to potentially curtail GC burden.

Conflicts of Interest
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01.06.

FECAL MICROBIOTA TRANSPLANTATION FOR REFRACTORY IMMUNE CHECKPOINT INHIBITOR-INDUCED COLITIS: A PAN-EUROPEAN COHORT STUDY

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Objective: Immune checkpoint inhibitors (ICIs) have revolutionized the treatment of several epithelial cancers but can lead to significant immune-related adverse events (irAEs), often requiring interruption of ICIs, with a higher risk of disease progression and worse survival. Diarrhea and colitis are frequent irAEs, with immunosuppressive biologic drugs being the main treatment. Thus, they may compromise the efficacy of ICIs and accelerate disease progression, making the search for safer and more effective therapies a necessity. Microbiome disruption can lead to excessive immune activation and mucosal inflammation during ICI therapy: its restoration by FMT represents a novel approach to manage irAEs. FMT has been explored in refractory ICI-induced colitis, with promising results. We present the first European cohort of patients with refractory ICI-colitis unresponsive to immunosuppressive drugs treated with FMT as salvage therapy.

Patients and Methods: Patients were enrolled in seven European centers (Croatia, France, Italy, Spain, Netherlands). Patients underwent single or multiple FMTs and were followed up until 24 weeks. Clinical, laboratory, and endoscopic data were collected at baseline and at different post-FMT timepoints. 30 patients were enrolled (Italy n=8; Netherlands n=8; Spain n=6; Croatia n=5; France n=3); 17 males (56%), median age 60 years. 43% of patients had melanoma, 33% non-small-cell lung cancer, 13% renal cell carcinoma; 27 patients had metastatic disease. 20 patients received PD-1/PD-L1 inhibitors as monotherapy; 10 were treated with a combination of PD-1 inhibitors with CTLA-4/LAG-3 inhibitors.

Results: Most patients presented with a G3 (n= 18, 60%) or G4 (n= 9, 30%) colitis, while only three (10%) experienced a G2. At baseline, median fecal calprotectin was 1,800 mg/g, median CRP was 27.5 mg/l, and median white blood cells count (WBC) was 9.1 cells/µl. All patients presented with an ulcerative colitis-like endoscopic picture at baseline, and 67% had a severe endoscopic picture. At 24-week follow-up, up to 81% achieved complete clinical response, and up to 87% experienced clinical amelioration, with only mild AEs. Nine patients died for cancer progression or opportunistic pneumonia, which might be both related to the sustained use of immunosuppressants.

Conclusions: Median fecal calprotectin after FMT was 440 mg/g at 4-week follow-up (p=0.0008) and 21 mg/g at 12-week follow-up (p<0.0001). At 12-weeks post-FMT, median CRP reduced to 4 mg/l (p=0.0054) and WBC to 6 cells/µl (p=0.016). Moreover, baseline severe endoscopic picture was significantly associated with complete clinical response at 8 weeks (OR 0.07, 95% CI 0.003–0.69), while recent antibiotic exposure emerged as an independent predictor of FMT failure (OR 11.62, 95% CI 1.03–425.9). Our findings support FMT as an effective option for refractory ICI-induced colitis and the investigation of its earlier use to avoid prolonged immunosuppression.

Conflicts of Interest
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SESSION 02 – THERAPEUTIC MICROBIOTA MODULATION AND NEW REGULATION OF FMT

02.03.

MICROBIOME-TARGETED THERAPY IMPROVES SYMPTOMS IN RETT SYNDROME

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Objective: The gut-brain axis links the microbiome to neurological function and immune homeostasis. Rett syndrome (RTT), a neurological disease caused by mutations in MECP2, is associated with alterations in the gut microbiome, though their contribution to disease severity remains unclear. Postbiotics such as butyrate may modulate microbial, immune, and barrier functions.
Materials and Methods: In a pilot, single-site, randomized crossover trial (NCT05420805), 28 females with RTT received oral butyrate-based postbiotics twice daily for 12 weeks: BizetaFlox (sodium butyrate + zinc oxide) or Lalbaay (sodium butyrate + α-lactalbumin + inulin + fructo-oligosaccharides). After a 4-week washout, participants crossed over to the alternate treatment for an additional 12 weeks. Clinical, microbiome, metabolomic, and immunological outcomes were assessed.
Results: Postbiotics improved clinical severity, quality of life, and gastrointestinal symptoms, alongside reduced intestinal inflammation. Symptom worsening occurred during washout and improved upon retreatment. Multi-omics analysis showed a broader microbiome functional modulation with Lalbaay, though both treatments affected propionate and nicotinate/nicotinamide metabolism. Therapy reduced circulating proinflammatory mediators. Machine learning identified microbial, metabolic, and immune predictors of clinical response.
Conclusions: Postbiotic therapy improves clinical outcomes in RTT, likely *via* modulation of microbiome function and inflammation. These findings support postbiotics as a promising therapeutic strategy and highlight candidate biomarkers for personalized treatment approaches.

Conflicts of Interest
Silvia Leoncini: None, Marcello Manfredi: None, Claudio De Felice: None, Francesco Strati: Other Research Support: This work was financially supported by Kolfarma s.r.l. The authors declare that they have no competing interests. The study sponsor (Kolfarma s.r.l.) had no role in study design, data collection and analysis, or decision to publish.

02.04.

ACHILLEA MILLEFOLIUM EXERTS DISTINCT MODULATORY EFFECTS ON GUT BACTERIAL AND FUNGAL COMMUNITIES IN THE TIM-2 *IN VITRO* MODEL OF THE COLON

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Objective: The gut microbiota and mycobiota contribute to host metabolism and intestinal homeostasis. While plant polyphenols are known to modulate bacterial communities, their effects on gut fungal communities remain poorly understood. This study investigated the effects of *Achillea millefolium* (yarrow) extract and a representative phenolic mixture (apigenin, caffeic acid, and chlorogenic acid) on gut microbial composition and metabolic activity.
Materials and Methods: The TIM-2 *in vitro* colon model was inoculated with human fecal microbiota and supplemented with yarrow extract, a phenolic mixture, or control medium for 72 h. Samples collected at 0, 24, 48, and 72 h were analyzed by V_3-V_4 16S rRNA gene and ITS2 amplicon sequencing, while short-chain fatty acids (SCFAs) were quantified by GC-MS. Microbial community diversity and composition were analyzed in R, and longitudinal changes in bacterial and fungal taxa were assessed using linear mixed-effects models ($p < 0.05$).
Results: Yarrow induced broader microbial modulation than the phenolic mixture, significantly enriching bacterial taxa associated with gut health, including *Lactiplantibacillus*, members of Eggerthellaceae, Christensenellaceae, Butyricicoccaceae, and the *Eubacterium coprostanoligenes* group, accompanied by increased acetate and propionate production. ITS2 profiling revealed that yarrow significantly enriched *Alternaria*, *Aureobasidium*, *Cladosporium*, Malasseziaceae-related taxa, and a highly abundant uncultured fungal taxon, whereas the phenolic mixture selectively increased *Aspergillus*.
Conclusions: Yarrow exerts distinct, broader modulatory effects on both gut bacterial and fungal communities than its isolated phenolics, supporting its potential as a microbiota-targeted functional ingredient.

Conflicts of Interest
Ana Bacic: Research Grant: Horizon Europe 2021-2027 research and innovation program, TwinPrebioEnz, grant agreement ID 101060130; Other Research Support: Ministry of Education, Science and Technological Development of the Republic of Serbia (Contract No. 451-03-68/2022-14/200135), Kahlile Youssef Abboud: Research Grant: Horizon Europe 2021-2027 research and innovation program, TwinPrebioEnz, grant agreement ID 101060130; Other Research Support: Ministry of Education, Science and Technological Development of the Republic of Serbia (Contract No. 451-03-68/2022-14/200135), Yanyun Zhang: Research Grant: Horizon Europe 2021-2027 research and innovation program, TwinPrebioEnz, grant agreement ID 101060130, Mirjana Rajilić-Stojanović: Research Grant: Horizon Europe 2021-2027 research and innovation program, TwinPrebioEnz, grant agreement ID 101060130; Other Research Support: Ministry of Education, Science and Technological Development of the Republic of Serbia (Contract No. 451-03-68/2022-14/200135).

02.05.

PAROMOMYCIN IS AN EFFECTIVE TREATMENT OPTION FOR RIFAXIMIN-REFRACTORY SMALL INTESTINAL BACTERIAL OVERGROWTH: A RETROSPECTIVE ANALYSIS

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Objective: Small intestinal bacterial overgrowth (SIBO) refers to a dysbiotic condition characterized by an abnormal proliferation of microbes into the small intestine. Although its true prevalence is still unclear to date, SIBO has garnered growing attention over the past years, resulting to affect more than 30% of patients with gastrointestinal symptoms undergoing breath testing. Due to its broad spectrum of antimicrobial activity and pharmacokinetic profile, current literature emphasizes rifaximin as first-line treatment in patients who test positive for the lactulose or glucose breath test. However, a subset of these patients does not respond to rifaximin, and evidence regarding alternative treatments in this population remains limited. Paromomycin, a non-adsorbable oral aminoglycoside approved for intestinal amebiasis, might represent a valuable option, but studies evaluating its efficacy in SIBO are missing.
Materials and Methods: We conducted a retrospective observational study involving patients with SIBO who still tested positive for lactulose hydrogen (H_2) and/or methane (CH_4) breath testing after rifaximin treatment and subsequently received paromomycin in our outpatient service from September 2022 to February 2026. Inclusion criteria were: 1) persistent positivity of lactulose breath test following rifaximin treatment (H_2 > 20 ppm from baseline to 90 minutes; CH_4 > 10 ppm at any time); 2) at least one follow-up visit at 12 weeks; 3) age > 18 years. Patients receiving additional non-adsorbable antibiotics were excluded. The primary outcome was defined as breath test negativization (H_2 < 20 ppm from baseline to 90 minutes; CH_4< 10 ppm at any time) at 12 weeks. Secondary outcomes included improvement in related gastrointestinal symptoms and safety profile of the treatment.
Results: A total of 54 patients (n = 41 females, n =13 males, mean age: 43, range: 21-74; SD: 12.3) were included. At baseline, 40 (74%) patients had hydrogen-positive lactulose breath test, 7 (13%) methane-positive, and 7 (13%) tested positive for both hydrogen and methane. Follow-up breath testing at 12 weeks was available in 19 patients (35%), of whom 15 (79%; CI95%: 60-97%) achieved negativization. Gastrointestinal symptoms were distributed as follows: 50 (92%) patients experienced bloating, 39 (72%) abdominal pain, 26 (48%) constipation, and 21 (39%) diarrhea. The majority of patients experienced improvement in at least one gastrointestinal symptom following treatment: 34 patients (68%, $p < 0.05$, McNemar test) exhibited reduction in bloating, 31 (79%, $p < 0.05$, McNemar test) in abdominal pain, 18 (86%) in diarrhea, and 8 (31%) in constipation. Mild adverse events were infrequent: 3 patients (5%) reported abdominal pain, 3 (5%) patients reported diarrhea, and 2 (4%) patients reported nausea. No severe therapy-related adverse events (nephrotoxicity, ototoxicity, allergic reactions) were experienced.
Conclusions: Despite preliminary data, our findings hint at paromomycin as a promising therapeutic option in patients with rifaximin-refractory SIBO, with a remarkable safety profile and noteworthy impact on bloating and abdominal pain.

Conflicts of Interest

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SESSION 03 – AI, OMICS AND DISEASE CLASSIFICATION IN *HELICOBACTER PYLORI*

03.03.

ASSESSING THE ACCURACY OF COMMONLY USED BIOINFORMATIC TOOLS TO PREDICT ANTIBIOTIC RESISTANCE PHENOTYPES FROM *HELICOBACTER PYLORI* GENOMES

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Objective: Most stomach cancers are attributed to *Helicobacter pylori* infection, but *H. pylori* eradication is impeded by growing antimicrobial resistance (AMR). Since *H. pylori* is slow-growing and challenging to culture for downstream phenotypic antibiotic susceptibility testing (AST), whole-genome sequencing offers a promising alternative for genotype-based AMR prediction.
Materials and Methods: To evaluate the accuracy of publicly available AMR prediction tools, a curated collection of 1,634 *H. pylori* genomes with AST data was gathered, combining our own data with publicly available data identified through literature searches. The genomes were processed through the AMR predictive bioinformatic tools ResFinder, AMRFinderPlus, and RGI (Resistance Gene Identifier), and compared to the AST data. To improve prediction of AMR phenotypes from *H. pylori* genomes and uncover novel associations of genes conferring resistance, we performed regression analysis using Random Forests on the presence patterns of accessory genes, aiming to identify gene combinations that improve prediction of AMR to the main therapeutic antibiotics clarithromycin, metronidazole, tetracycline, levofloxacin, and amoxicillin.
Results: Across all antibiotics, the best-performing tool, RGI, correctly predicted AMR phenotype in 43.8% of cases. Our machine learning approach produced decision trees, suggesting that leveraging gene combinations rather than single markers could enhance AMR prediction in *H. pylori,* following refinement and validation of gene sets.
Conclusions: This work highlights an urgent need for better AMR predictive tools for *H. pylori* and the potential of integrating machine learning with genomic data to overcome current limitations in AMR detection and improve treatment outcomes.

Conflicts of Interest
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03.04.

EPIGENOMIC LANDSCAPE OF *HELICOBACTER PYLORI*: DIRECT DETECTION AND VALIDATION OF DNA METHYLATION IN THE *HELICOBACTER PYLORI* GENOME PROJECT

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Objective: *Helicobacter pylori* carries an unusually large and variable repertoire of restriction-modification systems, but the population structure and disease relevance of its methylome remain incompletely defined. This study aimed to characterize the diversity of DNA methylation motifs in the international *H. pylori* Genome Project (*Hp*GP) and to determine whether specific methylation recognition sequences are associated with premalignant and malignant gastric lesions.

Materials and Methods: *Hp*GP isolates (n=1011) were analyzed by PacBio sequencing to detect genome-wide DNA methylation motifs (m6A, m4C). Detected motifs were curated and compared with cognate methyltransferase and restriction-modification specificity genes. EM-seq or RIMS-seq was used to resolve m5C motifs. We evaluated the distribution of 79 assigned motifs across *H. pylori* populations and subpopulations. Disease-association analyses compared strains from gastric cancer or advanced intestinal metaplasia with those from non-atrophic gastritis controls, while accounting for bacterial population structure. Since these analyses were exploratory, *p*-values were not adjusted for multiple comparisons.

Results: Individual *H. pylori* strains harbored 8-25 methylation motifs, demonstrating extensive strain-level epigenomic diversity. Motifs attributable to Type II methyltransferases were more frequent than motifs associated with the other restriction-modification types. Motif repertoires showed clear phylogeographic structure, including population-specific methylation signatures. Exploratory comparisons further identified candidate motifs with differential prevalence in strains from gastric cancer and advanced intestinal metaplasia compared to non-atrophic gastritis controls.

Conclusions: *H. pylori* DNA methylation represents a highly diverse, population-structured epigenomic layer. These findings support a model in which methylome evolution is shaped by bacterial lineage, human co-diversification, and gastric disease context. Candidate disease-associated motifs require validation in independent sets. Integrative functional studies combining methylome, restriction–modification genotype, and transcriptomic data are needed to clarify their potential role in gastric carcinogenesis.

Conflicts of Interest

M. Constanza Camargo: Research Grant: National Institutes of Health, Intramural Program, Difei Wang: Research Grant: National Institutes of Health, Intramural Program, Tamas Vincze: Consultant/Advisory Board: none, Richard M. Peek, Jr: None, Wen Luo: Research Grant: National Institutes of Health, Intramural Program, Joshua L. Cherry: None, Kedest Teshome: None, Judith Romero-Gallo: None, Belynda Hicks: None, Amy Hutchinson: None, Rick Morgan: None, Kristine Jones: None, Charles S. Rabkin: None, Masaki Fukuyo: None, Ikuo Uchiyama: None, Ichizo Kobayashi: None, Richard Roberts: Speakers Bureau/Honoraria: 1993 Nobel Prize in Physiology or Medicine; Ownership Interest: Founder of REBASE - Restriction Enzyme dataBASE; Consultant/Advisory Board: Chief Scientific Officer, New England Biolabs.

03.05.

AUTOIMMUNE GASTRITIDES: NOSOLOGY AFFECTS CLINICAL PRACTICE

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In 1839, the Foreword to the Annual Report of the Registrar-General of England and Wales stated: "Each disease has, in many instances, been denoted by three or four terms, and each term has been applied to as many different diseases: vague, inconvenient names have been employed, or complications have been registered instead of primary diseases."
In the XXI century, the nomenclature of autoimmunity-associated gastritides (AIGs) continues to face criticism dating back to the IX century. In the pre-*H. pylori* era, Strickland and McKay classified gastric autoimmunity as the cause of corpus-targeted inflammatory/atrophic damage, and Morson listed autoimmune gastritis among precancerous conditions. Clinical and biological evidence call for reassessing the AIG spectrum, identifying and categorizing its specific subtypes, natural histories, symptoms, and outcomes.
The AIG spectrum includes two distinct Types. Type-1a, the oxyntic-restricted (antral-sparing) "primary" type, features T-cell-rich, cytolytic infiltrates, oxyntic inflammation with/without atrophy, and no evidence of *H. pylori* exposure. Type-1b combines the Type-1a histology with histological phenotypes resulting from (current or previous) *H. pylori* infection. Type-2 is far less frequent than Type-1, presents with erosive, high-grade pan-gastric inflammation, and usually lacks an atrophic component. Type-2 is associated with severe multiorgan immune-mediated comorbidities, regardless of *H. pylori* status. Type-2 combines Type-1-like serology with anti-enterocyte, anti-nuclear, and anti-smooth muscle autoantibodies.
Current clinical and pathological evidence warrants a critical re-evaluation of the nosology of gastric autoimmunity. The updated nosology should reflect distinct etiologies, pathogenesis, clinical presentations, and associated neoplastic risk.

Conflicts of Interest
Massimo Rugge: None, David Y. Graham: None.

SESSION 05 – NEW TARGETS FOR CLINICAL APPLICATIONS IN FMT AND MICROBIOME MODULATION

05.03.

FEASIBILITY AND SYMPTOM IMPROVEMENT SIGNALS OF ORAL CAPSULE VERSUS COLONOSCOPIC FECAL MICROBIOTA TRANSPLANTATION FOR IRRITABLE BOWEL SYNDROME: A DOUBLE-BLIND RANDOMIZED TRIAL (CAP-COLONO STUDY)

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Objective: Fecal microbiota transplantation (FMT) is an emerging microbiota-based therapy for irritable bowel syndrome (IBS), but clinical responses remain heterogeneous, and the optimal delivery route is unresolved. We hypothesized that delivery route influences both symptom response and microbiome restoration.
Materials and Methods: In this double-blind, randomized, placebo-controlled pilot trial, 30 patients with Rome IV IBS were assigned to colonoscopic FMT plus placebo capsules, encapsulated FMT plus colonoscopic placebo, or double placebo. Participants were followed for 12 weeks. The primary outcome was a change in IBS Severity Scoring System (IBS-SSS). Secondary outcomes included IBS-related quality of life (IBS-QoL), safety, and gut microbial diversity.

Results: Colonoscopic FMT achieved a significantly greater reduction in IBS-SSS at week 12 compared with placebo (p=0.019), with earlier and sustained symptom improvement. IBS-QoL improved from week 4 and remained significant through week 12. Encapsulated FMT significantly improved IBS-QoL at week 12 (p<0.001), although the reduction in IBS-SSS was less pronounced. Microbiome profiling showed a trend toward increased microbial diversity following colonoscopic FMT, suggesting greater engraftment and ecological restoration. Adverse events were mild and comparable across groups.
Conclusions: This randomized trial suggests that the delivery route of FMT is a key determinant of therapeutic response in IBS. Colonoscopic FMT provided stronger symptom improvement and microbiome restoration signals, whereas encapsulated FMT provided quality-of-life benefits with a less invasive approach. These findings support route-tailored, personalized FMT strategies for IBS and warrant larger validation trials.

Conflicts of Interest
Omarit Saengsakul: None, Phubordee Bongkotvirawan: None, Natsuda Aumpan: None, Varocha Mahachai: None, Ratha-korn Vilaichone: None.

05.04.

MODULATION OF THE GUT MICROBIOTA BY A GLUTEN-FREE DIET IN HEALTHY INDIVIDUALS

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Objective: Healthy individuals increasingly adopt gluten-free diets (GFD) for unproven wellness benefits, despite risks of higher costs, psychosocial impacts, and long-term malnutrition. Since diet strongly influences the microbiome, we investigated whether a 30-day GFD alters gut microbiota diversity and richness in healthy subjects.
Materials and Methods: 116 fecal samples were collected from 30 rigorously evaluated healthy individuals (21 women, 9 men; aged 34±14). These participants lacked any apparent metabolic, cardiovascular, respiratory, rheumatic, or neurological diseases and were completely asymptomatic for gastrointestinal complaints (confirmed by the Gastrointestinal Symptom Rating Scale [GSRS]). Fecal specimens, collected on days 0, 3, 7, and 30 following GFD initiation, underwent shotgun metagenomic sequencing and subsequent computational profiling (bioBakery 3). Taxonomic and functional profiles were determined using MetaPhlAn 4.0 and HUMAnN 3.0, respectively, and relative abundances were transformed *via* an arcsin-sqrt method. Only bacterial species detected at any given time point across at least five participants were retained (600 species total). Statistical evaluations involved linear mixed models alongside Friedman's ANOVA. The resulting p-values were aggregated and appropriately adjusted for multiple hypothesis testing (q-values).
Results: Alpha-diversity remained stable over 30 days (p>0.05). However, 14 species showed significant decreases in relative abundance (q<0.05), predominantly complex carbohydrate degraders and *Bifidobacterium* species (e.g., *Bifidobacterium longum* p=0.000000003; q=0.000001) or those involved in complex carbohydrate metabolism.
Conclusions: While a short-term GFD maintains overall gut eubiosis in healthy subjects, the significant depletion of *Bifidobacterium* may negatively impact intestinal and immunological homeostasis.

Conflicts of Interest
Lisa Lungaro: Research Grant: PNRR, Francesca Manza: None, Anna Costanzini: None, Federica Marchetti: None, Martina D'Ambrosio: Research Grant: PNRR, Francesca Pia Carbone: Research Grant: PNRR, Nicola Segata: None, Federica Pinto: None, Michal Puncochar: None, Francesco Asnicar: None, Federica Armanini: None, Roberto De Giorgio: None, Giacomo Caio: None.

05.05.

ANTIBIOTIC PRE-CONDITIONING FOR FECAL MICROBIOTA TRANSPLANTATION DOES NOT IMPAIR GUT BARRIER INTEGRITY IN MICE

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Objective: In fecal microbiota transplantation (FMT), antibiotic pre-conditioning is widely used to reduce microbial competition and boost donor microbiota engraftment. However, it remains unclear whether the doses commonly employed in murine models induce only microbial depletion or may also affect the integrity of the intestinal barrier. As mucosal alterations could hinder colonization by the transplanted microbiota, evaluating the safety of antibiotic regimens is essential. Here we evaluate the impact of antibiotic pre-conditioning on the gut barrier in mice.

Materials and Methods: 127 C57BL/6 mice were assigned to four groups, each treated for seven days with a single antibiotic administered by oral gavage. Concentrations were: ampicillin, gentamicin, and metronidazole at 0.25 mg/day, and vancomycin at 0.125 mg/day. Two groups underwent a two-week recovery period, whereas the remaining two groups received two weeks of healthy-donor FMT administered twice weekly. Fecal samples were collected at six time points for microbiome analysis. At sacrifice, mesenteric lymph nodes were harvested for flow cytometry, while ileum, colon, and liver tissues were collected for immunofluorescence.

Results: Preliminary findings indicate that none of the antibiotics altered intestinal or hepatic permeability, as shown by stable ZO-1 and LPS serum levels and the absence of body-weight changes. Microbiota sequencing and flow-cytometric characterization are ongoing to assess microbiota engraftment and immune system recruitment after antibiotic depletion, as well as immunoblot and immunofluorescence to characterize additional tight junction proteins.

Conclusions: The antibiotic concentrations tested appeared safe and did not alter intestinal barrier integrity. Ongoing analyses will clarify how pre-conditioning influences microbiota engraftment following FMT.

Conflicts of Interest

Aurora Sveva Carlà: None, Letizia Masi: None, Valeria Emoli: None, Devon Michael Ivy: None, Debora Rondinella: None, William Fusco: None, Carmine Carbone: None, Serena Porcari: None, Gianluca Quaranta: Research Grant: MAJOR HONOR AND GRANTS - Informed ecological rewiring of gut microbiome for dysbiosis-associated disorders (MicroRestore) European Research Council (ERC) Starting Grant – Call ERC-2025-STG (HORIZON-ERC) 2026–2031 – Principal Investigator; - A gut microbiome-based diagnostic tool for the screening of colorectal cancer AIRC Next Gen Clinician Scientist 2023 2024-2029 – Principal Investigator; - A non-invasive gut microbiome-based diagnostic tool for the screening of colorectal cancer PNRR: M6/C2_CALL 2023 - Italian Ministry of Health 2024-2026 – Principal Investigator; - Lyophilized fecal microbiome transfer for primary Clostridioides difficile infection (DONATE study) JPI AMR Call 2022- Italian Ministry of Health 2024-2027– Principal Investigator; - Disentangling microbiome engraftment by multi-omics of the gut ecosystem during fecal transplant (DISSECT study) FIS Call 2021 - Ministry of University and Research 2024-2029 – Principal Investigator, Luca Masucci: None, Franco Scaldaferri: None, Antonio Gasbarrini: None, Valentina Petito: None, Francesca Romana Ponziani: None, Gianluca Ianiro: None.

SESSION 06 – *HELICOBACTER PYLORI* SCREENING

06.03.

SHAPING EUROPE'S FIRST EVIDENCE-BASED GUIDELINES FOR GASTRIC CANCER PREVENTION: THE EUROPEAN COMMISSION INITIATIVE ON GASTRIC CANCER

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Objective: In 2008, the European Parliament Resolution on combating cancer called on the European Commission (EC) to develop accreditation and certification programs for cancer care, grounded in robust European guidelines, leading to major initiatives for breast, colorectal, and cervical cancers. Following the updated 2022 Council Recommendation, the EC has launched the European Commission Initiative on Gastric Cancer (EC-GaC) to develop the first European guidelines and a quality assurance (QA) scheme for gastric cancer prevention. This initiative is led by the International Agency for Research on Cancer (IARC/WHO), in collaboration with the EC's Joint Research Center.
Materials and Methods: The scope of EC-GaC initially focuses on population-based Helicobacter pylori (*H. pylori*) screen-and-treat strategies, with emphasis on defining target populations across Europe's heterogeneous risk landscape. The Grading of Recommendations Assessment, Development, and Evaluation (GRADE) framework is applied to assess certainty of evidence and strength of recommendations. The preparation of the QA scheme includes systematic review of quality indicators and evidence for association with people-important outcomes, alongside the design of care pathways and overview of the organization of healthcare settings.
Results: The resulting guidelines will provide the first comprehensive, evidence-based European recommendations for gastric cancer prevention. Preparatory QA work will support consistent, high-quality, and people-centered implementation of H. pylori screen-and-treat programs across diverse healthcare settings.
Conclusions: EC-GaC represents a major step toward coordinated gastric cancer prevention in Europe. By providing and integrating evidence-based guidelines with QA preparatory work, it has the potential to harmonize strategies, reduce disease burden, and inform global efforts in gastric cancer control.

Conflicts of Interest
Jin Young Park: Research Grant: EU4HEALTH-101248767- EU-GAINS; Other Research Support: IARC intramural grant, Viktoria Knaze: None, Taylor Cromarty: None, Jan Bornschein: None, Nadya Dimitrova: None, Eric Lucas: None, Marta Garcia Escribano: None, Annett Janusch Roi: None.

06.05.

HELICOBACTER PYLORI ERADICATION AND LOCAL RECURRENCE AFTER ENDOSCOPIC TREATMENT OF GASTRIC LOW-GRADE DYSPLASIA: A KOREAN MULTICENTER COHORT STUDY

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Objective: *Helicobacter pylori* eradication has been proposed to reduce the risk of local recurrence after endoscopic treatment of gastric low-grade dysplasia (LGD), but supporting evidence remains limited. We investigated the association between *H. pylori* eradication status and local recurrence following endoscopic treatment of gastric LGD.
Materials and Methods: We retrospectively included 2,128 patients who underwent argon plasma coagulation (APC, n = 799), endoscopic mucosal resection (EMR, n = 404), or endoscopic submucosal dissection (ESD, n = 925) for gastric LGD ≤20 mm at 12 tertiary centers in Korea between 2017 and 2021. Patients were classified by *H. pylori* status as negative (no current infection), eradication succeeded, eradication failed, or not treated. Risk factors for local recurrence were evaluated using Kaplan-Meier analysis and multivariate Cox regression, with adjustment for treatment modality and *H. pylori* status.
Results: Local recurrence occurred in 38 patients (1.8%) during a median follow-up of 32.3 months. Kaplan-Meier analysis showed no significant difference in the cumulative incidence of local recurrence according to *H. pylori* status. In multivariate Cox regression analysis, APC was independently associated with a significantly higher risk of local recurrence compared with EMR or ESD (hazard ratio, 10.68; 95% confidence interval, 4.59–24.86; $p < 0.001$), whereas *H. pylori* status was not independently associated with local recurrence.
Conclusions: APC for gastric LGD was independently associated with an increased risk of local recurrence compared with EMR and ESD. *H. pylori* eradication status was not associated with local recurrence risk in this cohort.

Conflicts of Interest
Jong Yeul Lee: None, Hyo-Joon Yang: None, Hyuk Lee: None, Young-Il Kim: None, Su Youn Nam: None, Jin Lee: None, Da Hyun Jung: None, Ji Yong Ahn: None, Jae Yong Park: None, Joon Sung Kim: None, Soo-Jeong Cho: None, Jie-Hyun Kim: None.

06.06.

HELICOBACTER PYLORI SCREEN AND TREAT STUDY FOR THE PRIMARY PREVENTION OF GASTRIC CANCER IN YOUNG ADULTS IN SIX EU MEMBER STATES—TOGAS PROJECT

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Objective: The European Beating Cancer Plan 2023-2033 recommends the introduction of *Hp* screen-and-treat programs in EU member states with intermediate to high GC incidence.
Materials and Methods: A screen-and-treat study was conducted in a population aged 30-34 years across six EU member states (Ireland, Latvia, Poland, Slovenia, Croatia and Romania). In five study centers, serology and the Urea breath test (UBT) were used as confirmatory tests for *Hp* infection, while only UBT was used in two study centers. Bismuth-based 14-day quadruple therapy or an all-in-one 10-day therapy was administered to UBT-positive patients. The success of eradication was assessed using UBT one month after treatment.
Results: Recruitment and testing have been completed, and the final results will be available by June of this year. We sent 30,995 invitations, and 6,830 citizens (22%; ranging from 7% in Poland to 33.9% in Slovenia) signed the informed consent to join the study. The *Hp* prevalence rate ranged from 13% in Slovenia to 44.4% in Latvia. UBT positivity rate in serology-positive participants ranged from 52.5% in Romania to 83.8% in Slovenia. Eradication rates ranged from 83.6% in Romania to 98% in Latvia. Adherence rates were good, with no serious adverse events reported. A certain degree of dropout was observed at each stage of the study.

Conclusions: Our findings demonstrate that an *Hp* screen-and-treat program targeting adults aged 30-34 years is feasible in Europe, and that treatment of *Hp* infection is highly effective with an acceptable rate of adverse events.

Conflicts of Interest

Bojan Tepes: Research Grant: EU4Health under Grant Agreement No. 101101252, Tatjana Kafol Bric: Research Grant: EU4Health under Grant Agreement No. 101101252, Tea Stegne Ignjatovič: Research Grant: EU4Health under Grant Agreement No. 101101252, Colm O Morain: Research Grant: EU4Health under Grant Agreement No. 101101252, Orlaith Kelly: Research Grant: EU4Health under Grant Agreement No. 101101252, Danute Ražuka-Ebela: Research Grant: EU4Health under Grant Agreement No. 101101252, Radu Farcas: Research Grant: EU4Health under Grant Agreement No. 101101252, Dan Dumitrascu: Research Grant: EU4Health under Grant Agreement No 101101252, Katarzyna Neubauer: Research Grant: EU4Health under Grant Agreement No. 101101252, Radoslaw Kempinski: Research Grant: EU4Health under Grant Agreement No. 101101252, Mirjana Kalauz: Research Grant: EU4Health under Grant Agreement No 101101252, Matea Majerovic: Research Grant: EU4Health under Grant Agreement No 101101252, Sandra Milić: Research Grant: EU4Health under Grant Agreement No. 101101252, Goran Poropat: Research Grant: EU4Health under Grant Agreement No. 101101252, Mitja Oblak: Research Grant: EU4Health under Grant Agreement No. 101101252, Marcel Kralj: Research Grant: EU4Health under Grant Agreement No. 101101252, Tamara Matysiak-Budnik: None, Marcis Leja: Research Grant: EU4Health under Grant Agreement No. 101101252.

SESSION 09 – MICROBIOME AS A BIOMARKER

09.03.

CHARACTERIZATION OF GUT BACTERIAL AND FUNGAL COMMUNITY IN PAEDIATRIC PROGRESSIVE FAMILIAL INTRAHEPATIC CHOLESTASIS

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Objective: Intrahepatic cholestatic disorders, including progressive familial intrahepatic cholestasis (PFIC), are characterized by impaired bile secretion, leading to liver injury and often early liver failure. Disease severity varies beyond genetic determinants, suggesting the modification of factors such as the gut microbiota. This study aimed to characterize the gut microbiome and mycobiome in pediatric PFIC.

Materials and Methods: We analyzed 75 children: 45 PFIC patients (16 receiving ileal bile acid transporter inhibitor therapy, 15 treatment-naïve, 14 post-liver transplantation) and 30 healthy controls. Microbial composition was assessed using 16S rRNA gene sequencing (bacteria) and ITS sequencing (fungi). Diversity and taxonomic differences were compared across groups.

Results: Age strongly shaped microbial composition: children <1.5 years had lower bacterial diversity and reduced *Lachnospiraceae* and *Ruminococcaceae* and were therefore excluded to limit confounding. In the remaining cohort, all patient groups showed consistently reduced diversity (richness, Shannon index, and bacterial counts) compared with controls. Healthy controls clustered tightly, whereas patient groups were more dispersed; differences were significant (PERMANOVA $p = 0.001$). Most genera were similar across groups, but *Streptococcus* was consistently enriched in patients. Mycobiome analysis further showed increased *Candida* across all PFIC groups.
Conclusions: PFIC is associated with persistent microbial dysbiosis, characterized by reduced diversity, depletion of beneficial taxa, and increased *Candida abundance*. Age is a major confounder in pediatric microbiome studies. These findings support a role for the gut-liver axis in PFIC pathophysiology.

Conflicts of Interest
Konrad Lehr: Research Grant: Hichol-Project: 01GM2204A, Kora Schulze: Research Grant: Hichol-Project: 01GM2204A, Imeke Goldschmidt: Research Grant: Hichol-Project: 01GM2204A, Verena Keitel: Research Grant: Hichol-Project: 01GM2204A, Marius Vital: Research Grant: Hichol-Project: 01GM2204A, Alexander Link: Research Grant: Hichol-Project: 01GM2204A.

09.04.

GUT MICROBIOME PREDICTS RISK OF AGGRESSIVE DISEASE COURSE IN ULCERATIVE COLITIS: DEVELOPMENT AND VALIDATION OF A RISK CLASSIFIER

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Objective: Disease course in ulcerative colitis (UC) is heterogeneous and difficult to predict at diagnosis. We aimed to develop and validate a microbiome-based classifier to identify newly diagnosed, treatment-naïve UC patients at increased risk of an aggressive disease course.
Materials and Methods: Newly diagnosed treatment-naïve patients and healthy subjects were recruited from two cohorts: Swedish Inception Cohort (training) and Akershus University Hospital (validation). UC patients were classified at 12 months as having an aggressive or indolent disease course. Microbiome composition was assessed using a subset of 44 bacterial DNA probes derived from the GA-map® Discovery Panel.
Results: Separate clustering of indolent/healthy and aggressive groups generated three microbiome-derived risk classes: low-risk, moderate-risk, and high-risk. Eight probes with the largest high *vs.* low-risk signal differences were selected to train a penalized multinomial logistic regression model (LASSO-GLM).
In validation, no patients with aggressive disease were classified as Low-Risk (0% false reassurance). A High-Risk microbiome profile was identified in 50% of aggressive cases. ROC analysis using the model's continuous predicted probability for the High-Risk class yielded an AUC of 0.85 for aggressive versus indolent and 0.94 for aggressive versus healthy subjects (Table 1).
Conclusions: We developed and validated a microbiome classifier that identifies a subgroup of UC patients at risk of aggressive disease course, supporting early risk stratification and personalized treatment decisions at diagnosis.

TABLE 1. Microbiome-based classifier-predicted risk class *vs.* 12-month clinical outcome.

	Microbiome based risk class		
12-months clinical outcome	**Low-Risk**	**Moderate-Risk**	**High-Risk**
Healthy (n=48)	32 (67%)	16 (33%)	0 (0%)
Indolent course (n=43)	12 (28%)	29 (67%)	2 (5%)
Aggressive course (n=14)	0 (0%)	7 (50%)	7 (50%)

Conflicts of Interest
Graceline Tina Kirubakaran: Research Grant: Norwegian Research Council, Kristin Gravdal: Research Grant: Norwegian Research Council, Pranvera Hiseni: Research Grant: Norwegian Research Council, Tatjana Z Hansen: Research Grant: Norwegian Research Council, Maria Sapnara: Research Grant: Norwegian Research Council, Maria K Magnusson: Research Grant: Norwegian Research Council, Stephan Brackmann: Research Grant: Norwegian Research Council, Lena Öhman: Research Grant: Norwegian Research Council, Christina Casén: Research Grant: Norwegian Research Council; Ownership Interest: Owner of shares in Genetic Analysis.

09.05.

GASTRIC MICROBIOTA PROFILES IN AUTOIMMUNE GASTRITIS COMPARED TO *H. PYLORI* GASTRITIS: A MULTICENTER PROSPECTIVE CROSS-SECTIONAL STUDY

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Objective: Gastric microbiota is suggested to be involved in the multistep cascade of *H. pylori*-induced gastric carcinogenesis. Data on the gastric microbiota profile in autoimmune atrophic gastritis (AIG) are scanty. We investigated gastric bacterial communities in patients with AIG, compared with *H. pylori* gastritis and normal gastric mucosa (NGM).
Materials and Methods: In this prospective, multicenter, cross-sectional study, blood samples and gastric biopsies from the antral and oxyntic mucosa were collected from 59 patients (27 men and 32 women; mean age 52.0 ± 16.0 years) undergoing esophagogastroduodenoscopy for screening or for dyspeptic symptoms. Gastric samples were classified histopathologically using the updated Sydney system and OLGA staging, and serological testing with GastroPanel was performed. For microbial profiling, RNA was extracted from all biopsy samples and reverse transcribed into complementary DNA; the V1-V2 regions of the 16S rRNA gene were amplified and sequenced on an Illumina platform. Community composition was assessed using Bray-Curtis analysis and analysis of similarity.
Results: The cohort included 18 patients with AIG, 23 with *H. pylori* gastritis (12 with non-atrophic gastritis, 11 with atrophic gastritis), and 18 individuals with NGM. Unsupervised analysis showed three distinct bacterial community clusters corresponding to NGM, *H. pylori*-positive, and AIG groups. Microbiota in AIG more closely resembled NGM than *H. pylori* gastritis. No major differences were observed between corpus and antrum samples from the same individual or between non-atrophic and atrophic *H. pylori*-positive subjects.
Conclusions: Microbial communities in AIG are distinct from *H. pylori* gastritis. They are more similar to microbial communities detected in individuals with NMG. Gastric microbiota composition in AIG may thus hint at the lower cancer risk associated with AIG compared with *H. pylori* gastritis.

Conflicts of Interest
Riccardo Vasapolli: Research Grant: DZIF TTU 06.715, Ludovica Bricca: None, Ramiro Vilchez-Vargas: None, Nadine Koch: None, Peter Malfertheiner: None, Massimo Rugge: None, Christian Schulz: None.

SESSION 10 – UNFINISHED AGENDA FOR *HELICOBACTER PYLORI*

10.03.

IS BISMUTH-CONTAINING THERAPY STILL EFFECTIVE AND SAFE IN PATIENTS INFECTED WITH *HELICOBACTER PYLORI*? A SIX-YEAR MULTICENTER REAL-LIFE STUDY.

FRANCESCO DI MARIO[1], *MARILISA FRANCESCHI*[2], *PELLEGRINO CRAFA*[1], *WALTER ELISEI*[3], *MARCELLO PICCHIO*[4], *KRYSSIA ISABEL RODRIGUEZ CASTRO*[5], *LORELLA FRANZONI*[1], *GIOVANNI BRANDIMARTE*[6], *ANTONIO TURSI*[7]

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Objective: After more than ten years from its introduction in the clinical practice, we aimed to assess the current real-life effectiveness and safety of the bismuth-containing quadruple therapy in patients infected by *H. pylori*.
Materials and Methods: Consecutive dyspeptic *H. pylori*-positive patients were enrolled, both naïve for treatment and already unsuccessfully treated. Patients were treated with Pylera® 3 capsules four times/daily plus omeprazole 20 mg or esomeprazole 40 mg two times/daily for 10 days. Eradication was confirmed using urea-breath test (at least 30 days after the end of the treatment). Effectiveness and safety were assessed in these patients.
Results: One thousand and eighteen consecutive patients were included in the study, 648 (63.7%) treated as first line and 370 (36.3%) treated after failure of at least one previous eradication course. The vast majority of patients was fully compliant, except for 18 (1.8%) subjects, who discontinued treatment due to severe adverse events occurrence. *H. pylori* eradication was achieved in 959 (95.9%) patients, higher in naïve than in previously treated patients (97.3% *vs.* 93.3%, p=0.002). Finally, the eradication rate remained constant from 2020 to 2025.
Conclusions: Pylera® remains an effective and safe therapeutic option for the eradication of *H. pylori* infection, in both naïve and previously treated patients.

Conflicts of Interest
Francesco Di Mario: None, Marilisa Franceschi: None, Pellegrino Crafa: None, Walter Elisei: None, Marcello Picchio: None, Kryssia Isabel Rodriguez Castro: None, Lorella Franzoni: None, Giovanni Brandimarte: None, Antonio Tursi: None.

10.04.

LONG-TERM IMPACT OF *HELICOBACTER PYLORI* ERADICATION ON SPLENECTOMY OUTCOMES IN REFRACTORY IDIOPATHIC THROMBOCYTOPENIC PURPURA: A 10-YEAR FOLLOW-UP STUDY

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Objective: Management of chronic idiopathic thrombocytopenic purpura (ITP) refractory to treatments is a challenge. While splenectomy is an effective treatment for ITP, its success cannot be ensured. Despite the confirmed relationship between *Helicobacter pylori* and ITP, the efficacy of *H. pylori* eradication in enhancing the response to splenectomy has not been well examined. This study examined the effects of *H. pylori* eradication on improving response to splenectomy in ITP.

Materials and Methods: In 50 cases with both chronic ITP unresponsive to medical treatment and *H. pylori* infection, eradication treatment was given. From March 2007 to 2015, these patients were followed up precisely by their platelet count. Among them, 38 patients who needed splenectomy were followed up initially over a 5-year period, then after 10 years, and the complete response rate was compared.
Results: Of all the ITP patients who underwent both *H. pylori* eradication and splenectomy, 36 (94.7%) subjects exhibited a complete response. Two patients (5.3%) who initially showed a partial response turned to a complete response after 10 years of follow-up, and the overall response rate (ORR) was hence 100%. There was a significant difference between the complete response rate to splenectomy in the present study and previously reported rates worldwide ($p < 0.0001$), even after 10 years.
Conclusions: This research suggested that *H. pylori* eradication improves the sustained response to splenectomy in patients with refractory ITP. Considering its accessibility and affordability, *H. pylori* eradication is strongly recommended as an adjuvant therapy in refractory ITP before splenectomy.

Conflicts of Interest
Amir Khalighi: None, Shabnam Kouhestani: None.

10.05.

EXPERIENCE WITH RIFABUTIN-CONTAINING THERAPY IN 900 PATIENTS FROM THE EUROPEAN REGISTRY ON *HELICOBACTER PYLORI* MANAGEMENT (HP-EUREG)

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Objective: While first-line therapies for *Helicobacter pylori* (*H. pylori*) are well established, optimal rescue regimens remain unclear.
Materials and Methods: We aimed to evaluate the effectiveness and safety of rifabutin-containing therapies. Data were obtained from the European Registry on *H. pylori* Management (Hp-EuReg, World-HpReg partner), an international, prospective registry. Patients receiving rifabutin between January 2013 and January 2026 were analyzed. Effectiveness was assessed using modified intention-to-treat (mITT) and per-protocol (PP) analyses, with quality-controlled data.
Results: Overall, 969 patients were included (mean age 52 years; 71% female), mainly from Italy (71%) and Spain (23%). Culture results (available in 62%) showed high antibiotic resistance rates, with dual resistance (clarithromycin-metronidazole) in 43% and triple resistance (clarithromycin-metronidazole-levofloxacin) in 36%. Rifabutin was mainly used as second- (26%), third- (24%), and fourth-line (28%) therapy, achieving mITT eradication rates of 82%, 80%, and 67%, respectively. Most patients (87%) received rifabutin-based triple therapy (proton pump inhibitor [PPI]-rifabutin-amoxicillin), with 75% effectiveness. In an additional 10% of patients, bismuth was added (PPI-rifabutin-amoxicillin-bismuth quadruple therapy), achieving 72% effectiveness. Optimized regimens (14 days with standard- or high-dose PPIs) improved effectiveness to 86% for triple therapy and 75% for bismuth quadruple therapy. Treatment adherence was 91%. Adverse events (AEs) occurred in 21% of patients, most commonly nausea (6.4%). One serious AE (0.5%) was reported. AEs were significantly less frequent with triple therapy than with bismuth quadruple therapy (14% *vs.* 38%; $p<0.001$).
Conclusions: Rifabutin-containing regimens are effective and generally safe rescue options for *H. pylori* eradication, even after multiple treatment failures, although there is still room for improvement.

Conflicts of Interest
Olga P. Nyssen: None, Matteo Pavoni: None, Giulia Fiorini: None, Ángeles Pérez-Aísa: None, Doron Boltin: None, Giuseppe Losurdo: None, María Soledad Marcos: None, Luis Bujanda: None, Jesús Barrio: None, Fernando Bermejo: None, Antonio Gasbarrini: None, Samuel J. Martínez-Domínguez: None, Virginia Flores: None, Irene Arteagoitia: None, Manuel Jiménez-Moreno: None, Pablo Parra: None, Leticia Moreira: None, Francis Mégraud: None, Colm O'Morain: None, Javier P. Gisbert: None.

SESSION 11 – PROBIOTICS

11.03.

EFFECT OF *SACCHAROMYCES BOULARDII* SUPPLEMENTATION DURING PROTON PUMP INHIBITOR THERAPY ON GUT MICROBIOME AND SYMPTOM OUTCOMES IN REFLUX DISEASE: A PROSPECTIVE MULTICENTER STUDY

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Objective: Proton pump inhibitor (PPI) therapy is known to perturb the gut microbiome, yet the potential role of probiotic supplementation to attenuate this effect remains unclear.
Materials and Methods: In this prospective, randomized, open-label, multicenter study, 80 participants were assigned to healthy controls (n=20), gastroesophageal reflux disease (GERD) patients receiving PPI alone (PPI group, n=30), or PPI plus *Saccharomyces boulardii* 250 mg twice daily (PPI+probiotic group, n=30) for 8 weeks. Gut microbiome was profiled by metagenomic shotgun sequencing before and after treatment. Clinical outcomes were assessed using validated questionnaires, including Global Assessment Scale (GAS).

Results: Baseline characteristics and baseline microbiome diversity metrics were comparable across all three groups. Within each treatment group, beta-diversity and intragroup distances did not change significantly after 8 weeks. A directional restoration analysis examining whether GERD-associated taxa shifted toward control-like abundance after treatment identified eight such taxa in the PPI+probiotic group versus one in the PPI group. In the PPI+probiotic group, four taxa overrepresented relative to controls (*Parasutterella excrementihominis*, *Blautia caecimuris*, *Weissella confusa*, *Faecalibacillus intestinalis*) decreased after treatment, while four taxa that had been depleted (*Streptococcus vestibularis*, *Sutterella wadsworthensis*, *Rothia mucilaginosa*, *Streptococcus anginosus*) increased. Regarding clinical outcomes, overall improvement on the GAS was significantly higher in the PPI+probiotic group (100% *vs.* 76.7%; p=0.028), with no significant differences in other clinical outcomes.
Conclusions: *S. boulardii* co-administration with PPI may attenuate PPI-induced gut microbiome perturbations and was associated with superior patient-reported global improvement.

Conflicts of Interest
Bokyung Kim: Research Grant: Kuhnil Pharmaceutical Company, Gyungcheon Kim: None, Hakdong Shin: None, Hyo-Joon Yang: Research Grant: Kuhnil Pharmaceutical Company, Cheol Min Shin: Research Grant: Kuhnil Pharmaceutical Company.

11.04.

EFFICACY OF BIFIDOBACTERIUM LONGUM BBH-016 ON GASTROINTESTINAL SYMPTOMS AND GUT MICROBIOTA: A RANDOMIZED, DOUBLE-BLIND, PLACEBO-CONTROLLED TRIAL

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Objective: The clinical efficacy of single-strain probiotics in gastrointestinal disorders remains uncertain. We evaluated the effects of *Bifidobacterium longum* BBH-016 on gastrointestinal symptoms and gut microbiota.
Materials and Methods: In this randomized, double-blind, placebo-controlled trial, 88 patients were assigned (1:1) to receive *B. longum* BBH-016 or placebo for 8 weeks. The primary outcome was the between-group difference in overall satisfaction with symptom improvement. Fecal microbiota profiles were analyzed using 16S rDNA sequencing.
Results: At 8 weeks, more patients reported improved global symptoms in the *B. longum* BBH-016 group than in the placebo group, without statistical significance (44.7% [17/38] *vs.* 34.1% [14/41] in ITT analysis; p = 0.361). The proportion of patients achieving a ≥50-point reduction in IBS Symptom Severity Score (IBS-SSS) was comparable. Both groups demonstrated improvements over time in IBS-SSS, quality of life, abdominal symptoms, and psychological scores without significant between-group differences. Gut microbiota analysis demonstrated no significant differences in alpha or beta diversity between groups at baseline or post-treatment. No significant microbiota shifts associated with *B. longum* BBH-016 administration were observed; LEfSe showed reduced *Coprococcus* (LDA score = 3.38, p = 0.00071), though not significant after FDR correction (q = 0.564). No significant sex-specific differences were observed in clinical outcomes or microbiome profiles. Adverse events were similar between groups, without serious adverse events.
Conclusions: *B. longum* BBH-016 monotherapy did not significantly improve gastrointestinal symptoms or alter gut microbiota. These findings suggest limited efficacy of single-strain probiotics and support the need for combination strategies, and identification of patient subgroups that may benefit from probiotic therapy.

Conflicts of Interest
Ho-Kyoung Lee: None, Cheol Min Shin: None, Jinju Choi: None, Yonghoon Choi: None, Hyuk Yoon: None, Young Soo Park: None, Nayoung Kim: Research Grant: Technology Innovation Program (20018499) funded by the Ministry of Trade, Industry and Energy (MOTIE, Korea), Dong Ho Lee: None.

11.05.

FROM BENCH TO BEDSIDE: A 10-YEAR TRANSLATIONAL JOURNEY TO DEVELOP ANTIMICROBIAL-TOLERANT PROBIOTICS TO REDUCE ADVERSE EVENTS DURING HELICOBACTER PYLORI ERADICATION TREATMENT: RESULTS OF A RANDOMIZED DOUBLE-BLIND PLACEBO-CONTROLLED TRIAL

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Objective: Adverse events during *Helicobacter pylori* (*H. pylori*) eradication therapy commonly compromise adherence and may increase the likelihood of treatment failure. Although probiotics have been suggested to alleviate treatment-emergent adverse events (TEAEs), robust evidence from well-designed studies in Western populations is scarce. We investigated whether a novel combination of antimicrobial-tolerant probiotic strains reduces TEAEs, their severity, and their clinical profile during *H. pylori* eradication therapy.

Materials and Methods: We conducted a randomized, double-blind, placebo-controlled trial at a tertiary referral center in Italy. Treatment-naïve adults with confirmed *H. pylori* infection were randomly assigned (1:1) to receive either an antimicrobial-tolerant probiotic combination (*Lactobacillus acidophilus, Bifidobacterium animalis subsp. Lactis*) or placebo. Probiotics or placebo were administered for 10 days before, during, and for 4 weeks after a 10-day sequential eradication regimen.

Results: Between July 2024 and May 2025, 270 patients were randomized. Treatment-emergent adverse events occurred in 5 (3.7%) of 136 patients in the probiotic group compared with 108 (79.4%) of 136 in the placebo group, yielding a between-group difference of 75.7% (95% CI 63.7-79.4; $p<0.0001$) and a NNT of 1.3 (95% CI 1.2-1.4). No severe adverse events were reported. Diarrhea, dyspepsia, nausea, and abdominal pain were significantly less frequent with probiotics. Eradication rates did not differ significantly between groups.

Conclusions: A targeted combination of antimicrobial-tolerant probiotics markedly reduced adverse events during *H. pylori* eradication therapy. These findings support the routine use of selected probiotics to improve tolerability of eradication regimens in Western populations.

Conflicts of Interest

Giulia Fiorini: None, Nimish Vakil: None, Matteo Pavoni: None, Luigi Gatta: None, Ilaria Maria Saracino: None, John Osborn: None, John Holton: None, Natale Figura: None, Beatrice Rosa: None, Cristina Marchesani: None, Tiziana Lazzarotto: None, Raffaele Manta: None, Cesare Cremon: None, Giovanni Marasco: None, Giovanni Barbara: None, Cinzia Papadia: None, Andrea Maria Giori: None, Claudio Borghi: None, Berardino Vaira: None.

SESSION 12 – GASTRIC CANCER AND *HELICOBACTER PYLORI*

12.03.

NON-*HELICOBACTER PYLORI* HELICOBACTER IS ASSOCIATED WITH INFLAMMATION AND CELLULAR STRESS IN PATIENTS WITH FUNCTIONAL DYSPEPSIA

JONA VERSTRAELEN[1], *CHRISTOPHE VAN STEENKISTE*[2,3], *BAPTISTE OOSTERLINCK*[1], *ANNEMIEKE SMET*[1], *HEIKO DE SCHEPPER*[3,1], *BENEDICTE Y DE WINTER*[1,3]
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Objective: Functional dyspepsia (FD), defined by the Rome IV criteria, is characterized by epigastric symptoms without an identifiable structural or infectious cause. While *Helicobacter pylori* is a well-established etiological factor, non-*H. pylori Helicobacter* (NHPH) species, typically associated with domesticated animals, may also colonize the human stomach. Unlike *H. pylori*, NHPHs are not detected by standard non-invasive tests and routine histology.
Materials and Methods: Species-specific qPCR assays on gastric biopsies from 42 FD patients were performed to investigate the presence of *Helicobacter* species, including *H. ailurogastricus*, *H. bizzozeronii*, *H. heilmannii s.s.*, *H. felis*, *H. salomonis*, *H. suis* and *H. pylori*. Additionally, bulk RNA sequencing to assess the transcriptomic landscape in the gastric mucosa upon NHPH infection was also performed.
Results: NHPH infection was identified in 15 patients (35.7%), including 6 patients without macroscopic inflammation. Co-infection with multiple species occurred in 11 patients. The most prevalent species was *H. suis* (n=10), followed by *H. felis* (n=7), *H. salomonis* (n=6) and *H. ailurogastricus* (n=2).
NHPH-positive patients showed positive normalized enrichment scores (NES) for the activation of innate and adaptive immune responses including complement activation (NES=+2.33), Fc receptor-mediated signaling (NES=+2.12), and B-cell receptor activation (NES=+2.31). Pathways involved in cell proliferation, such as PI3K (NES= -1.73), tight junctions (NES=-1.35), p53 (NES=-2.00) were downregulated.
Conclusions: Transcriptomic pathway analysis indicates that gastric colonization by NHPHs is unlikely to be benign, as our data show it is associated with measurable host responses. Consequently, assessing NHPH presence may reclassify patients as NHPH-induced dyspepsia and could shift symptomatic treatment towards targeted eradication of the infection.

Conflicts of Interest
Jona Verstraelen: Research Grant: BOF DOCPRO4, Christophe Van Steenkiste: Speakers Bureau/Honoraria: Nonoe, Baptiste Oosterlinck: None, Annemieke Smet: None, Heiko De Schepper: None, Benedicte Y De Winter: None.

12.04.

TEMPORAL TREND OF GASTRIC CANCER BURDEN ATTRIBUTED TO *HELICOBACTER PYLORI* IN THE WORLD

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Objective: With the declining prevalence of *H. pylori* in most countries, the temporal dynamics in the burden of GC attributable to *H. pylori* remains uncertain. We quantify the global temporal trends of the association between *H. pylori* and GC burden, and its relationship with national socioeconomic development.
Materials and Methods: We conducted a systematic review and meta-analysis to estimate pooled odds ratios (ORs) for the association between *H. pylori* and GC in the world, across different WHO regions and anatomical locations. Population attributable fractions (PAFs) were estimated using Monte Carlo simulations with uncertainty intervals (UIs). Associations between PAFs and Human Development Index (HDI) and Water, Sanitation, and Hygiene (WASH) indicators were evaluated using generalized additive models.

Results: A total of 112 studies were included and 81 contributed to the primary analysis, yielding a pooled OR of 2.07 (95% CI: 1.83–2.32) between *H. pylori* and GC. Associations were stronger for non-cardia GC (OR 3.30) than cardia GC (OR 1.17; $p<0.001$). Globally, 33.9% (95% UI: 28.6-39.0) of GC cases were associated with *H. pylori,* with higher PAF for non-cardia GC (52.4%) than cardia GC (7.5%). Notably, the global PAF increased from 27.6% (before 2000) to 44.3% (after 2010). PAFs varied across regions and diagnostic methods, which correlated positively with *H. pylori* prevalence but inversely with HDI and WASH indicators.
Conclusions: Despite declining *H. pylori* prevalence, the attributable GC burden is increasing and concentrated in socioeconomically disadvantaged regions. These findings further support targeted *H. pylori* control strategies to reduce GC burden.

Conflicts of Interest
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12.05.

HYDROGEN SULFIDE DONORS SUPPRESS *HELICOBACTER PYLORI*-DRIVEN PRO-CARCINOGENIC STROMAL REPROGRAMMING AND POTENTIATE METRONIDAZOLE

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Objective: *Helicobacter pylori* (Hp) eradication is central to gastric cancer prevention, but its effectiveness is increasingly challenged by antibiotic resistance, treatment failure and persistence of infection-related mucosal remodeling. We asked whether hydrogen sulfide (H_2S) signaling can both attenuate pro-carcinogenic stromal reprogramming and improve antibacterial response during *Hp* infection.
Materials and Methods: Primary human gastric fibroblasts were infected with a highly virulent cagA+vacA+ *Hp* strain for 120 h. Sodium hydrosulfide (NaHS; 50-400 µM) was used to model fast, high-amplitude H_2S release, whereas GYY4137 (50 and 100 nM) was selected as a slow-releasing donor providing sustained, low-level exposure. CAF-like activation, inflammatory/pro-tumorigenic mediators, Twist, NF-κB/STAT3 signaling and sulfur metabolism were analyzed. *Hp* adhesion and metronidazole susceptibility were assessed.
Results: *Hp* induced a pro-carcinogenic CAF-like program with Twist upregulation and nuclear localization, increased FAP/FSP, IL-6, IL-8 and HGF, NF-κB/STAT3 activation, and sulfur-metabolic remodeling. NaHS suppressed these responses, reduced inflammatory and CAF-associated markers, and partially protected fibroblast viability without cytotoxicity in non-infected cells. GYY4137 similarly reduced Twist and IL-6, indicating that both rapid and sustained H_2S delivery restrain stromal activation. H_2S donors also reduced *Hp* adhesion to fibroblasts. Importantly, they did not antagonize metronidazole, but instead enhanced metronidazole-induced bacterial killing.
Conclusions: H_2S donors act at both sides of the host-pathogen interface; they suppress *Hp*-driven pro-carcinogenic stromal reprogramming, limit bacterial adhesion and potentiate metronidazole activity. These findings suggest a dual strategy that may complement eradication by targeting both bacterial persistence and early gastric cancer-related microenvironmental changes.

Conflicts of Interest
Gracjana Krzysiek-Maczka: Research Grant: y statutory grant N41/DBS/000875, N41/DBS/001466, from Jagiellonian University Medical College, Aneta Targosz: None, Patrycja Bronowicka-Adamska: None, Izabela Rodzon: None, Urszula Szczyrk: None, Malgorzata Strzalka: None, Hubert Maczka: None, Wierdak Mateusz: None, Tomasz Brzozowski: None, Agata Ptak-Belowska: Research Grant: Statutory grant N41/DBS/001496 from Jagiellonian University Medical College.

POSTER PRESENTATIONS

POSTER SESSION 01 - HELICOBACTER 1

P01.01.

MICROBIOME-TARGETED NUTRITIONAL SUPPORT AS AN INDEPENDENT PREDICTOR OF SUCCESSFUL HELICOBACTER PYLORI ERADICATION: A PROSPECTIVE CONTROLLED STUDY

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Objective: Rising *Helicobacter pylori* resistance to clarithromycin reduces standard eradication efficacy, while aggressive antibiotics disrupt microbiota, lowering compliance. This study evaluated the efficacy of adding a multi-strain synbiotic to standard 10-day bismuth-enhanced clarithromycin triple therapy and identified independent predictors of success.
Patients and Methods: This prospective open-label study enrolled 109 patients with verified *H. pylori* infection. The control group (n=61) received 10-day bismuth-enhanced clarithromycin triple therapy (PPI, clarithromycin 500 mg, amoxicillin 1,000 mg, bismuth subcitrate 240 mg, all twice daily). The intervention group (n=48) additionally received a 15-day synbiotic capsule twice daily. The synbiotic contained ≥1×10^{10} CFU of 11 strains (*L. acidophilus, L. plantarum, L. delbrueckii subsp. bulgaricus, L. fermentum, L. rhamnosus, L. casei subsp. casei, S. thermophilus, B. bifidum, B. longum, B. adolescentis, P. freudenreichii subsp. shermanii*) with inulin and lactulose. Eradication was assessed at 4 weeks post-treatment.
Results: Analysis revealed a significantly higher eradication rate in the synbiotic group (87.5% *vs.* 65.6%; $p<0.05$), with a 63.7% relative risk reduction of failure and NNT of 4.6. Multivariable logistic regression identified synbiotic intake as the strongest predictor of success (OR 5.44; $p=0.0036$). Higher PPI potency (OR 2.39; $p=0.0386$) and younger age (OR 0.96; $p=0.0185$) were also significant predictors.
Conclusions: Integrating an 11-strain synbiotic into bismuth-enhanced clarithromycin triple therapy achieves target eradication (>85%). Synbiotic supplementation, higher PPI potency, and younger age are robust independent predictors of successful eradication.

Conflicts of Interest
Iryna Paliy: None, Serhii Zaika: None, Sergii Melashchenko: None, Oleh Ksenchyn: None, Dmytro Palii: None.

P01.02.

ENTOSIS-ASSOCIATED GIANT MACROAUTOPHAGY IN PARIETAL CELLS: A NOVEL MARKER OF NON-*HELICOBACTER PYLORI* HELICOBACTER INFECTION

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Objective: During non-*Helicobacter pylori* Helicobacter (NHPH) infections, in addition to the gastric glandular lumen and the intracellular canaliculi of parietal cells, we have previously reported the presence of large dense bodies in the cytoplasm of these cells. This study aimed to characterize these distinctive structures in Hs-infected mouse models and NHPH-positive human gastric mucosa, in comparison with Hs-uninfected mice and *Helicobacter pylori* (Hp)-infected cases.

Materials and Methods: The large dense bodies in parietal cells were analyzed by immunohistochemistry using LC3 and ATG5 as markers of autolysosomes. Mito-ID Red dye was employed to evaluate mitochondrial involvement. Ultrastructural analysis was performed by electron microscopy with ruthenium red en bloc staining to detect bacilli.
Results: Toluidine blue-stained Epon-embedded sections revealed prominent dense bodies and cytoplasmic vacuolation in parietal cells from Hs-infected mice and NHPH-positive human samples, whereas these features were absent in Hs-uninfected mice and Hp-infected cases. Electron microscopy demonstrated markedly enlarged inclusions forming giant macroautophagy-like structures, with lamellar features suggestive of mitochondrial origin. These structures were positive for Mito-ID, LC3, and Hs immunoreactivity. In addition, some parietal cells exhibited changes consistent with entosis.
Conclusions: Hs infection in both humans and mice induces giant macroautophagy-related alterations in parietal cells involving mitochondria, other organelles, and bacilli, accompanied by entotic changes. These findings suggest that such alterations may impair parietal cell function and contribute to disease development in NHPH infection.

Conflicts of Interest
Masahiko Nakamura: None, Hitoshi Tsugawa: None, Shin-ichi Takahashi: None, Hidekazu Suzuki: None.

P01.03.

EFFICACY AND SAFETY OF FEXUPRAZAN-BASED MODIFIED HIGH-DOSE DUAL THERAPY FOR *HELICOBACTER PYLORI* ERADICATION

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Objective: High-dose dual therapy (HDDT) using potent acid suppression represents a promising clarithromycin-sparing strategy. This study evaluated the efficacy and safety of fexuprazan-based modified HDDT (m-HDDT) including bismuth, compared with conventional PPI-based STT as first-line eradication therapy.
Materials and Methods: This is a prospective, multicenter, randomized, open-label, non-inferiority trial conducted in Korea. Treatment-naïve adults with confirmed *H. pylori* infection were randomized to receive either m-HDDT (fexuprazan 40 mg twice daily, amoxicillin 1,000 mg three times daily, and bismuth subcitrate potassium 300 mg three times daily) or STT for 14 days. The primary endpoint was the eradication rate in the full analysis set (FAS), with a prespecified non-inferiority margin of −10%.
Results: In total, 196 patients were included in the FAS (m-HDDT, n=96; STT, n=100). *H. pylori* eradication was achieved in 81.3% of patients in the m-HDDT group and 79.0% in the STT group, demonstrating non-inferiority of m-HDDT (one-sided Wald test, p=0.0158). Per-protocol analysis yielded consistent results (p=0.0215). Drug compliance was high in both groups, with mean compliance rates of 97.0% in the m-HDDT group and 99.0% in the STT group; more than 95% of patients in each group achieved ≥80% compliance. The incidence of treatment-emergent adverse events was comparable between groups (16.7% *vs.* 14.0%); most events consisted of mild gastrointestinal symptoms.
Conclusions: Fexuprazan-based m-HDDT with bismuth was non-inferior to PPI-based STT for *H. pylori* eradication and demonstrated comparable safety and excellent compliance. This clarithromycin-sparing regimen can be considered a first-line treatment option in regions with high macrolide resistance.

Conflicts of Interest
Jiyong Ahn: Research Grant: This study received financial support from Daewoong Pharmaceutical Co., Ltd. (Seoul, Korea).; Speakers Bureau/Honoraria: The author declares no relevant conflicts of interest., Jae J Kim: Research Grant: This study received financial support from Daewoong Pharmaceutical Co., Ltd. (Seoul, Korea).; Speakers Bureau/Honoraria: The author declares no relevant conflicts of interest.

P01.04.

FIRST-LINE EMPIRICAL ERADICATION THERAPY FOR HELICOBACTER PYLORI INFECTION: EXPERIENCE FROM 1,500 CASES OF THE BRAZILIAN REGISTRY ON *H. PYLORI* MANAGEMENT (HP-BRAZILREG/WORLDHPREG)

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Objective: Standard triple therapy has long been the first-line empirical treatment for *Helicobacter pylori* (*H. pylori*) eradication in Brazil. The aim of the study is to evaluate the effectiveness of first-line empirical *H. pylori* treatment in real clinical practice in Brazil.
Patients and Methods: This was a prospective, multicenter Brazilian registry on H. pylori management (Hp-BrazilReg, WorldHpReg partner) conducted from March 2022 to October 2024. Effectiveness was evaluated through "modified intention-to-treat analysis".
Results: We included 1,577 adults (mean age 52 years; 60% women). Main indications were dyspepsia (66%) and gastroduodenal ulcers (11%). Diagnosis and eradication control were mostly performed through histology (93% and 87%), and rapid urease test (15% and 14%); 14C-urea breath test was used to confirm eradication post-treatment in 8%. Triple, dual, and quadruple regimens were prescribed in 95%, 4%, and 1%, respectively; 14-day regimens in 93%, and probiotics in 14%. Low-, standard-, and high-dose proton-pump inhibitors (PPIs) were used in 31%, 40%, 18%, respectively, and vonoprazan (VPZ) in 11%. Compliance was 99%. Main regimens and eradication rates (ER) were: PPI-clarithromycin(C)-amoxicillin(A) (85%; ER: 78%), VPZ-C-A (6%; ER: 86%), and VPZ-A (4%; ER: 97%). In the multivariate analysis, higher effectiveness was associated with 14-day therapy, VPZ-dual therapy, good adherence (≥90%), and VPZ use. Adverse events occurred in 25% of patients, mainly nausea (12%) and diarrhea (8%), were generally mild (63%), and lasted <7 days (52%).
Conclusions: PPI-C-A empirical first-line therapy showed suboptimal effectiveness (78%) in Brazil and should be reconsidered. VPZ-C-A may be a potential alternative, achieving cure rates close to 90%. VPZ-A was the only regimen exceeding 90% effectiveness.

Conflicts of Interest
Sandro R. Chaves: None, Olga P. Nyssen: Research Grant: None for this topic.; Consultant/Advisory Board: Juvisé., Julio Cesar S. Veloso: None, Leonardo S. Silva: None, James R. Marinho: None, Hoiti Okamoto: None, Gustavo Couto: None, Helenice P. Breyer: None, Christiane S. Alencar: None, Ernesto Comelli: None, Luiz A. S. Sousa: None, Mariana Horn: None, Maria José G. Massote: None, Marcela T. R. Loures: None, Maria de Fatima Pietroluongo Vidal: None, Jussiane N. Goncalves: None, Leticia Moreira: Research Grant: None.; Consultant/Advisory Board: Juvisé., Pablo P. Parra: None, Javier P. Gisbert*: Research Grant: None for this topic; Consultant/Advisory Board: Dr. Gisbert has served as speaker, consultant, and advisory member for or has received research funding from: Mayoly, Diasorin, Juvisé, Biocodex, Zambon., Luiz G. V. Coelho*. *Both seniors authors contributed equally to the study: Consultant/Advisory Board: EMS, Takeda.

P01.05.

HELICOBACTER PYLORI EMPIRICAL FIRST-LINE AND RESCUE TREATMENTS IN PATIENTS ALLERGIC TO PENICILLIN: EXPERIENCE AMONG 2,700 CASES OF THE EUROPEAN REGISTRY ON *H. PYLORI* MANAGEMENT (HP-EUREG)

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Objective: Evidence on *Helicobacter pylori* (*H. pylori*) eradication in patients' allergies to penicillin is limited. Clarithromycin-metronidazole triple therapy (Triple-CM) has been widely used, although bismuth quadruple therapies are increasingly recommended.

Materials and Methods: We aimed to evaluate the effectiveness of first-line and rescue treatments in patients allergic to penicillin. Data from the European Registry on *H. pylori* Management (Hp-EuReg, WorldHpReg partner) were analyzed (AEGRED-Cap, 2013-January 2026). Effectiveness was assessed using modified intention-to-treat (mITT) analyses.

Results: A total of 2,747 patients were included (70% female; mean age 54 years). Main indications were dyspepsia with normal endoscopy (43%), non-investigated dyspepsia (26%), and peptic ulcer disease (15%). Overall, 77% received first-line therapy, achieving 84% effectiveness (mITT). Main regimens were single-capsule bismuth quadruple therapy (metronidazole-tetracycline-bismuth) (35%), triple-CM (28%), and traditional bismuth quadruple therapy (metronidazole-tetracycline-bismuth) (12%), with significantly different effectiveness: 92%, 71%, and 93%, respectively (p<0.001). In second-line, the most prescribed regimens were single-capsule therapy (29%) and levofloxacin-clarithromycin/metronidazole triple therapies (16%, and 10%, respectively), showing variable effectiveness (86%, 74%, and 67%, respectively; p<0.01). In rescue therapy (3rd-6th line), the single-capsule regimen remained the most used (29%) and the most effective (88%) (Table 1).

TABLE 1. Modified intention-to-treat effectiveness of first-line, second-line, and rescue (3rd-6th) therapies in penicillin-allergic patients.

	Use n (%)	mITT total n (% success)	95% CI
First-line treatment			
Single-capsule (Pylera®)	734 (35%)	693 (92%)	90-94
Triple C+M	583 (28%)	511 (71%)	67-75
Quadruple M+Tc+B	254 (12%)	241 (93%)	90-96
Quadruple C+M+B	109 (5.2%)	93 (86%)	79-93
Triple C+L	76 (3.6%)	69 (77%)	67-87
Triple M+L	57 (2.7%)	53 (89%)	81-97
Quadruple M+D+B	46 (2.2%)	43 (77%)	64-89
Others	255 (12%)	NA	NA
Second-line treatment			
Single-capsule (Pylera®)	139 (29%)	125 (86%)	79-92
Triple C+L	75 (16%)	66 (74%)	64-85
Triple M+L	48 (10%)	46 (67%)	54-81
Quadruple M+Tc+B	44 (9.2%)	39 (79%)	67-92
Quadruple C+L+B	28 (5.9%)	27 (96%)	89-100
Quadruple M+D+B	21 (4.4%)	21 (48%)	26-69
Triple C+M	20 (4.2%)	20 (55%)	33-77
Quadruple M+L+B	15 (3.1%)	14 (93%)	79-100
Others	53 (18%)	NA	NA
Rescue (3rd-6th line) therapy			
Single-capsule (Pylera®)	45 (29%)	40 (88%)	78-97
Quadruple M+Tc+B	17 (11%)	15 (67%)	43-90
Triple C+L	16 (10%)	15 (53%)	28-78
Triple C+M	9 (5.8%)	8 (0%)	0-32
Others	68 (44%)	NA	NA

Single-capsule (Pylera®) contains metronidazole, tetracycline, and bismuth salts; C: clarithromycin; M: metronidazole; Tc: tetracycline; L: levofloxacin; B: bismuth salts; D: doxycycline; mITT: modified intention-to-treat; CI: confidence interval.

Conclusions: In penicillin-allergic patients, triple-CM should be avoided as first-line therapy due to its lower effectiveness. Bismuth quadruple regimens, particularly the single-capsule formulation, achieve the highest eradication rates and remain the preferred option across treatment lines.

Conflicts of Interest

Olga P. Nyssen: None, Ángeles Pérez-Aísa: None, Bojan Tepes: None, Javier Tejedor-Tejada: None, Irina N. Voynovan: None, Perminder S. Phull: None, Dmitry N. Andreev: None, Alfredo J. Lucendo: None, Samuel J. Martínez-Domínguez: None, Laimas Jonaitis: None, Maja Denkovski: None, José M. Huguet: None, Dmitry S. Bordin: None, Juozas Kupcinskas: None, Mónica Sánchez Alonso: None, Pablo Parra: None, Leticia Moreira: None, Francis Mégraud: None, Colm O'Morain: Consultant/Advisory Board: -, Javier P. Gisbert, on behalf of the Hp-EuReg investigators: None.

P01.06.

REAL-WORLD EFFECTIVENESS OF FIRST-LINE-TREATMENT FOR *H. PYLORI* INFECTION IN A HIGH-RESISTANCE SETTING: A 2-YEAR SINGLE-CENTER STUDY

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Objective: Declining eradication rates of *H. pylori* infection are attributed to increasing antibiotic resistance, particularly in regions with clarithromycin and metronidazole resistance such as Greece. The Maastricht VI/Florence Consensus recommends bismuth quadruple therapy (BQT: tetracycline, metronidazole, bismuth, and proton pump inhibitor) as first-line treatment. However, due to limited availability of bismuth and tetracycline, concomitant non-bismuth quadruple therapy (cCAM: clarithromycin, amoxicillin, metronidazole, and proton pump inhibitor) is widely used, with reported eradication rates exceeding 90%. The aim of the study was to evaluate the eradication rate of cCAM in a real-world clinical setting.
Patients and Methods: We conducted a retrospective analysis of 87 patients with *H. pylori* infection (April 2024-April 2026) treated with cCAM for 14 days. Eradication was confirmed by urea breath test (UBT) ≥4 weeks post-treatment. Eradication rates with 95% confidence intervals (CI) were calculated using the Wilson method.
Results: Eighty-seven patients were included in the intention-to-treat analysis, of whom 83 completed follow-up and were included in the per-protocol (PP) analysis. Mean age was 61.3 years and 63.9% were female. Diagnosis was established by Rapid urease test in 86.7% and by UBT in 13.3%. Eradication was achieved in 73/83 patients (88%, 95% CI: 79-93%). Ten patients (12%) failed first-line therapy.
Conclusions: In this high-resistance setting, cCAM achieved borderline eradication rates, not consistently reaching the ≥90% target. These findings support improving access to BQT. Similar adaptations have been reported in Ireland, where doxycycline-substituted BQT achieved eradication rates >90%.

Conflicts of Interest
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P01.07.

CHALLENGES IN *HELICOBACTER PYLORI* DETECTION AND GASTRODUODENAL SYMPTOMS IN PATIENTS WITH RHEUMATOLOGIC DISEASES

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Objective: Patients with rheumatologic diseases frequently present with gastrointestinal symptoms related to chronic inflammation, immunosuppressive therapy, and infections, such as *Helicobacter pylori*. However, detection of *H. pylori* in this population may be limited by altered immune response and medication effects. The aim of the study is to evaluate the prevalence of *H. pylori*, diagnostic challenges, and gastroduodenal symptoms in patients with rheumatologic diseases.

Materials and Methods: A cross-sectional study included 128 patients with confirmed rheumatologic diseases (rheumatoid arthritis (58.6%), systemic lupus erythematosus (18.0%), spondyloarthritis (14.8%), and systemic sclerosis/other conditions (8.6%). Data collected included gastrointestinal symptoms, medication use (NSAIDs, corticosteroids), and *H. pylori* status assessed by stool antigen test, urea breath test, or PCR. Statistical analysis included χ^2 and Mann-Whitney U tests ($p < 0.05$).
Results: Gastroduodenal symptoms were present in 71.1% of patients, and *H. pylori* infection was detected in 35.9%. Epigastric pain and dyspepsia were significantly more frequent in *H. pylori*-positive patients (58.7% *vs.* 36.6%, p=0.015; 60.9% *vs.* 41.5%, p=0.034). However, overall symptom burden showed only a borderline association with infection status (80.4% *vs.* 65.9%, p=0.083). PPI use was associated with lower *H. pylori* detection rates (23.5% *vs.* 44.2%, p=0.018). In multivariable analysis, NSAID use was the strongest predictor of symptoms (OR=2.86; 95% CI 1.26-6.49; p=0.012), while *H. pylori* showed borderline significance (OR=2.10; p=0.078).
Conclusions: Gastroduodenal symptoms are highly prevalent and multifactorial in patients with rheumatologic diseases. *H. pylori* detection may be underestimated due to medication effects, particularly PPI use. A comprehensive diagnostic approach is required to differentiate infectious and treatment-related causes of symptoms.

Conflicts of Interest
Gulustan Babayeva: None, Eldar Hatamzada: None, Fidan Gasimova: None, Rashad Hasanov: None, Umud Mahmudov: None, Aychin Hasanova: None, Emin Verdiyev: None, Ferid Guliyev: None, Gunay Asadova: None, Rashad Khamedov: None.

P01.08.
EFFICACY AND SAFETY OF 7-DAY VONOPRAZAN-AMOXICILLIN-MINOCYCLINE TRIPLE THERAPY FOR *HELICOBACTER PYLORI* ERADICATION: A PILOT STUDY

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Objective: This study aimed to evaluate the efficacy and safety of a 7-day vonoprazan-amoxicillin-minocycline triple therapy (VAM-7) for *Helicobacter pylori* (*H. pylori*) treatment.
Patients and Methods: *H. pylori*-infected patients received VAM-7 therapy between May 2025 and March 2026. All patients were given vonoprazan 20 mg twice daily, amoxicillin 1,000 mg three times daily and minocycline 100 mg twice daily for 7 days. Adverse events and compliance were assessed within one week of treatment completion. *H. pylori* eradication was confirmed by urea breath test 4-6 weeks after treatment.
Results: A total of 92 patients (58 treatment-naïve and 34 previously treated) were enrolled. The overall eradication rates by intention-to-treat (ITT) and per-protocol (PP) analysis were 94.6% (87/92, 95% CI: 87.8%-98.2%) and 98.9% (87/88, 95% CI: 93.8%-100.0%), respectively. For first-line treatment, the eradication rate was 93.1% (54/58, 95% CI: 83.3%-98.1%) by ITT analysis and 100% (54/54, 95% CI: 93.4%-100%) by PP analysis. For second-line treatment, the eradication rate was 97.1% (33/34, 95% CI: 84.7%-99.9%) in both analyses. Adverse events occurred in 12 (13.0%) patients with dizziness (n=9) being the most frequently reported. No severe adverse events were observed. Good compliance (97.8%) was achieved with the VAM-7 therapy.
Conclusions: VAM-7 therapy demonstrated high eradication efficacy as both a first- and second-line treatment, with favorable safety and good compliance. VAM-7 therapy may represent a promising empirical regimen for *H. pylori* eradication.

Conflicts of Interest
Jiarui Zhou: Research Grant: the International Cooperation Excellence Initiative Grant, West China Hospital, Sichuan University (grant 139220012), Xiaoqiong Tang: Research Grant: the International Cooperation Excellence Initiative Grant, West China Hospital, Sichuan University (grant 139220012), Alfred Tay: Research Grant: the International Cooperation Excellence Initiative Grant, West China Hospital, Sichuan University (grant 139220012), Barry Marshall: Research Grant: the International Cooperation Excellence Initiative Grant, West China Hospital, Sichuan University (grant 139220012), Hong Tang: Research Grant: the International Cooperation Excellence Initiative Grant, West China Hospital, Sichuan University (grant 139220012), Hong Li: Research Grant: the International Cooperation Excellence Initiative Grant, West China Hospital, Sichuan University (grant 139220012).

P01.09.

PROTECTIVE EFFICACY OF A MULTI-STRAIN SYNBIOTIC AGAINST ANTIBIOTIC-ASSOCIATED GASTROINTESTINAL DISORDERS DURING *HELICOBACTER PYLORI* ERADICATION

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Objective: This study investigated the efficacy of a comprehensive multi-strain synbiotic in mitigating antibiotic-associated adverse events during *Helicobacter pylori* eradication.
Patients and Methods: This prospective comparative study included 109 patients. The control cohort (n=61) underwent standard 10-day bismuth-enhanced clarithromycin triple therapy (PPI, clarithromycin, amoxicillin, and bismuth subcitrate). The intervention cohort (n=48) received the same regimen supplemented with a complex synbiotic (≥1×10^{10} CFU of *L. acidophilus*, *L. plantarum*, *L. delbrueckii* subsp. *bulgaricus*, *L. fermentum*, *L. rhamnosus*, *L. casei* subsp. *casei*, *S. thermophilus*, *B. bifidum*, *B. longum*, *B. adolescentis*, *P. freudenreichii* subsp. *shermanii*, plus prebiotics inulin and lactulose) twice daily for 15 days. Safety and symptoms were assessed using the Gastrointestinal Symptom Rating Scale (GSRS) at baseline and 4 weeks post-treatment.
Results: Synbiotic supplementation significantly improved primary eradication efficacy (87.5% *vs.* 65.6%, $p<0.05$). At the 1-month follow-up, GSRS evaluation revealed significantly lower symptom intensity within the diarrhea syndrome (DS) cluster in the intervention group: mean score 1.42 ± 0.14 *vs.* 1.88 ± 0.17 in the control group ($p<0.05$). Clinically significant diarrhea (severity ≥2 points) was reported by 12.5% (6/48) of synbiotic-treated patients versus 26.2% (16/61) of controls. Significant symptom reduction was also observed in abdominal pain (AP) and indigestion syndrome (IS) clusters.
Conclusions: Integrating an 11-strain synbiotic into standard *H. pylori* eradication protocols effectively buffers iatrogenic dysbiosis, significantly reducing antibiotic-associated diarrhea and dyspeptic symptoms to maintain patient compliance.

Conflicts of Interest
Iryna Paliy: None, Serhii Zaika: None, Sergii Melashchenko: None, Oleh Ksenchyn: None, Dmytro Palii: None.

P01.10.

CHITOSAN MICROPARTICLE–DELIVERED MYCOBACTERUM BOVIS BCG MODULATES GASTROINTESTINAL IMMUNITY AND REDUCES *H. PYLORI* COLONIZATION IN A GUINEA PIG MODEL

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Objective: The rising antibiotic resistance of *Helicobacter pylori (*Hp), a gastric pathogen capable of evading host immune defenses, highlights the need for new treatments that can overcome these barriers. The aim of the study was to develop chitosan (CHI) microparticles (MPs) loaded with *M. bovis* BCG, which have immunomodulating properties, and to evaluate their effectiveness against Hp infection in *Cavia porcellus.* Chitosan was chosen for its mucoadhesive and antibacterial qualities. The MPs were modified with N-Acetyl-D-Glucosamine (G MPs) or with Pluronic F127 (P MPs) to target the stomach or gut, key sites of the mucosal immune system.

Materials and Methods: Animals received oral inoculations with either G MPs or P MPs loaded with BCG, with Hp alone, or with tested MPs followed by Hp.
Results: The oral administration of MPs led to the release of BCG in the stomach or gut, which was associated with a decrease in Hp colonization, as shown by qPCR, and a reduction in mucin involved in Hp attachment. The gastric mucosa of animals pre-exposed to MPs and then infected with Hp showed infiltration by various T lymphocyte subpopulations CD4+, CD8+, Foxp3+ and naïve or memory lymphocytes and eosinophils, indicating that these immune cells and cytokine profiles may promote an environment of immune tolerance or regulation rather than protection.
Conclusions: The anti-Hp effects observed with the MPs may partly result from chitosan's mucoadhesive, antibacterial, and immunomodulatory properties. Chitosan MPs loaded with BCG are promising candidates for further development of a new anti-Hp treatment, leveraging the immunomodulatory and antibacterial effects of mycobacteria and chitosan.

Conflicts of Interest
Weronika Gonciarz: Research Grant: The research was financially supported by the National Science Centre with the grant SONATA 18 "Assessment of the ability of Mycobacterium bovis BCG-onco bacilli to control the development of Helicobacter pylori infection," UMO-2022/47/D/NZ7/01097., Agnieszka Wosiak: Consultant/Advisory Board: bo, Agnieszka Jelen: None, Ewa Balczerczak: None, Marek Brzezinski: None, Katarzyna Węgrzyn: None, Olga Stasikowska-Kanicka: None, Magdalena Chmiela: None.

P01.11.

TERPENE-BASED EUTECTIC SOLVENT MICRODROPLETS: A STRATEGY TO COMBAT ANTIBIOTIC-RESISTANT *HELICOBACTER PYLORI*

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Objective: Terpene-based therapeutic eutectic solvents (THEES) are an innovative class of eco-friendly solvents with innate antimicrobial properties, opening new avenues for sustainable microbial infection treatments. This research presents the first use of THEES-based microdroplets aimed at *Helicobacter pylori (H. pylori)*, a major global health issue due to increasing antibiotic resistance.
Materials and Methods: Using microfluidic technology, we created oil-in-water (O/W) emulsion droplets from three different THEES formulations: menthol/thymol, menthol/lidocaine, and menthol/eucalyptol. These droplets were produced with a flow-focusing glass-capillary microfluidic device, employing a 10 wt % poly(vinyl alcohol) (PVA) aqueous phase and THEES as the organic phase.
Results: The surfactant in the system is expected to reduce bacterial membrane integration and enhance antimicrobial effectiveness compared to THEES alone. Biocompatibility was initially assessed through metabolic activity tests on L929 mouse fibroblasts, followed by *in vitro* testing against both conventional and antibiotic-resistant *H. pylori* strains.
Conclusions: This innovative platform of THEES-based microdroplets offers a sustainable and potentially game-changing approach to treating *H. pylori* infections, aiding in the fight against antibiotic resistance and potentially preventing resistance development when used as an alternative to antibiotics.

Conflicts of Interest
Marek Brzezinski: None, Magdalena Chmiela: None, Matias Picchio: None, Marcelo Calderon: None, Weronika Gonciarz: Research Grant: The research was financially supported by the National Science Centre with the grant SONATA 18 "Assessment of the ability of *Mycobacterium bovis* BCG-onco bacilli to control the development of *Helicobacter pylori* infection," UMO-2022/47/D/NZ7/01097.

POSTER SESSION 02 - HELICOBACTER 2

P02.01.

REGRESSION OF A LARGE GASTRIC SCHWANNOMA WITH ULCER AFTER *HELICOBACTER PYLORI* ERADICATION: A CASE REPORT

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Background: Gastric subepithelial lesions (SELs) comprise a heterogeneous group of tumors, among which gastric schwannomas are rare and generally benign. We report a case of a large gastric schwannoma with ulceration and symptomatic anemia that showed a marked size reduction following *Helicobacter pylori* (*H. pylori*) eradication.

Case Report: An 85-year-old man presented with iron deficiency anemia. Esophagogastroduodenoscopy revealed a large ulcerated SEL in the lower body of the stomach, along with multiple gastric ulcers. Ultrasound endoscopy demonstrated a 56 mm tumor originating from the fourth layer, raising suspicion for a gastrointestinal stromal tumor. Boring biopsy from the ulcer base enabled a definitive diagnosis of gastric schwannoma based on immunohistochemical findings. Although surgical resection was recommended, the patient declined. After successful *H. pylori* eradication, follow-up endoscopy at six months showed regression of the ulcer and a reduction in the tumor size.

Conclusions: This case suggests that inflammatory changes in the gastric mucosal epithelium caused by *H. pylori* infection may affect the morphology and size of gastric SELs. To our knowledge, although ulcerated gastric schwannomas have been reported, there are very few reports describing an association with *H. pylori* infection, and no reports have demonstrated apparent tumor size reduction following eradication therapy. A notable finding in this case was the regression of both the ulcerative lesion and the apparent tumor size following eradication of *H. pylori*. *H. pylori* infection induces chronic active gastritis characterized by inflammatory cell infiltration and mucosal edema, which can lead to ulcer formation through mucosal injury. In contrast, ulceration in SELs is generally attributed to pressure-induced ischemia and mechanical irritation of the overlying mucosa. In the present case, these two mechanisms may have overlapped, resulting in exaggerated mucosal inflammation and marked tumor enlargement. Resolution of inflammation following eradication therapy may therefore have led to both ulcer healing and a reduction in the tumor size.

Conflicts of Interest

Hirofumi Fukushima: None, Takahito Awatsu: None, Daisuke Asaoka: None, Kumiko Ueda: None, Mariko Hojo: None, Akihito Nagahara: None.

P02.02.

OUTCOMES OF FIRST-LINE EMPIRICAL *HELICOBACTER PYLORI* ERADICATION THERAPY IN AUSTRIA: DATA FROM THE EUROPEAN REGISTRY ON THE MANAGEMENT OF *H. PYLORI* INFECTION (HP-EUREG)

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Objective: In Austria, *Helicobacter pylori* (*H. pylori*) prevalence is ~25%, with clarithromycin resistance ≈15%. Effectiveness >90% is required to justify empirical first-line regimens, but national data are lacking.
Patients and Methods: Multicenter, prospective European registry evaluating real-world management of *H. pylori* infection (Hp-EuReg, WorldHpReg partner) was conducted. Austrian patients receiving empirical first-line treatment (2022-2026) were included. Data were recorded *via* AEG-REDCap e-CRF. Modified intention-to-treat analyses were performed.
Results: Overall, 460 first-line patients (53% female, mean age 54±15 years) were included. Main indications: dyspepsia (57%), gastric cancer prevention (14%), and gastroduodenal ulcer disease (8%). Initial diagnosis was mainly by histology (90%), and post-treatment eradication was assessed using ^{13}C-urea breath test (54%) and stool antigen test (24%). Most prescribed regimens, all combined with a proton pump inhibitor (PPI), were concomitant quadruple therapy with amoxicillin-clarithromycin-metronidazole (concomitant-ACM) (70%), three-in-one single-capsule therapy (Pylera®) with bismuth-tetracycline-metronidazole (16%), and triple therapy with amoxicillin-clarithromycin (triple-AC) (5%). Durations were 14 (55%), 10 (40%), and 7 days (5%). PPI doses were low (88%), standard (5%), and high (7%). Overall effectiveness was 89%; concomitant-ACM and Pylera® achieved 90% and 92%, respectively, while triple-AC reached 80%. Effectiveness increased with duration (90%, 88%, 84% for 14-, 10-, and 7-day regimens) and was 89%, 100%, and 87% with low-, standard-, and high-dose PPIs. Compliance was 95%. Adverse events occurred in 27% of patients, mainly affected by diarrhea (10%) and nausea (6%). Severe adverse events were rare (1%, all anaphylactic reactions).
Conclusions: Concomitant-ACM and Pylera® achieved optimal effectiveness (≥90%) in Austria, supporting their use as empirical first-line options.

Conflicts of Interest
Andreas Blesl: None, Anna-Maria Tiefenthaller: None, Melanie Kienbauer: None, Sonja Heeren: None, Patrick Dinkhauser: None, Karin Steidl: None, Simone Megymorecz: None, Paul Bergmeister: None, Philipp-Johannes Schreiner: None, Andreas Zollner: None, Moritz Meyer: None, Pablo Parra: None, Leticia Moreira: None, Olga P. Nyssen: None, Francis Mégraud: None, Colm O'Morain: None, Javier P. Gisbert: None.

P02.03.

ECONOMIC EVALUATION OF TAILORED VERSUS EMPIRICAL *H. PYLORI* ERADICATION ACROSS VARYING CLARITHROMYCIN RESISTANCE LEVELS

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Objective: Clarithromycin resistance is a leading cause of *Helicobacter pylori* eradication failure with standard triple therapy. Tailored therapy using PCR-based genotypic resistance may improve outcomes but adds additional costs. This study evaluated the cost-effectiveness of tailored therapy versus empirical clarithromycin triple therapy (CTT) across varying clarithromycin resistance rates in Korea.
Materials and Methods: A decision-tree model compared two strategies: empirical 14-day CTT versus tailored therapy, in which clarithromycin-susceptible patients received 14-day CTT and resistant patients received bismuth quadruple therapy (BQT; 10- or 14-day). Costs were based on Korean National Health Insurance data, including outpatient visits, urea breath test, PCR testing, and medications (1,400 KRW/USD). Quality-adjusted life years (QALYs) were estimated over a 1-year horizon. Analyses were conducted at clarithromycin resistance rates of 10%, 20%, 30% (base case), 40%, and 50%.
Results: Tailored therapy achieved higher eradication rates than empirical CTT across all scenarios, with incremental gains from +4.6% (10% resistance) to +23.0% (50% resistance). Total costs for tailored therapy were higher ($255.50 *vs.* $191.90 at 30% resistance with BQT-14), but the incremental cost-effectiveness ratio (ICER) decreased substantially with rising resistance: $14.37 per 1% eradication gain at 10% *vs.* $2.67 at 50%. The incremental cost-utility ratio (ICUR) ranged from $7,983/QALY (10% resistance) to $1,482/QALY (50% resistance), all below conventional willingness-to-pay thresholds. Even at 10% resistance, tailored therapy remained cost-effective.
Conclusions: Clarithromycin resistance-guided tailored therapy is cost-effective for first-line *H. pylori* eradication in Korea, even at resistance rates as low as 10%, with increasing advantage at higher resistance levels.

Conflicts of Interest
Joons Sung Kim: None, Hankil Lee: None, Byung-Wook Kim: None.

P02.04.

REASONS FOR THE FAILURE OF ERADICATION THERAPY. A CLINICAL PERSPECTIVE

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The causes of ineffective eradication can be divided into the following groups: *H. pylori* mutations, increased resistance due to uncontrolled antibiotic use, dosing errors (missing doses, not following scheduled administration times), and treatment interruptions, in which patients discontinue treatment prematurely, facilitating the survival of resistant strains. Elderly or frail patients are more likely to abuse medications due to forgetfulness or misunderstanding of instructions. Interactions of antibiotics with foods and dietary supplements: alcohol and dairy products reduce the effectiveness of some antibiotics. Dietary supplements and medicinal plants may alter metabolism or increase side effects. Alterations in the metabolism of proton pump inhibitors (PPIs) due to CYP2C19; inappropriate use of PPIs, which promotes *H. pylori* persistence and complicates therapy effectiveness. The presence of mixed infections or other intestinal pathologies: a complex microbial ecosystem in the stomach and intestine, where microorganisms can compete with, synergize with, or protect against *H. pylori*, forming biofilms that reduce antibiotic access, increase inflammation, impair mucosal regeneration, and delay clinical recovery. Gastrointestinal dysmotility syndrome or gastroparesis (slow gastric motility leads to drug retention in the stomach, altering the concentration and contact time of the antibiotic with the pathogen). This can contribute to the development of resistance

due to irregular bacterial exposure to drugs. We interview patients to determine their antibacterial history, identify comorbidities, and obtain information about medications and dietary supplements they are taking. This strategy has proven extremely effective. Even minor errors in the eradication regimen can reduce drug concentrations below the bactericidal level or allow resistant strains to survive. Concomitant pathology significantly influences the choice of eradication method and the specifics of drug interactions.

Conflicts of Interest
Tatsiana Haurylenka: None, Svetlana Galitskaya: None.

P02.05.

ABSTRACT WITHDRAWN

P02.06.

PRIMARY HEALTHCARE PATIENTS' AWARENESS ABOUT *HELICOBACTER PYLORI* INFECTION

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Objective: Despite extensive medical data on *Helicobacter pylori* (HP), public knowledge of the infection remains limited. In this study, we aimed to assess primary care patients' awareness of HP.
Patients and Methods: 275 primary care patients anonymously completed the questionnaire about the clinical significance, diagnosis, transmission, and treatment of HP infection. We scored single-choice questions as 1 point for correct answers and 0 for incorrect. For multiple-choice questions, we assigned 2 points for correct answers, 1 – partially correct, and 0 – incorrect. The maximum score – 7.
Results: We categorized knowledge levels as low (0-2 points), moderate (3-5 points), and high (6-7 points). The findings revealed that overall awareness of *H. pylori* was limited: 44% demonstrated a low level of knowledge, 40% a moderate level, and only 16% a high level. Although 67% have heard of *H. pylori* previously, the most common score was 0 points (26%), while only a small proportion of respondents achieved the maximum score of 7 points (6%). A higher level of knowledge was associated with female gender, middle age (45-59 years), urban residence, and higher education ($p < 0.05$).
Conclusions: Awareness about HP among primary care patients is insufficient. Targeted education, especially for high-risk and less-informed groups, is needed.

Conflicts of Interest
Karolina Miskinytė: None, Paulius Jonaitis: None, Juozas Kupcinskas: None, Laimas Virginijus Jonaitis: None.

P02.07.

PYLORI RX – A MOBILE PHONE APPLICATION FOR THE MANAGEMENT OF *HELICOBACTER PYLORI* INFECTION IN IRELAND

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Objective: The Irish *Helicobacter pylori* (*H. pylori*) working group (IHPWG) was established in 2016 and published the second Irish consensus guidelines on the management of *H. pylori* in Ireland in 2024. The aim of the study is to develop a user-friendly mobile phone application (App) summarizing the diagnosis and treatment recommendations for *H. pylori* infection in adult patients in Ireland.
Materials and Methods: The IHPWG collaborated with MEG/Medical eGuides Ltd. to design and develop a mobile phone App and website for distributing up-to-date diagnosis and prescribing information on *H. pylori* most relevant to the Irish population.

Results: A mobile phone App entitled Pylori Rx has been developed and is freely available for download *via* the Android and iPhone App stores. Pylori Rx can also be accessed on personal computers and mobile devices through a responsive website (https://audits.megsupporttools.com/eguides/public/pylori-rx/?view=icon). Pylori Rx will be used to relay key information to relevant stakeholders through an easily accessible format in the point-of-care setting.
Conclusions: The most relevant current best-practice guidelines for the management of *H. pylori* infection in adults in Ireland are now available through the Pylori Rx app. It is hoped that this platform will increase guideline awareness among clinicians in both primary care and hospital settings and improve patient outcomes.

Conflicts of Interest
Sinead Smith: Research Grant: Health Research Board Applied Partnership Award, Deirdre McNamara: None, Anna Gularska: None.

P02.08.

MECHANISMS OF TETRACYCLINE RESISTANCE IN *HELICOBACTER PYLORI* ISOLATED FROM KOREAN PATIENTS

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Objective: Given the recent increase in tetracycline resistance of *Helicobacter pylori* in Korea, we investigated the resistance rate and underlying mechanisms, including 16S rRNA mutations and efflux pump, in isolates from Korean patients.
Materials and Methods: A total of 105 clinical isolates were obtained from gastric biopsy specimens collected at Chung-Ang University Hospital between 2017 and 2024. Minimum inhibitory concentrations (MICs) for six antibiotics, including tetracycline, were determined using the agar dilution method in accordance with EUCAST guidelines. 16S rRNA mutations (A926T, G927T, or A928C) were identified by Sanger sequencing in tetracycline-resistant isolates. Efflux pump activity was evaluated by measuring HP1165 expression using reverse transcription-quantitative PCR (qPCR), along with ethidium bromide (EtBr) accumulation and tetracycline ELISA assays in two tetracycline-resistant isolates.
Results: Tetracycline resistance was identified in 13 of 105 isolates (12.4%). None of the known tetracycline resistance-associated 16S rRNA mutations (A926T, G927T, A928C) were detected in the 12 resistant isolates available for analysis. In contrast, HP1165 expression was significantly higher in resistant isolates than in susceptible isolates. Consistently, ethidium bromide (EtBr) accumulation and tetracycline ELISA assays indicated enhanced efflux activity.
Conclusions: Tetracycline resistance in *H. pylori* isolates from Korean patients is primarily mediated by efflux pumps rather than 16S rRNA mutations.

Conflicts of Interest
Jae Gyu Kim: None, Hochan Seo: None, Jae Yong Park: None, Hee Sang You: None, Beom Jin Kim: None.

P02.09.

EVALUATION OF A MULTI-TARGET QPCR APPROACH TO DETECT *HELICOBACTER PYLORI* IN ORAL RINSE SAMPLES COMPARED TO THE UREA BREATH TEST

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Objective: Urea breath test (UBT) is the gold-standard non-invasive method for determining *Helicobacter pylori* (Hp) infection. Although the oral cavity has been proposed as a potential Hp reservoir, the relationship between oral detection and active gastric infection remains unclear. This study evaluated the diagnostic performance of a qPCR assay targeting three Hp genes in oral rinse samples, using UBT as reference.

Materials and Methods: Following ethical approval and informed consent, oral rinse samples were collected from adults undergoing UBT at Tallaght University Hospital. DNA was extracted and analyzed using a qPCR assay targeting 16S rRNA, *ureI*, and *rpoB*. Positivity was defined using multiple cycle threshold (Ct) cut-offs (≤35, ≤32, ≤30) and composite criteria (any gene positive; ≥2 genes positive). Diagnostic performance was assessed against UBT, including sensitivity and specificity with 95% confidence intervals (CI).
Results: Samples were collected from 81 patients; 13 (16%) were UBT-positive. At Ct ≤35, the "any gene" criterion showed sensitivity of 46.2% (95% CI: 19.2-74.9%) and specificity of 47.5% (95% CI: 34.6-60.7%). At Ct ≤32, sensitivity decreased to 15.4% (95% CI: 1.9-45.4%), while specificity increased to 77.0% (95% CI: 64.5-86.8%). At Ct ≤30, specificity reached 93.4% (95% CI: 84.1-98.2%), with sensitivity 7.7% (95% CI: 0.2-36.0%). The ≥2 gene criterion improved specificity to 95.1% (95% CI: 86.3-99.0%) at Ct ≤30, with no improvement in sensitivity.
Conclusions: Oral qPCR detection of Hp DNA demonstrated poor agreement with UBT. More stringent Ct cut-offs improved specificity at the expense of sensitivity. Hp DNA presence in oral rinse may not reliably reflect gastric infection status.

Conflicts of Interest
Marta Dobrić: Research Grant: Panoz Pharmaceutical Innovation PhD Scholarships Programme, Cristín Ryan: Research Grant: Panoz Pharmaceutical Innovation PhD Scholarships Programme, Carlos Medina Martin: Research Grant: Panoz Pharmaceutical Innovation PhD Scholarships Programme, Deirdre McNamara: None, Sinéad M. Smith: Research Grant: Panoz Pharmaceutical Innovation PhD Scholarships Programme.

P02.10.

ABSTRACT WITHDRAWN

P02.11.

INVESTIGATING THE RELATIONSHIP BETWEEN *HELICOBACTER PYLORI* INFECTION AND THE DEVELOPMENT OF CHRONIC URTICARIA: A SEROLOGICAL STUDY IN DERMATOLOGY HOSPITAL BIRALOSTA MILAD, LIBYA

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Objective: *Helicobacter pylori* (*H. pylori*) infection has been implicated in various extra-gastric manifestations, including chronic urticaria (CU). Conflicting evidence and a scarcity of local data exist in regions with high *H. pylori* endemicity, such as Libya. This study aimed to investigate the serological evidence linking *H. pylori* infection to the development of CU, to elucidate its potential pathogenic role and to assess the utility of antibody testing in determining natural and severity of infection within a Libyan cohort.
Patients and Methods: A case-control study was conducted involving 182 adult participants (91 CU cases, 91 healthy controls) recruited from Dermatology Hospital Bir al-Osta Milad, Tajoura, Libya, between April and July 2025. Non-invasive serological testing using Enzyme-Linked Immunosorbent Assays (ELISA) was performed to detect anti-*H. pylori* IgG and anti-CagA IgG antibodies.
Results: No statistically significant differences found in overall *H. pylori* IgG prevalence (53.8% in CU *vs.* 45.1% in controls, p=0.299) or mean IgG levels between CU patients and healthy controls. A statistically significant difference was found in CagA status, with a higher proportion of CU patients (23.1%) testing positive for CagA compared to healthy controls (7.7%) (p=0.008). Logistic regression analysis further identified CagA positivity as a significant independent predictor of CU (Odds Ratio=3.712, 95% CI: 1.371-10.053, p=0.010), after controlling for age and gender. No significant correlation was found between serological markers and hemoglobin levels within the CU patient group.

Conclusions: The study provides strong serological evidence suggesting a significant association between CagA-positive *H. pylori* strains and chronic urticaria in a Libyan population.

Conflicts of Interest
Maryam Omar: None, Salah Edin El Meshri: None, Hend Shubar: None, Faihaa Altwair: None.

POSTER SESSION 03 - HELICOBACTER 3

P03.01.

TAILORED THERAPY FOR *H. PYLORI* BASED ON MACROLIDE EXPOSURE *VS.* PCR TEST: AN INTERIM ANALYSIS

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Objective: The aim of the study was to compare *Helicobacter pylori* eradication rates between tailored therapy based on macrolide exposure history from the Drug Utilization Review (DUR) system and polymerase chain reaction (PCR)-based clarithromycin resistance testing.
Patients and Method: Patients enrolled in an ongoing multicenter, prospective, open-label, non-randomized, pragmatic clinical trial were allocated to the DUR or PCR group. In the DUR group, macrolide exposure was determined using the Health Insurance Review & Assessment Service database; those with prior exposure received bismuth quadruple therapy (BQ), and those without received standard triple therapy (STT). In the PCR group, patients with confirmed clarithromycin resistance mutations received BQ, while mutation-negative patients received STT. Eradication was confirmed by urea breath test (UBT) ≥4 weeks after treatment completion. As enrollment in the PCR group was completed, a pre-planned interim analysis was conducted.
Results: Of the planned 190 patients (95 per group), 161 have been enrolled to date (DUR: n=64, PCR: n=97). Macrolide exposure was identified in 48.4% of DUR patients; clarithromycin resistance mutations were detected in 35.1% of PCR patients. Among 115 patients who completed follow-up UBT, eradication rates in the DUR *vs.* PCR groups were 90.0% *vs.* 74.7% (modified intention-to-treat, p=0.05) and 89.7% *vs.* 75.3% (per-protocol, p=0.068), respectively. General weakness was more frequent in the DUR group (14.3% *vs.* 2.7%, p=0.024); other adverse events were comparable.
Conclusions: These interim results suggest non-inferiority of DUR-based tailored therapy compared to PCR-based tailored therapy, with an acceptable safety profile. The trial is ongoing, and definitive confirmation will require final analysis after full enrollment.

Conflicts of Interest
Jin Hee Noh: None, Kee Don Choi: Research Grant: KCHUGR-202401001, Seokin Kang: None, Yuri Kim: None, Hoyoung Wang: None, Hee Kyong Na: None, Ji Yong Ahn: None, Jeong Hoon Lee: None, Kee Wook Jung: None, Do Hoon Kim: None, Ho June Song: None, Gin Hyug Lee: None, Hwoon-Yong Jung: None.

P03.02.

ABSTRACT WITHDRAWN

P03.03.

PATIENTS' KNOWLEDGE ABOUT HELICOBACTER PYLORI TRANSMISSION, CLINICAL SIGNIFICANCE AND TREATMENT

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Objective: There is still a lot of skepticism about the role of *Helicobacter pylori* (HP) in the general public. Therefore, in this study, we aimed to assess primary care patients' knowledge about its transmission, clinical significance, and treatment.
Patients and Methods: Primary healthcare patients completed an anonymous questionnaire regarding transmission, clinical significance and treatment of HP.
Results: A total of 275 patients participated: female - 63 %, male - 30%, gender not indicated - 7%. The findings showed that 67% had heard of HP before and 33% did not know anything about HP. Only 24% correctly identified dirty hands (fecal-oral) as a transmission route. Others chose airborne spread, sexual contact, or mother-to-child transmission during childbirth. In addition, 62% did not know that HP spreads easily among household members. Only 54% of respondents correctly identified the stomach as the main site of infection, although some selected the intestines, liver, heart, or kidneys. A majority (66%) knew that eradication usually involves oral medications, while others believed the infection should remain untreated or be managed surgically. The most common information sources were family doctors (41%) and family members (24%). No statistically significant associations were found between knowledge of HP sources and gender, age, residence, or education ($p > 0.05$). However, younger respondents used more varied sources, whereas older respondents relied more on healthcare professionals. Urban residents more often used media, while rural residents depended on family and friends for advice and basic information of HP.
Conclusions: In conclusion, misconceptions about HP remain common. Better education by healthcare providers and mass media is recommended.

Conflicts of Interest
Karolina Miskinyte: None, Paulius Jonaitis: None, Juozas Kupcinskas: None, Laimas Virginijus Jonaitis: None.

P03.04.

OPTIMIZATION OF MINOCYCLINE-CONTAINING BISMUTH QUADRUPLE THERAPY FOR *HELICOBACTER PYLORI* RESCUE TREATMENT: A RANDOMIZED CONTROLLED TRIAL

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Objective: Minocycline has been proposed as a potential alternative to tetracycline in bismuth-containing quadruple therapy for *H. pylori* rescue treatment, yet the optimal dosing remains unclear. We aimed to compare the efficacy and safety of minocycline-containing regimens with classical bismuth quadruple therapy.
Patients and Methods: This study was a randomized-controlled, non-inferiority trial. Refractory *H. pylori*-infected participants with multiple treatment-failure were randomly (1:1:1:1) allocated to receive 14-day therapy with vonoprazan 20 mg b.i.d, bismuth 220 mg b.i.d, plus tetracycline 400 mg q.i.d and metronidazole 400 mg q.i.d (BQT), or minocycline 50 mg t.i.d and metronidazole 400 mg t.i.d (VBMn3M3), or minocycline 50 mg b.i.d and metronidazole 400 mg q.i.d (VBMn2M4), or minocycline 50 mg b.i.d and metronidazole 400 mg t.i.d (VBMn2M3). The primary outcome was *H. pylori* eradication rate evaluated by 13C-urea breath test at least 6 weeks after the end of treatment. Antibiotic resistance was determined using E-test method.
Results: In total, 480 participants were randomized. The eradication rates of BQT, VBMn3M3, VBMn2M4, and VBMn2M3 were 90.0%, 92.5%, 90.8%, and 91.7%, respectively, by intention-to-treat analysis. There were no statistically significant differences in eradication rates among the four regimens. Minocycline, tetracycline, and metronidazole resistance rates were 3.7%, 2.4%, and 92.7%, respectively. Metronidazole resistance did not affect the efficacy of all groups. VBMn2M3 group achieved the lowest overall incidence of adverse events. All groups achieved satisfactory levels of adherence.

Conclusions: The novel quadruple therapy with a low dose of minocycline and metronidazole is an alternative to classical bismuth quadruple therapy for *H. pylori* rescue treatment as it provides similar eradication and compliance with superior safety.

Conflicts of Interest
Hong Lu: None.

P03.05.

ERADICATION THERAPY TAKING INTO ACCOUNT MOLECULAR GENETIC MARKERS OF *H. PYLORI* RESISTANCE TO CLARITHROMYCIN

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Objective: The aim of the study was to evaluate the efficacy of standard triple therapy supplemented with bismuth tricalcium dicitrate (BTD) alone or in combination with rebamipide, considering molecular genetic markers of clarithromycin resistance.
Patients and Methods: A prospective study is being conducted involving 120 *H. pylori*-positive patients who have not previously undergone eradication therapy. To date, treatment outcomes have been analyzed for 112 patients. Molecular genetic markers of clarithromycin resistance in the *23S rRNA* gene were determined by PCR from biopsy samples taken from the antral region of the stomach. Patients were randomized based on the presence or absence of clarithromycin resistance and received either a four-component regimen (esomeprazole 80 mg daily, clarithromycin 1,000 mg daily, amoxicillin 2,000 mg daily, and BTD 480 mg daily) or a five-component regimen (the same drugs plus rebamipide 300 mg daily) for 14 days. Group 1/2 included without resistance to clarithromycin patients receiving five-/four-component therapy; group 3/4 included clarithromycin-resistant patients receiving five-four-component therapy.
Results: Eradication rates in groups 1 and 2, which included patients infected with clarithromycin-sensitive *H. pylori*, were 97% and 90%, respectively. In groups 3 and 4, *H. pylori* was resistant to clarithromycin. In group 3, the five-component therapy achieved an eradication rate of 93%, whereas in group 4, the four-component therapy resulted in a 65% eradication rate.
Conclusions: In cases of confirmed *H. pylori* resistance to clarithromycin, the addition of BTD and rebamipide to the standard triple therapy regimen—comprising a proton pump inhibitor (PPI), clarithromycin, and amoxicillin—significantly improved eradication.

Conflicts of Interest
Vera Poliakova: None, Natalia Bodunova: None, Larisa Tsapkova: None, Irina Voynovan: None, Dmitry Bordin: None.

P03.06.

REAL-WORLD EFFECTIVENESS OF FIRST-LINE *HELICOBACTER PYLORI* THERAPIES IN GERMANY: ERADICATION OUTCOMES IN A LOW CLARITHROMYCIN-RESISTANCE SETTING USING DATA FROM THE EUROPEAN REGISTRY ON *H. PYLORI* MANAGEMENT (HP-EUREG)

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Objective: Effectiveness of empirical *Helicobacter pylori* (*H. pylori*) eradication therapy is strongly influenced by clarithromycin resistance. In Germany, clarithromycin resistance rates remain below the 15% threshold in several regions, supporting continued use of clarithromycin-based triple therapy. *H. pylori* eradication is also a key strategy for gastric cancer (GC) prevention; however, real-world data integrating treatment effectiveness and clinical indications remain limited. This study aimed to evaluate eradication rates, treatment patterns, and clinical indications of empirical first-line *H. pylori* therapies in Germany.

Materials and Methods: Multicenter prospective registry evaluating real-world management of *H. pylori* infection (Hp-EuReg, WorldHpReg partner). Patients receiving empirical first-line eradication therapy were included. Data were recorded using an e-CRF at AEG-REDCap (2013-March 2026). Effectiveness was assessed by modified intention-to-treat analysis.

Results: Overall, 521 first-line patients (53% male, median age 55 years) were included. Clarithromycin-amoxicillin triple therapy (Triple-CA, 53%) and bismuth-metronidazole-tetracycline quadruple therapy in single-capsule formulation (Pylera®, 43%) were predominant. A 10-day duration was prescribed in 59% and 94%, respectively, with both achieving 98% effectiveness. Compliance was high (100% *vs.* 95%), and adverse events were uncommon (0.4% *vs.* 2.2%). On multivariate analysis, 10-day duration and younger age were independently associated with higher eradication success. The most common indications were dyspepsia (61%) and peptic ulcer disease (18%); GC prevention accounted for 7.7%.

Conclusions: In Germany, empirical first-line *H. pylori* therapy achieves excellent effectiveness with optimized 10-day regimens. Comparable outcomes between Triple-CA and Pylera® may reflect low clarithromycin resistance. GC prevention represents a relevant indication in routine clinical practice.

Conflicts of Interest

Marino Venerito: None, Rosa Rosania: None, Alexander Link: None, Alisan Kahraman: None, Riccardo Vasapolli: None, Leticia Moreira: None, Pablo Parra: None, Olga P. Nyssen: None, Francis Mégraud: None, Colm O'Morain: None, Javier P. Gisbert: None.

P03.07.

DIRECTED EVOLUTION OF TETRACYCLINE, METRONIDAZOLE AND LEVOFLOXACIN ANTIBIOTIC RESISTANCE IN *HELICOBACTER PYLORI*

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Objective: *H. pylori* eradication is impeded by growing levels of antimicrobial resistance. This project aimed to determine the genetic mutations involved in the progressive evolution of resistance to tetracycline, metronidazole and levofloxacin *in vitro*.

Materials and Methods: Antibiotic-susceptible *H. pylori* strains were initially passaged onto Muller-Hinton agar plates containing a sub-minimum inhibitory concentration (MIC) antibiotic concentration (X). If growth was observed, the strain was passaged onto antibiotic plates with 1X and 2X concentrations in parallel, and this process was repeated. As a control, strains were serially passaged onto antibiotic-free media. The stability of evolved resistance was tested by determining antibiotic MICs for the evolved lines before and after at least three passages on antibiotic free media. Ancestral and evolved strains were sequenced using the Illumina and Nanopore platforms, and breseq (https://github.com/barricklab/breseq) was used to detect mutations.

Results: Susceptible strains evolved resistance to tetracycline, metronidazole and levofloxacin *in vitro*. Comparing the ancestral and evolved strain genomes revealed acquisition of single nucleotide polymorphisms. The majority were in *frxA* and *rdxA* in metronidazole-resistant strains and in *gyrA* and *gyrB* for levofloxacin-resistant strains. Resistance to tetracycline seemed to be primarily driven by unstable efflux mechanisms, with strains noticeably requiring more passages to obtain resistance and exhibiting more frequent strain death.

Conclusions: Experimental evolution can provide insights into how *H. pylori* develop resistance to clinically important antibiotics, and highlights potential novel mechanisms for further experimental validation. Low prevalence of tetracycline resistance globally may be explained by the transient nature of unstable acquired mutations.

Conflicts of Interest

Farah Mahmood: Other Research Support: Nottingham BBSRC Doctoral Training Program, Daniel Whiley: None, Joanne Rhead: None, Jane Grove: None, Maria Domingo-Sananes: None, Karen Robinson: None, Jody Winter: None.

P03.08.

GENETIC PROGRESSION OF GASTRIC CANCERS AFTER *HELICOBACTER PYLORI* INFECTION

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Objective: *Helicobacter pylori* infection is a major risk factor for gastric cancer; however, the genetic alterations underlying *H. pylori*-related carcinogenesis remain incompletely understood. This study aimed to identify genomic aberrations associated with chronic *H. pylori* exposure using a cell line model.
Materials and Methods: AGS gastric epithelial cells, short-term *H. pylori*-exposed AGS (AGS-HP), and long-term exposed HS3C cells were analyzed. Copy number alterations (CNAs) were assessed using array comparative genomic hybridization and validated by whole-exome sequencing. Somatic mutations were identified and analyzed with functional and pathway annotation.
Results: A total of 42 CNAs were identified across the three cell lines, with nine HS3C-specific CNAs not observed in AGS or AGS-HP. These included genomic gains and losses harboring cancer-related genes such as ROS1, MYB, and CDX2. Mutation analysis revealed a significantly higher number of mutations in HS3C compared to AGS, with 27% being HS3C-specific. These mutations exhibited lower allele frequencies, suggesting recent acquisition during clonal evolution. Functional analysis identified key mutations in genes including MKNK1, MAP3K5, and RAC1, many of which were associated with the MAPK signaling pathway. Pathway enrichment analysis demonstrated significant involvement of cancer-related pathways, including p38 MAPK, JNK cascade, and cell adhesion. Notably, multiple mutations co-occurred with CNAs, suggesting synergistic genomic alterations contributing to carcinogenesis.
Conclusions: Chronic *H. pylori* exposure induces progressive genomic alterations, including CNAs and mutations, affecting key cancer-related pathways. These findings provide insight into the genetic progression of *H. pylori*-associated gastric carcinogenesis.

Conflicts of Interest
Sung Soo Kim: None, Hyun Ho Choi: None.

P03.09.

MONITORING *HELICOBACTER PYLORI* PREVALENCE AND ANTIMICROBIAL RESISTANCE IN GHENT, BELGIUM

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Objective: Prevalence data on *Helicobacter pylori* (HP) infection are scarce, and growing antimicrobial resistance is compromising empirical treatment. We aimed to compare recent data from a well-defined study population with an earlier, similar dataset from 2018-2019 to raise the awareness of physicians on HP prevalence and to stress the importance of antimicrobial stewardship.
Patients and Methods: In a secondary care hospital in Ghent, an ongoing study on the use of non-invasive methods for HP detection was set up in 2025. Adult patients, referred for gastroscopy under sedation, representing a selected population, were invited to participate, targeting up to 200 inclusions. Next to immunohistopathology (IHP), HP detection and resistance to clarithromycin (CLA-R) and other antibiotics were performed on gastric biopsy by culture combined with phenotypic antimicrobial sensitivity testing (AST) and two independent molecular methods (PCR).

Results: From 34/150 (23%) samples already included, both HP culture and PCR were positive. 31/148 (21%) biopsies were IHP positive. 2/34 samples lacked IHP results. 1/34 culture and PCR positive biopsy was IHP negative. Clarithromycin resistance was demonstrated in 10/34 (29%) samples, showing full concordance between phenotypic and genotypic methods. Prevalence was comparable in the two periods 2028-19 and 2025-26, scoring 27% and 23%. Clarithromycin resistance rose from 20% to 29/%.
Conclusions: HP prevalence remains high in this multicultural, selected study population. Clarithromycin resistance is high, compromising empiric use of clarithromycin-based therapeutic regimens. Fast and robust detection of HP and clarithromycin resistance by molecular methods can delineate appropriate target populations for guided treatment.

Conflicts of Interest
Anne-Marie Van den Abeele: None, Michiel Hanssens: None, Annick Van Der Straeten: None, Marie Tronquo: None, Denis Marichal: None, Laura Coremans: None, Elke Vanlaere: None, Klara De Rauw: None, Frederik de Clerck: Research Grant: None.

P03.10.

HELICOBACTER PYLORI STOOL ANTIGEN TESTING REVISITED

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Objective: Stool antigen testing for *Helicobacter pylori* (HP) is a fast, non-invasive, and cheap assay for HP detection. Test sensitivity and specificity are acceptable but may vary widely. We aimed to compare the performance of this test with other validated invasive and non-invasive methods for detection of HP infection.
Patients and Methods: A prevalence study in a secondary care hospital in Belgium started in February 2025 in a selected population referred for possible HP infection. The accuracy of 2 antigen stool tests, Immunocard®, Meridian, (ICARD), and Certest®, Certest, (CER) on fresh stool (<48h) was compared with immunohistopathology (IHP), molecular detection (PCR) and culture on gastric biopsy.
Results: 150 patients were included, 5 failed to submit a stool sample. For 34/145 (23%) patients, culture and PCR on gastric biopsy was positive. 31/34 had positive IHP, 2/34 had no IHP performed, 1/34 had a negative IHP result. Stool ICARD was positive in 8/34 (23%) and CER in 16/34 (47%) patients. One false positive CER result was observed. 10/34 HP positives reported recent use of antibiotics (AB) or proton pump inhibitors (PPI). 5/10 had a positive stool antigen test.
Conclusions: Performance of stool antigen as a diagnostic screening tool appears limited in this population. No correlation between test results and recent AB or PPI use and stool antigen results was observed. The role of pre-analytical (sample transport) and physiological (bacterial load and antigen presentation) factors need to be addressed. With expected low bacterial densities, use of stool antigen tests to confirm HP eradication, can be questioned.

Conflicts of Interest
Anne-Marie Van den Abeele: None, Annick Van Der Straeten: None, Jos Van Acker: None, Charlotte Verfaillie: None, Elke Vanlaere: None, Klara De Rauw: None, Frederik de Clerck: None.

P03.11.

EFFECTIVENESS OF FIRST-LINE *HELICOBACTER PYLORI* TREATMENT IN EUROPE: REAL-WORLD EVIDENCE FROM A 13-YEAR ANALYSIS OF 68,361 PATIENTS FROM THE EUROPEAN REGISTRY ON *H. PYLORI* MANAGEMENT (HP-EUREG)

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Objective: Eradication regimens for *Helicobacter pylori* (*H. pylori*) infection have evolved over time in response to changes in antibiotic resistance patterns and clinical practice.

Materials and Methods*:* Prospective, non-interventional registry of the clinical practice of gastroenterologists in Europe between 2013-December 2025 at AEG-REDCap. Effectiveness was evaluated using modified intention-to-treat (mITT) analyses through multivariate logistic regression with 10,000 stratified bootstraps samples. Due to class imbalance (89% success/11% failure), model was retrained using ROSE oversampling.

Results: Overall, 68,361 treatments from 39 countries were analyzed: clarithromycin-amoxicillin/metronidazole triple therapy (triple-CA/M; 35%), bismuth-metronidazole-tetracycline quadruple therapy (single-capsule and traditional format, quad-sc/BMTc; 19%), clarithromycin-amoxicillin-tinidazole/metronidazole concomitant quadruple therapy (conco-CAT/M; 16%), clarithromycin-amoxicillin-bismuth quadruple therapy (quad-CAB; 13%), clarithromycin-amoxicillin-tinidazole/metronidazole sequential

quadruple therapy (seq-CAT/M; 5%), and others (11%). Quadruple regimens achieved >90% effectiveness but were associated with higher incidence of adverse events (20-25%) compared with triple (13%), which showed suboptimal effectiveness (<90%). The quad-sc/BMTc regimen was significantly more effective than triple-CA/M, as well as conco-CAT/M and quad-CAB (p<0.001, Table 1). Standard/high PPI doses, 10-14 days treatment length, >90% drug compliance, and probiotic use were associated with higher eradication rates (p<0.001).

Conclusions: The quad-sc/BMTc, conco-CAT/M, and quad-CAB achieved >90% effectiveness, but were associated with lower tolerability. The key determinants of eradication success were adequate adherence, standard/high PPI doses, and treatment durations of 10/14 days.

Conflict of Interest

Samuel J. Martínez-Domínguez*: None, Nuria Montes*: None, Enrique Ceamanos-Ibarra: None, Laimas Jonaitis: None, Ángeles Pérez-Aisa: None, Umud Mahmudov: None, Irina Voynovan: None, Bojan Tepes: None, Ludmila Vologzanina: None, Alfredo J. Lucendo: None, Juozas Kupcinskas: None, Gulustan Babayeva: None, Dmitry S. Bordin: None, Mónica Sánchez Alonso: None, Pablo Parra: None, Leticia Moreira: None, Francis Mégraud: None, Colm O´Morain: None, Olga P. Nyssen**: Consultant/Advisory Board: -, Javier P. Gisbert**, on behalf of the Hp-EuReg investigators. *Both first authors contributed equally to the study, **Both senior authors contributed equally to the study: None.

TABLE 1. Multivariable analysis models of effectiveness retrained using ROSE oversampling.

Dependent: mITT	Failure (N=30,707)	Success (N=50,541)	OR (95% CI, p-value)	
Treatment	**Triple-CA/M**	15,223 (49.6%)	17,818 (35.3%)	–
Seq-CAT/M	1,991 (6.5%)	2,969 (5.9%)	1.26 (1.15-1.38, p<0.001)	
Conco-CAT/M	6,012 (19.6%)	10,077 (19.9%)	2.02 (1.91-2.13, p<0.001)	
Quad-sc/BMTc	4,579 (14.9%)	11,886 (23.5%)	3.76 (3.53-4.01, p<0.001)	
Quad-CAB	2,902 (9.5%)	7,791 (15.4%)	2.12 (1.99-2.26, p<0.001)	
Age	**Mean ± SD**	50.1 ± 15.3	50.2 ± 15.2	1.00 (1.00-1.00, p<0.001)
Sex	**Female**	19,670 (64.1%)	29,614 (58.6%)	–
Male	11,037 (35.9%)	20,927 (41.4%)	1.20 (1.16-1.23, p<0.001)	
Treatment length	**7 days**	4,330 (14.1%)	3,662 (7.2%)	–
10 days	14,209 (46.3%)	23,278 (46.1%)	1.21 (1.13-1.29, p<0.001)	
14 days	12,168 (39.6%)	23,601 (46.7%)	1.52 (1.42-1.62, p<0.001)	
Dose PPI*	**Low**	16,206 (52.8%)	20,987 (41.5%)	–
Standard	7,086 (23.1%)	13,324 (26.4%)	1.40 (1.34-1.46, p<0.001)	
High	7,415 (24.1%)	16,230 (32.1%)	1.57 (1.51-1.64, p<0.001)	
Compliance	**No (< 90% drug intake)**	2,527 (8.2%)	425 (0.8%)	–
Yes (>90% drug intake)	28,180 (91.8%)	50,116 (99.2%)	14.50 (13.01-16.16, p<0.001)	
Probiotic use	**No**	25,657 (83.6%)	37,518 (74.2%)	–
Yes	5,050 (16.4%)	13,023 (25.8%)	1.46 (1.40-1.53, p<0.001)	

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P04.01.

RELEVANCE OF SEX ON *HELICOBACTER PYLORI* ERADICATION THERAPY: EXPERIENCE FROM THE EUROPEAN REGISTRY ON *H. PYLORI* MANAGEMENT (HP-EUREG)

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Objective: Some studies suggest that sex may influence *Helicobacter pylori* (*H. pylori*) treatment outcomes. However, large-scale evidence from real-world European clinical practice remains scarce.
Materials and Methods: Prospective, observational, non-interventional registry of the clinical practice of European gastroenterologists (Hp-EuReg, WorldHpReg partner). Data were collected using an e-CRF at AEG-REDCap (2013-June 2025). All empirical treatments were included. Effectiveness was assessed by modified intention-to-treat (mITT) analysis. Sex impact on effectiveness and adverse events (AEs) was analyzed using multivariate, regimen-stratified models.
Results: Overall, 84,081 patients were included (60% women; mean age 50 ± 18 years), with 84% receiving first-line therapy. Ulcer disease was a more frequent indication in men *vs.* women (23% *vs.* 13%, $p<0.001$). In women, 14-day regimens (47% *vs.* 49%, $p<0.001$), high-dose proton pump inhibitors (PPIs) (32% *vs.* 33%, $p<0.001$), and triple therapies (38% *vs.* 41%, $p<0.001$) were used less frequently, whereas quadruple therapies were more commonly prescribed (38% *vs.* 36%, $p<0.001$). First-line treatment effectiveness was significantly lower in women (89% *vs.* 91%, $p<0.001$), who also had a significantly higher risk of experiencing at least one AE (22% *vs.* 15%, $p<0.001$). Female sex was independently associated with lower adherence, reduced effectiveness, and a higher incidence rate of both overall and severe AEs (Table 1).
Conclusions: Female sex was associated with lower adherence to *H. pylori* eradication therapy, reduced treatment effectiveness, and a higher incidence and severity of AEs.

Conflicts of Interest
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TABLE 1. Adjusted odds ratios for the corresponding outcomes.

Regimen	Adherence	Effectiveness	Adverse events	Serious adverse events	Discontinuation due to adverse events	Severity of adverse events
All	0.83 (0.75-0.91)	0.64 (0.62-0.67)	1.56 (1.46-1.61)	2.44 (2.08-2.78)	1.79 (1.02-3.13)	2.22 (1.92-2.56)
Triple therapies	1.24 (1.06-1.45)	0.67 (0.62-0.72)	1.49 (1.39-1.61)	1.05 (0.37-2.99)	2.75 (1.99-3.79)	1.59 (1.23-2.06)
Quadruple therapies	0.60 (0.51-0.71)	0.68 (0.64-0.72)	1.47 (1.39-1.56)	0.66 (0.30-1.47)	1.99 (1.44-2.73)	1.54 (1.21-1.98)
Hybrid therapies	0.72 (0.44-1.2	1.25 (0.42-3.70)	0.84 (0.30-2.36)			
Single capsule* quadruple therapy	0.63 (0.49-0.81)	0.58 (0.53-0.64)	1.72 (1.92-2.38)	2.03 (0.45-9.16)	2.56 (1.64-3.97)	1.44 (1.01-2.06)

P04.02.

ABSTRACT WITHDRAWN

P04.03.

INFLUENCE OF ETHNICITY ON *HELICOBACTER PYLORI* ERADICATION THERAPY: RESULTS FROM THE EUROPEAN REGISTRY ON *H. PYLORI* MANAGEMENT (HP-EUREG)

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Objective: *Helicobacter pylori* (*H. pylori)* infection remains a major global public health concern, with substantial geographical variability. Ethnicity may influence infection prevalence and treatment response.
Materials and Methods: This study assessed the impact of ethnicity on prescriptions, effectiveness, compliance, and safety of eradication therapies. Data were obtained from an ongoing international, prospective, non-interventional registry on the management of *H. pylori* infection (Hp-EuReg, World-HpReg partner). Data were recorded in the AEG-REDCap e-CRF (2013-January 2026). Treatment effectiveness was evaluated using a modified intention-to-treat analysis.
Results: Among 79,806 *H. pylori*-infected patients, 60% were female, 98% Caucasian, 0.8% Black, and 1.3% Asian, with a mean age of 51±20 years. Most were treatment-naïve (85%). Prescription patterns and effectiveness for empirical first-line and rescue regimens varied significantly across ethnic groups (Table 1). Concomitant quadruple therapy (clarithromycin-amoxicillin-metronidazole/tinidazole) and bismuth quadruple therapies with metronidazole-tetracycline (as single-capsule or classical formulation, Quadruple-sc/BMTc) and with clarithromycin-amoxicillin showed the highest first-line effectiveness. Quadruple-sc/BMTc and bismuth quadruple therapy with levofloxacin-amoxicillin were the most effective rescue regimens. Compliance exceeded 90% for both first-line and rescue regimens, without significant differences between ethnic groups. Adverse events occurred in 18% of Caucasians, 20% of Blacks, and 22% of Asians (p<0.01).
Conclusions: In Europe, significant differences across ethnic groups were observed in prescription, effectiveness, and tolerability of *H. pylori* eradication therapies, highlighting the need for tailored strategies considering ethnicity to optimize outcomes.

TABLE 1. Treatment use (%) and empirical first-line and rescue therapy effectiveness by modified intention-to-treat analysis.

First-line treatment	Caucasian N= 66,062		Black N = 520		Asian N = 830		*p*-value	
	Prescriptions N (%)	mITT effectiveness Success N (%)	Prescriptions N (%)	mITT effectiveness Success N (%)	Prescriptions N (%)	mITT effectiveness Success N (%)	Prescriptions N (%)	mITT effectiveness Success N(%)
Triple-CA/M	23,533 (35.6)	17,195 (87.5)	117 (22.5)	95 (85.6)	192 (23.1)	138 (82.6)	<0.001	0.144
Sequential-CAT-CAM	3,495 (5.3)	2,768 (90.3)	98 (18.8)	66 (80.5)	87 (10.5)	57 (75)		<0.001
Concomitant-CAT-CAM	10,637 (16.1)	9,267 (90.6)	97 (14.6)	79 (89.8)	70 (7)	58 (85.3)		0.319
Quadruple-sc/BMTc	12,831 (19.4)	11,403 (93.7)	124 (23.8)	99 (86.1)	109 (13.1)	96 (94.1)		0.004
Quadruple-CAB	7,716 (11.7)	6,485 (93.5	22 (4.2)	20 (90.9)	291 (35.1)	270 (97.1)		0.045
Other	7,850 (11.9)		62 (11.9)		81 (9.8)			
Overall mITT n (% success)	52,828 (90.2)		401 (85.3)		675 (88.2)		<0.001	
Rescue treatment	**Caucasian N= 12,063**		**Black N = 144**		**Asian N = 171**		***p*-value**	
	Prescriptions N (%)	mITT effectiveness Success N (%)	Prescriptions N (%)	mITT effectiveness Success N (%)	Prescriptions N (%)	mITT effectiveness Success N (%)	Prescriptions N (%)	mITT effectiveness Success N(%)
Triple-LA	2,495 (20.7)	1,744 (80)	23 (16)	13 (72.2)	18 (10.5)	12 (70.6)	<0.001	0.452
Concomitant-CAT-CAM	777 (6.4)	575 (77.9)	5 (3.5)	4 (80)	13 (7.6)	8 (66.7)		0.645
Quadruple-sc/BMTc	3,661 (30.3)	2,906 (86.3)	50 (34.7)	40 (93)	61 (35.7)	43 (75.4)		0.026
Quadruple-LAB	1,576 (13.1)	1,081 (83.9)	6 (4.2)	4 (80)	13 (7.6)	12 (92.3)		0.488
Other	3,554 (29.5)		60 (41.7)		66 (38.6)			
Overall mITT n (% success)	8,594 (80.5)		93 (73.2)		115 (72.8)		0.007	

mITT: modified intention-to-treat; C: clarithromycin; A: amoxicillin; M: metronidazole; T: tinidazole; sc: three-in-one single-capsule containing tetracycline, metronidazole and bismuth; B: bismuth; Tc: tetracycline; L: levofloxacin.

Conflicts of Interest
Javier Tejedor-Tejada: None, Samuel J. Martínez-Domínguez: None, Laimas Jonaitis: None, Ángeles Pérez-Aísa: None, Bojan Tepes: None, Irina N. Voynovan: None, Umud Mahmudov: None, Matteo Pavoni: None, Antonietta G. Gravina: None, Alfredo J. Lucendo: None, Juozas Kupcinskas: None, Dmitry S. Bordin: None, Gülüstan Babayeva: None, Antonio Gasbarrini: None, Pablo Parra: None, Leticia Moreira: None, Olga P. Nyssen: None, Francis Mégraud: None, Colm O'Morain: Consultant/Advisory Board: No, Javier P. Gisbert, on behalf of the Hp-EuReg investigators. Javier Tejedor-Tejada and Samuel J. Martínez-Domínguez, both first authors, contributed equally to the study: None.

P04.04.

PERFORMANCE OF BEAD-BASED HOMOGENIZATION OF BIOPSIES FOR THE DETECTION OF *HELICOBACTER PYLORI*

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Objective: Pre-analytical homogenization of gastric samples is an important step for the optimal diagnostic of *Helicobacter pylori* (HP) infection. Manual pestle grinding of individual biopsies is labor-intensive and efficacy may be operator-dependent. We aimed to evaluate an automated bead-based homogenization technique for its impact on molecular detection and culture.
Materials and Methods: Gastric biopsies were prospectively processed by manual pestle grinding (pellet mixer with disposable pestle; VWR) from May to December 2024, then by automated bead-based homogenization (Bead Ruptor BR Elite using ceramic beads containing microtubes; Revvity) during the 2025 equivalent period. DNA extraction followed by real-time PCR targeting HP and clarithromycin resistance (Allplex™ *H. pylori* & ClariR Assay; Seegene) were performed on Seegene STARlet. Residual homogenate was cultured for susceptibility testing. Hands-on time was recorded for both workflows.
Results: 7,798 (manual) and 5807 (bead-based) specimens were analyzed during the two study periods. Positivity rates for HP by PCR were 15.58% (manual) *vs.* 15.57% (bead-based). Mean cycle threshold for HP targets was 29.2 *vs.* 29.7 (p=0.02), while Ct values for resistance targets remained comparable: A2143G, 30.4 *vs.* 30.5; A2142G, 31.1 *vs.* 31.6; A2142C, 35.0 *vs.* 30.0 (p>0.05). Culture recovery rates of HP strains increased significantly from 80% (manual) to 86% (bead-based) (p=0.03). Hands-on time was reduced by approximately 1 hour per run with automated homogenization.
Conclusions: Bead-based homogenization performs equally compared to manual pestle grinding for the molecular detection of *H. pylori*, while improving culture recovery rate and saving technical process time.

Conflicts of Interest
François Gillis: None, Corentin Deckers: None, Martin Hoebeke: None, Warda Boucharouf: None, Catherine Berhin: None, Sébastien Sobek: None, Pierre Bogaerts: None, Te-Din Huang: None.

P04.05.

TEMPORAL PATTERNS AND INTER-CENTER VARIABILITY IN FIRST-LINE EMPIRICAL ERADICATION THERAPY FOR *HELICOBACTER PYLORI* INFECTION IN EUROPE: ANALYSIS OF THE EUROPEAN REGISTRY ON *H. PYLORI* MANAGEMENT (HP-EUREG)

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Objective: The choice of first-line eradication therapy for *Helicobacter pylori* (*H. pylori*) has evolved in recent years following updates in European clinical guidelines. Our aim was to evaluate temporal changes and inter-center variability in prescribing patterns across Europe.

Patients and Methods: Prospective, multicenter observational study based on the European Registry on *H. pylori* Management (Hp-EuReg, WorldHpReg partner). Adult treatment-naïve patients receiving empirical first-line therapy were collected at AEG-REDCap between 2013-January 2025. Cases not receiving predefined regimens were excluded. Centers contributing ≥30 patients in both periods (2013-2019 and 2020-2025) were selected. Effectiveness was assessed by modified intention-to-treat analysis.

Results: Overall, 46,259 patients from 71 centers were included. Baseline characteristics were comparable between periods. Triple therapy with clarithromycin-amoxicillin (Triple-CA) was most frequently used (26%), followed by single-capsule bismuth quadruple therapy with metronidazole-tetracycline (17%), and concomitant therapy with clarithromycin-amoxicillin-metronidazole (14%). Significant

changes were observed between periods (p<0.001), with a decrease in Triple-CA (37% *vs.* 24%) and an increase in bismuth quadruple therapies (BQT) (15% *vs.* 28%). Standard-dose proton pump inhibitor use (24% *vs.* 29%) and treatment duration (10 *vs.* 14 days) increased (p<0.001). Eradication rates improved (88% *vs.* 91%; p<0.001) as did adherence (97% *vs.* 98%; p<0.001). At center level, in 2013-2019, Triple-CA predominated in 34% of centers, whereas, in 2020-2025, BQT predominated in 48%.
Conclusions: Management of *H. pylori* infection in Europe has shifted towards more effective regimen, longer treatments and optimized acid suppression. However, substantial inter-center variability persists, suggesting heterogeneous implementation of clinical guidelines.

Conflicts of Interest
Angeles Perez Aisa: None, Francisco Rivas Ruiz: None, Laimas Jonaitis: None, Bojan Tepes: None, Irina N Voynovan: None, Samuel J Martinez-Dominguez: None, Antonietta G. Gravina: None, Alfredo J Lucendo: None, Ludmila G. Ludmila G. Vologzanina: None, Javier Tejedor-Tejada: None, Juozas Kupcinskas: None, Dmitry S. Bordin: None, Antonio Gasbarrini: None, Mónica Sánchez Alonso: None, Pablo Parra: None, Leticia Moreira: None, Olga P Nyssen: None, Francis Mégraud: None, Colm O'Morain: None, Javier P. Gisbert: None.

P04.06.

CLINICAL AND METROLOGICAL VALIDATION OF A PORTABLE MASS SPECTROMETER FOR DECENTRALIZED *HELICOBACTER PYLORI* BREATH TESTING

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Objective: *Helicobacter pylori* infection is a global precursor to gastric adenocarcinoma, making the 13C-urea breath test (UBT) a cornerstone of non-invasive diagnostics. However, the requirement for Isotope-Ratio Mass Spectrometry (IRMS) and its heavy laboratory infrastructure represents a significant barrier to decentralized screening. This study validates a portable, column-free mass spectrometer (Helitron V) designed to overcome these constraints through advanced signal-correction strategies.
Materials and Methods: In an expanded cohort of 320 patients and a multi-machine setting, we demonstrate that the device is immediately clinically viable using a predefined clinical cutoff of 9.1%. On the latest instrument configuration (HLTRN-002), the system achieved a balanced accuracy of 0.976 and an AUC of 0.996 without any dataset-specific tuning, confirming the biological validity of the portable measurement scale. To further enhance deployment robustness beyond this baseline, we introduce a dual-layer optimization framework: machine-specific calibration and hardware-level stabilization (FL mode).
Results: While the system maintains high initial performance, the FL mode and a refined threshold calibration—validated *via* learning-curve analysis—permit a significant increase in baseline performance by addressing the "Ball Effect". This phenomenon refers to the residual dispersion in reference-negative samples, where instrumental noise causes values to oscillate near the decision boundary. Our results show that this dispersion is effectively minimized and inter-instrument consistency is maximized after a training size of 150-200 patients.
Conclusions: These findings prove that miniaturized mass spectrometry can provide IRMS-equivalent precision in a portable format, offering a scalable and metrologically stable solution for large-scale, decentralized gastric cancer prevention.

Conflicts of Interest
Nicolò Bellarmino: None, Giulia Fiorini: None, Riccardo Cantoro: None, Raffaele Correale: Ownership Interest: yes; Consultant/Advisory Board: yes, Cristina Marchesani: None, Gabriella Massarenti: None, Matteo Pavoni: None, Daniel Racca: None, Beatrice Rosa: None, Alberto Ricatto: None, Giovanni Squillero: Other Research Support: yes, Marco Tartagni: Other Research Support: yes, Berardino Varia: Other Research Support: yes.

P04.07.

EMPIRICAL SECOND-LINE THERAPY FOR *HELICOBACTER PYLORI* INFECTION IN ITALY: DATA FROM THE ITALIAN REGISTRY ON *HELICOBACTER PYLORI* TREATMENT (HP-ITAREG)

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Objective: The eradication of Helicobacter (H.) pylori infection after failure of first-line therapy remains a major issue. We aimed to assess the patterns and effectiveness of empirical second-line treatment for *H. pylori* infection in clinical practice in Italy.

Patients and Methods: The "Italian Registry on *Helicobacter pylori* treatment" (Hp-ItaReg) is a prospective, multicenter study enrolling adult patients who received treatment for *H. pylori* infection across 18 centers in Italy. All patients who received a second-line therapy were assessed for effectiveness using modified intention-to-treat (mITT) and per-protocol (PP) analyses.

Results: A total of 926 patients were enrolled. Of these, 425 (45.9%) received single capsule bismuth quadruple therapy (BQT), 231 (24.9%) levofloxacin triple therapy, 110 (11.9%) rifabutin triple therapy, 73 (7.9%) sequential therapy, 32 (3.5%) clarithromycin triple therapy, and 55 (5.9%) other therapies. A total of 127 patients were lost to follow-up. Thus, 799 and 785 patients were included in the mITT and PP analysis, respectively. According to mITT and PP analyses, eradication rates were 90.5% (332/367) and 91.7% (330/360) with single capsule BQT, 75.6% (149/197) and 77.2% (149/193) with levofloxacin triple therapy, 68.8% (66/96) and 68.4% (65/95) with rifabutin triple therapy, 64.3% (45/70) and 64.3% (45/70) with sequential therapy, 74.1% (20/27) and 80% (20/25) with clarithromycin triple therapy, 83.3% (35/42) and 83.3% (35/42) with other regimens.

Conclusions: Single-capsule BQT and levofloxacin triple therapy are the regimens most frequently prescribed for second-line treatment of *H. pylori* in Italy. Single-capsule BQT was the most effective regimen, achieving a 90% eradication rate.

Conflicts of Interest

Rocco Maurizio Zagari: None, Berardino Vaira: None, Alessandro Federico: None, Alba Panarese: None, Davide Giuseppe Ribaldone: None, Antonio Gasbarrini: None, Marco Ferrara: None, Fausto Lella: None, Gerardo Nardone: None, Omero Alessandro Paoluzi: None, Roberto Catanzaro: None, Claudia Chiala: None, Bruno Annibale: None, Simona Bartolozzi: None, Rita Conigliaro: None, Francesco Luzza: None, Stefano Bargiggia: None, Renato Cannizzaro: None, Francesco Bombaci: None, Franco Bazzoli: None.

P04.08.

THE IMPACT OF SUBINHIBITORY LEVELS OF ANTIBIOTICS ON *HELICOBACTER PYLORI* BIOFILM RHEOLOGY

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Objective: Antibiotic stress is a well-known factor modulating variety of microbial physiological features. In line with this, our previous studies demonstrated that exposure to subinhibitory concentrations of antibiotics alters the composition of *Helicobacter pylori* biofilm matrix. To further investigate this phenomenon, the present study aimed to determine the effect of subinhibitory antibiotic-induced stress on the rheological properties of *H. pylori* biofilms.
Materials and Methods: Biofilm formation in clinical *H. pylori* strains exposed to subinhibitory antibiotic levels (clarithromycin, metronidazole, or levofloxacin) was assessed in stationary and microfluidic cultures. Biofilm rheology was assessed by fluorescence microscopy in combination with a panel of commercially available nanoparticles varying in size and chemical properties.
Results: A high degree of consistency was observed in the interaction profiles of *H. pylori* biofilms with 1 µm- and 0.2 µm-sized nanoparticles, with the latter demonstrating greater penetration into biofilms. Across all experimental conditions, hydrophobic nanoparticles exhibited the lowest level of interplay with these structures. Antibiotic stress altered nanoparticle-biofilm interactions in a strain-dependent manner. Notably, however, exposure to subinhibitory concentrations of clarithromycin consistently resulted in decreased interactions with negatively charged nanoparticles and increased those with positively charged ones.
Conclusions: Antibiotic stress during biofilm development changes the rheological properties of clinical *H. pylori* strains. These findings contribute to a better understanding of the mechanisms underlying antibiotic tolerance and resistance in *H. pylori* biofilms.

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Conflicts of Interest
Paweł Krzyżek: None, Barbara Krzyżanowska: None, Michał Małaszczuk: None.

P04.09.

THE EFFICACY OF STANDARD TRIPLE THERAPY FOR TREATMENT OF *HELICOBACTER PYLORI* INFECTION IN DYSPEPTIC CHILDREN AND ADULTS IN TRIPOLI, LIBYA

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Objective: In developing countries with a higher prevalence of *Helicobacter pylori* (*H. pylori*), monitoring the situation of antimicrobial susceptibility is important. In Libya, the treatment success for *H. pylori* infection is unexplored. The aim of this study is to determine the effectiveness of a Standard Triple Therapy (STT) for treatment of *H. pylori* infection in children and adults.
Materials and Methods: From April 2023 to April 2026, total of 350 dyspeptic children and adult patients between 7 and 75 years, who underwent screening upper gastrointestinal endoscopy in university hospitals and diagnosed with *H. pylori* by histology were included. None had received antibiotics, antacid, and proton pump inhibitors in the preceding four weeks. The participants received recommended conventional triple therapy (PPI 40 mg, amoxicillin 1,000 mg, and clarithromycin 500 mg twice daily) for 2 weeks. Confirmation of *H. pylori* eradication rate based on breath ammonium test ("Helictest" Association of Medicine and Analytic, St-Petersburg) 4-5 weeks following completion of therapy.

Results: Overall, 55% of dyspeptic children and adult participants were found to be resistant to STT. The resistance was not statistically associated with age, gender, and residence (urban or rural).
Conclusions: *H. pylori* eradication rate was suboptimal in children and adult's dyspeptic patient's participants in Tripoli, Libya. The findings suggest *H. pylori* antibiogram test should be granted in order to improve treatment outcomes. In Libya, alternative first line empiric therapy should be recommended especially, prevalence of *H. pylori* associated gastric diseases is high. However, large randomized controlled trials are needed to confirm the study findings.

Conflicts of Interest
Abdurrazag Nami: None, Suifyan Nami: None, Abdulfattah Fitouri: None, Ahmad Albeshte: None.

P04.10.

THE RELATIONSHIP BETWEEN THE DETECTION OF ANTIBODIES TO THE CAGA VIRULENCE FACTOR AND SEROLOGICAL MARKERS OF GASTRIC MUCOSAL ATROPHY AMONG *H. PYLORI*-INFECTED INDIVIDUALS IN THE MOSCOW POPULATION

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Objective: CagA virulence factor of *H. pylori* likely increases the risk of developing more severe gastric mucosal atrophy. The aim of the study is to determine the association between antibodies to CagA and the presence of markers of gastric mucosal atrophy (pepsinogen I (PGI), PGII and PGI/PGII ratio).
Patients and Methods: 1,860 *H. pylori*-infected patients, mean age 47.45 ± 13.91 years, were examined. *H. pylori*-positive status of the patients was confirmed by ^{13}C-urease breath test (DOB value ≥ 4%). All patients underwent testing of total antibodies to CagA [«Vector-Best», Russia, normal range (n.r.): < 0.41 c.u.]; and PGI (n.r.: 30-160 µg/L), PGII (n.r.: 3-15 µg/L), and the PGI/PGII ratio (n.r.: 3-20) (GastroPanel «Biohit», Finland). PGI<30 µg/L and a PGI/PGII ratio≤3 were recognized as serological markers of atrophy.
Results: Antibodies to CagA antigen were detected in 56.61% cases. The mean levels of PGI, PGII, and PGI/PGII ratio in CagA-positive and CagA-negative patient's groups are presented in Table 1. In CagA-positive patients mean levels of PGI and PGII were significantly higher (p<0.01), and the PGI/PGII ratio was significantly lower (p<0.01). Serological markers of atrophy were detected in the CagA-positive group in 17.76% and in the CagA-negative group in 7.93% (p<0.01).
Conclusions: Our data confirm the association between the presence of CagA antibodies and a higher risk of developing inflammation and atrophic gastritis.

Conflicts of Interest
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TABLE 1. Mean levels of PGI, PGII and PGI/PGII ratio in CagA-positive and CagA-negative patients based on serological results.

	CagA- positive patients (n=1053)	CagA- negative patients (n=807)	*p*-value
Mean level PGI, µg/L	93.48±45.87	86.24±39.29	p<0.01
Mean level PGII, µg/L	19.5±11.7	13.96±8.92	p<0.01
PGI/PGII ratio	5.49±2.72	6.86±2.72	p<0.01

P04.11.

EFFECTIVENESS OF EMPIRICAL FIRST-LINE ERADICATION THERAPY FOR *HELICOBACTER PYLORI* INFECTION ACCORDING TO AGE: DATA FROM THE LATIN AMERICAN REGISTRY ON THE MANAGEMENT OF *H. PYLORI* INFECTION (HP-LATAMREG).

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Background: *Helicobacter pylori* (*H. pylori*) infection is highly prevalent in Latin America. Age may influence eradication effectiveness; however, comparative evidence across regions remains limited.
Patients and Methods: We evaluated the effectiveness of empirical first-line regimens and safety in patients aged <60 *vs.* ≥60 years. Observational, prospective, multicenter study (2018-2025) conducted across 12 countries (Hp-LATAMReg, Hp-WorldReg partner). Data were registered at AEG-REDCap e-CRF. Effectiveness was analyzed by intention-to-treat (ITT), modified ITT (mITT), and per-protocol (PP).
Results: A total of 3,806 patients were included, of whom 33% were aged ≥60 years. Overall effectiveness was similar between the <60 and ≥60 groups: ITT 82% *vs.* 83% (p=0.28), mITT 84% *vs.* 85% (p=0.65), and PP 85% in both groups (p=0.99). As shown in the table, mITT eradication rates for dual, triple, and quadruple therapies showed no significant differences by age. Quadruple therapy with amoxicillin-metronidazole-bismuth achieved the highest eradication rate: 95% (<60) and 92% (≥60) (p=0.34). Adverse events were more frequent in patients <60 years (35%) than in those ≥60 years (28%) (p<0.001).
Conclusions: In Latin America, the effectiveness of first-line *H. pylori* treatment is similar between patients <60 and ≥60 years, although older patients experience fewer adverse events. Suboptimal triple and dual therapy outcomes support quadruple therapies—with or without bismuth—as the preferred first-line regimens.

Conflicts of Interest
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POSTER SESSION 05 – MICROBIOTA 1 – UPPER GI-RELATED TOPICS

P05.01.

LONG-TERM GUT MICROBIOTA CHANGES DETERMINED BY QUADRUPLE THERAPY REGIMENS IN PATIENTS WITH *HELICOBACTER PYLORI* INFECTION IN A SOUTH-EUROPEAN COUNTRY: A 16S RRNA GENE SEQUENCING AND HIGH-THROUGHPUT SEQUENCING STUDY

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Objective: *Helicobacter pylori* (*H. pylori*) infection remains a major public health problem. Given the high resistance to antibiotics worldwide, quadruple regimens have emerged as first-line therapies for *H. pylori* infection, though their long-term consequences remain unclear. This study aimed to evaluate major changes in the metabolic profile and body composition of patients submitted to *H. pylori* eradication using different quadruple therapies.
Patients and Methods: Patients were enrolled in a blind, randomized trial and assigned to one of five eradication regimens: A (Concomitant with metronidazole tid, 14 days); B (Concomitant with metronidazole bid, 14 days); C (Bismuth-containing Quadruple, 10 days); D (Sequential, 14 days); E (Hybrid, 14 days). Esomeprazole was the proton-pump inhibitor of choice. Efficacy, clinical safety, and metabolic changes including body composition by anthropometry and bioelectrical impedance analysis, lipid profile, glucose metabolism (glucose, insulin, glycohemoglobin, HOMA-IR), and systemic inflammation (ESR, CRP) were evaluated at 2- and 12-months post-treatment.
Results: A total of 233 patients completed the protocol (mean age 57.6±16.2 years; 52.8% males). Overall eradication and clinical adverse event rates were 97.9% and 53.6%, respectively. Following successful eradication, significant metabolic shifts were observed across all groups, including decreases in insulin and glycated hemoglobin (Z=4.04-5.12; p<0.03). Conversely, there was a significant increase in LDL-cholesterol, BMI, abdominal circumference, waist-to-hip ratio (WHR), total/visceral fat mass, and rates of obesity/visceral obesity (Z=4.33-13.05; p<0.03). Comparing the different treatment protocols, regimen B (Concomitant with metronidazole bid, 14 days) induced the most pronounced metabolic impact, significantly increasing WHR and total/visceral fat mass, compared to other therapies (Z=2.00-2.52; p<0.05). During follow-up, 37 patients (16.4%) experienced *H. pylori* recurrence, which was significantly associated with increased HDL-cholesterol and decreased fat-free mass (Z=2.26-6.95; p<0.05).
Conclusions: While quadruple therapies are highly effective for *H. pylori* eradication, they are associated with significant long-term metabolic and body composition shifts, most notably weight gain and increased visceral adiposity. The concomitant therapy with metronidazole bid was associated with the most pronounced worsening of anthropometric fat parameters. *H. pylori* recurrence tends to lead to a return to the metabolic profile observed prior to eradication. These findings highlight the potential need for metabolic surveillance and nutritional counseling following *H. pylori* eradication.

Conflicts of Interest
Elisa Gravito-Soares: None, Nuno Almeida: None, Marta Gravito-Soares: None, Bárbara Rocha: None, Maria Manuela Donato: None, Pedro Narra Figueiredo: None.

P05.02.

GUT MICROBIOME PERTURBATIONS AND RECOVERY AFTER *HELICOBACTER PYLORI* ERADICATION THERAPY

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Objective: *Helicobacter pylori* is a well-established cause of gastric cancer, and eradication is recommended for all infected patients. However, eradication therapy may alter gut microbiota composition, diversity, and richness. This study aimed to evaluate the effects of two different first-line eradication regimens on the gut microbiome and short-chain fatty acid (SCFA) production after successful eradication, as well as the reversibility of these changes after one year.

Patients and Methods: Seventy-two patients were enrolled between July 2020 and November 2022 and randomized to two treatment groups (group 1: 14-day regimen with esomeprazole, amoxicillin, clarithromycin; group 2: 14-day regimen with esomeprazole, amoxicillin, metronidazole, bismuth subcitrate). Stool samples were collected at baseline, two months, and one year after treatment. Microbiome composition and diversity were analyzed using 16S rRNA gene sequencing (Illumina NGS), and fecal SCFAs were quantified by gas chromatography. Taxonomic changes were analyzed using the DESeq2 package (R).

Results: Of the 72 patients included, 13.9% (10/72) were lost to follow-up. No statistically significant differences between the two groups were observed at baseline. Microbial alpha diversity significantly decreased two months after therapy, indicating microbiome disruption, but largely recovered after one year. Beta diversity analysis demonstrated significant shifts in microbial community structure after eradication, with most samples returning toward baseline after one year. At the phylum level, no statistically significant changes were detected, whereas at the family level, sequences from *Lachnospiraceae*, *Bacteroidaceae*, and *Enterobacteriaceae* increased two months after therapy. *Enterobacteriaceae* were the only ones that remained elevated after one year, however, the sequence counts were very low. At the genus level, *Blautia, Bacteroides, Roseburia, Intestinibacter,* and *Escherichia/Shigella* increased two months after eradication, whereas *Dorea, Akkermansia* and *Vascimonas* decreased. After one year, elevated levels persisted for *Blautia, Bacteroides* and *Roseburia* only. In group 2 an increase in *Enterococcus faecalis* was detected both two months and one year after eradication, again with only low number of sequences. One-way ANOVA revealed significant differences between baseline and one-year follow-up for two branched-chain SCFAs, isobutyric acid (p = 0.0175) and isovaleric acid (p = 0.0469). No significant differences were observed for the remaining SCFAs, including the predominat acetic, propionic and butyric acid.

Conclusions: Eradication therapy for *Helicobacter pylori* induces significant but largely transient perturbations of the gut microbiome. In our cohort, microbial diversity and community composition were markedly altered two months after therapy, with partial recovery during longer follow-up and some persistent taxonomic shifts at lower taxonomic levels, while overall SCFA production appears relatively resilient, suggesting preservation of key microbial metabolic functions. Taken together, with existing evidence, our findings support the safety of *H. pylori* eradication and help alleviate concerns regarding irreversible alterations of the gut microbiome in the context of large-scale eradication strategies for primary gastric cancer prevention.

Conflicts of Interest

Katja Tepeš: Speakers Bureau/Honoraria: Abbvie, Krka, Viatris, Eli Lilly, Altamedics, Ewopharma, Luka Lipoglavšek: None, Lijana Fanedl: None, Alen Radolič: None, Bojan Tepeš: Research Grant: Krka, INFAI GmbH; Speakers Bureau/Honoraria: Krka, Ewopharma, Swixx pharma, Rok Orel: Speakers Bureau/Honoraria: Abbvie, Lek Sandoz, Medis, Ewopharma, Polymetria, Nutricia, Gorazd Avguštin: None.

P05.03

ASSESSMENT OF TAXONOMIC BIASES IN 16S RRNA MICROBIOME ANALYSIS USING QIIME 2 AND SILVA

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Objective: Accurate taxonomic classification in 16S rRNA microbiome studies depends on the bioinformatic workflow and the quality of reference databases, both of which may introduce systematic biases. This study evaluated the performance of the QIIME 2 pipeline combined with the SILVA reference database using in silico microbial communities of known composition.
Materials and Methods: Two *in silico* datasets comprising 58,570 and 52,398 V3–V4 sequences derived from the same 110 bacterial species were analyzed using the QIIME 2–SILVA workflow. Taxonomic assignments at phylum, class, order, family, genus, and species levels were compared with the predefined reference composition.
Results: Phylum-level classification closely matched the reference, with all expected phyla detected except *Lentisphaerae*. Class-level classification also showed high concordance, although several taxa were reassigned to *Bacteroidia* and *Clostridia*. The largest discrepancy occurred at the order level due to underrepresentation of *Eubacteriales*. At the family level, *Lachnospiraceae* was overrepresented (10.83% *vs.* 7.61%), whereas *Ruminococcaceae* was underestimated (4.65% *vs.* 6.11%). Genus-level deviations were observed for *Ruminococcus, Eubacterium, Bifidobacterium, Helicobacter,* and *Enterocloster*. Notably, *Enterocloster* was not recovered despite being present in the reference composition, highlighting the impact of recent taxonomic reclassification on genus-level assignments. Species-level resolution was not achieved.
Conclusions: QIIME 2 combined with the SILVA database provides reliable taxonomic classification at higher taxonomic ranks but shows reduced accuracy at lower ranks, particularly at the genus and species levels. *In silico* microbial communities represent a robust framework for validating bioinformatic workflows and identifying taxonomy-related biases that should be considered in microbiome studies.

Conflicts of Interest
Biljana Tanasković: None, Mirjana Rajilić-Stojanović: None.

P05.04.

RESPIRATORY AND INTESTINAL MICROBIOTA SHIFTS IN ASTHMA WITH COEXISTING DEPRESSION

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Objective: Asthma is a heterogeneous condition often accompanied by comorbidities such as depression, which may affect underlying mechanisms and clinical management. Both asthma and depression have individually been linked to alterations in the microbiota.
Patients and Methods: This study comprised 20 healthy controls, 20 patients with asthma, and 20 patients with asthma and comorbid depression. All participants underwent clinical evaluation and completed questionnaires assessing depression scores. Induced sputum and fecal samples were obtained for microbiota analysis, and inflammatory cytokines were quantified in serum and sputum. Microbial composition was analyzed using 16S rRNA gene sequencing.

Results: Lung function and FeNO levels were similar between the asthma groups. However, patients with asthma and comorbid depression showed poorer asthma control and significantly higher psychological scores compared with those with asthma alone and healthy controls. Inflammatory cytokine levels did not display consistent increases across disease groups. Microbiota analyses of sputum and fecal samples identified significant genus-level differences in taxonomic composition, especially between healthy controls and comorbid patients, despite comparable alpha and beta diversity. Correlation analyses revealed links between clinical and psychological measures and microbial profiles, including a strong negative association between psychological scores and *Neisseria* abundance in both sample types.
Conclusions: Asthma with comorbid depression is linked to distinct changes in respiratory and gut microbiota, including reduced *Neisseria* associated with greater psychological symptom severity. These results support the concept of a microbiota-airway-brain axis and suggest a role for microbiota in the interplay between asthma and depression.

Conflicts of Interest
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P05.05.

PATIENT ACCEPTANCE AND COMPLIANCE OF MICROBIOME-GUIDED COLORECTAL CANCER SCREENING: PRELIMINARY FINDINGS FROM AN OBSERVATIONAL PERSPECTIVE COHORT STUDY

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Objective: Colorectal cancer (CRC) remains a major global health burden, and early detection through screening programs significantly reduces both incidence and mortality. The fecal immunochemical test (FIT), widely used in population-based screening, has a suboptimal diagnostic yield, prompting the search for novel non-invasive biomarkers such as gut microbiome-based tools. While previous studies suggest that patients are generally willing to engage with microbiome-based approaches, practical barriers and variability in acceptance may affect their real-world implementation.
Patients and Methods: We performed a preliminary analysis of an ongoing multicenter, prospective observational study designed to develop a gut microbiome-based diagnostic tool for CRC and advanced colorectal adenomas in FIT-positive individuals. In this analysis, we evaluated patient acceptance, compliance with study procedures, and endoscopic and histopathological outcomes. Enrolled participants underwent colonoscopy, and demographic and clinical data were collected, as well as stool samples.

Results: A total of 315 individuals were screened, of whom 212 were enrolled. Among eligible patients, 10% declined participation. Overall, 94% of enrolled individuals provided a stool sample, indicating high compliance with study procedures. Colonoscopy was performed in 209 patients. CRC was detected in 7 patients, and advanced colorectal adenomas in 39, while 86 colonoscopies were negative. The positive predictive value of FIT was 3.35% for CRC and 18.66% for advanced adenomas.
Conclusions: In this preliminary analysis of a multicenter FIT-positive cohort, patient acceptance and compliance with microbiome-based sampling were high. These findings support the feasibility of integrating microbiome-based tools into CRC screening programs, pending further validation of their diagnostic accuracy.

Conflicts of Interest
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P05.06.

OPERATIONAL BIAS IN LONGITUDINAL GUT MICROBIOTA PROFILING STUDIES: THE ROLE OF THE CLINICAL STUDY COORDINATOR IN REDUCING METHODOLOGICAL DISTORTIONS

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Objective: Longitudinal microbiome-oncology studies are essential but influenced by underexplored organizational factors affecting data quality. Operational bias (OB) from these processes impacts data reliability and highlights the key role of clinical study coordinators (CSC).
Patients and Methods: This sub-analysis within a longitudinal study in cancer patients receiving immune checkpoint inhibitors assessed operational compliance (timing, completeness, handling) across predefined time points (T0, T90, T180, T270, T360), including an additional time point for antibiotic exposure. OB defined as delays ≥7 days or missing/out-of-window samples, was evaluated for its impact on data validity and the coordinating role of clinical study coordinators.
Results: A total of 82 patients were enrolled, with 98% providing baseline samples (T0). The cohort included multiple tumor types, mainly EM (28%), CC (26%), and NSCLC (20%). As the study is ongoing, sample collection decreased over time (T90: 61%, T180: 30%, T270: 12%), with no patients yet at T360. Overall, 33% received antibiotics during follow-up, but only 41% of these provided samples within scheduled time windows. The drop-out rate was 16%, mainly due to death and clinical deterioration. In total, 197 samples were collected, of which 11% were delayed (median 9 days). Delays were more frequent at antibiotic-related time points (9%) compared to standard ones (2%).

Conclusions: Operational bias is a measurable and relevant factor in longitudinal microbiome-oncology studies, affecting both data completeness and temporal accuracy. Delayed sampling, particularly at antibiotic-related time points, highlights the need for structured monitoring and strong coordination to ensure protocol adherence and reliable data.

Conflicts of Interest
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P05.07.

GASTRIC JUICE MICROBIOTA SIGNATURES REVEAL EARLY METAPLASTIC TRANSFORMATION AND SUPPORT NON-BIOPSY RISK STRATIFICATION FOR GASTRIC CANCER PREVENTION

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Objective: Intestinal metaplasia (IM) is a pivotal premalignant stage in gastric carcinogenesis, yet scalable non-biopsy biomarkers for early detection remain lacking. We investigated whether gastric juice microbiota signatures identify early metaplastic transformation and support risk stratification.
Patients and Methods: In this prospective cross-sectional study, adults undergoing diagnostic endoscopy underwent gastric juice sampling before biopsy, followed by 16S rRNA sequencing (QIIME2/DADA2). Alpha diversity, beta diversity (UniFrac PERMANOVA), and discriminatory taxa by LEfSe were compared between histologically confirmed IM and normal gastric mucosa.
Results: Twenty participants were included (10 IM, 10 controls). IM patients were older (60.7±11.9 *vs.* 47.0±14.9 years; p=0.036). IM demonstrated markedly increased microbial richness (observed species 120 *vs.* 40, p=0.01; Chao1 150 *vs.* 55, p=0.01) and clear compositional separation from controls (PERMANOVA p=0.002), indicating early ecological remodeling. IM was enriched with oral-origin taxa including Streptococcus, Gemella, Veillonella, Prevotella, Actinomyces, and Rothia, suggesting oral-gastric microbial translocation as a potential early carcinogenic signature, whereas controls remained enriched in commensal taxa.
Conclusions: Early IM exhibits a distinct oral-type gastric microbial signature associated with ecological shifts preceding advanced neoplasia. These findings support gastric juice microbiota profiling as a scalable non-biopsy strategy for early gastric cancer risk stratification and provide a translational framework for microbiota-informed prevention in high-risk Asian populations.

Conflicts of Interest
Korravee Thanarattikrannon: None, Phubordee Bongkotvirawan: None, Natsuda Aumpan: None, Varocha Mahachai: None, Ratha-korn Vilaichone: None.

P05.08.

SMALL INTESTINAL BACTERIAL OVERGROWTH AS A BIOCHEMICAL ACTIVITY MARKER IN MAFLD AND NAS/NASH SPECTRUM DISEASE

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Objective: The progession of metabolic liver disease (MLD) is driven by complex interactions between metabolic dysfunction, hepatic inflammation, intestinal barrier impairment, and microbial-derived signals. SIBO may amplify hepatic injury through bacterial translocation, endotoxin-mediated immune activation, altered bile acid metabolism. Despite this biological rationale, the relationship between SIBO and biochemical activity in MAFLD and NAS/NASH spectrum disease remains unclear. This study assessed the prevalence of SIBO in patients with chronic MLD and investigated whether SIBO is associated with clinical phenotype, metabolic dysfunction, fibrosis-related indices, or liver biochemical activity.

Patients and Methods: We analyzed 133 patients with chronic MLD and documented SIBO status. Recorded diagnoses were grouped as MAFLD, NAS/NASH spectrum disease, and a small cirrhosis/type 2 diabetes subgroup. SIBO status was standardized as positive or negative. Clinical and laboratory variables included age, sex, insulin resistance, type 2 diabetes mellitus, intestinal methanogen overgrowth, ALT, AST, GGT, ALP, platelet count, hemoglobin, FIB-4, insulin, glucose, HOMA index. Between-group comparisons were performed according to SIBO status. Logistic regression models were used to explore variables associated with SIBO positivity.

Results: SIBO was identified in 40 patients (prevalence of 30.1%). Among the major diagnostic groups, SIBO was present in 27 of 92 MAFLD patients and 13 of 39 NAS/NASH patients (prevalence of 29.3% and 33.3%). The difference between diagnostic phenotypes was not statistically significant, suggesting that SIBO may be distributed across the broader MLD spectrum. SIBO was not significantly associated with age, sex, insulin resistance, type 2 diabetes mellitus, FIB-4, platelet count, hemoglobin, insulin, glucose, or HOMA index. In contrast, liver enzyme activity differed according to SIBO status. ALT was significantly higher in SIBO-positive patients than in SIBO-negative patients, with median values of 54.0 U/L and 34.0 U/L (p=0.048). GGT was also higher in the SIBO-positive group, median 74.0 U/L *vs.* 56.0 U/L, with borderline significance in direct group comparison (p=0.064). Regression analysis further supported the relevance of GGT. In univariable analysis, each 10 U/L increase in GGT was associated with greater odds of SIBO positivity (OR 1.06, 95% CI 1.00-1.13, p=0.043). In exploratory multivariable analysis, this association remained significant after adjustment for age, sex, disease category, ALT, FIB-4 (adjusted OR 1.09, 95% CI 1.01-1.17, p=0.023). ALT did not remain independently associated with SIBO in the adjusted model, suggesting that GGT may capture a distinct biochemical signal related to SIBO status.

Conclusions: SIBO was common among patients with MAFLD/NAS/NASH spectrum disease and was associated with markers of liver biochemical activity rather than with metabolic comorbidities or non-invasive fibrosis estimates. These findings should be interpreted as hypothesis-generating and require validation in prospective cohorts using standardized SIBO testing, detailed fibrosis staging, bile acid profiling, inflammatory markers, and treatment-response data.

Conflicts of Interest

Rashad Hasanov: None, Gulustan Babayeva: None, Esmira Abdullayeva: None.

P05.09.

ALCOHOLIC FERMENTATION BY CANDIDA ALBICANS

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Background: Candida albicans ferments carbohydrates and produces ethanol. Digestive candidiasis may therefore result in positive breath alcohol test results following carbohydrate ingestion, although this association has been rarely reported. We describe three patients with positive breath alcohol tests after lactulose administration in whom digestive candidiasis was identified or strongly suspected.
Case series: Three patients underwent a 13C-urea breath test for Helicobacter pylori, a hydrogen breath test using lactulose for small intestinal bacterial overgrowth (SIBO), breath alcohol testing, and upper gastrointestinal endoscopy when clinically indicated. Gastric aspirate was cultured for Candida in one patient. The first patient was a 32-year-old man with diabetes and persistent diarrhea. His 13C-urea breath test and SIBO test were negative, whereas the breath alcohol test became positive after lactulose administration. Endoscopy demonstrated esophageal and gastric candidiasis. The second patient was a 78-year-old woman without diabetes who presented with anorexia, dizziness, and abdominal pain. She had positive 13C-urea breath, SIBO, and breath alcohol tests after lactulose administration. Endoscopy was not performed. The third patient was a 58-year-old woman with diabetes and hypertension who presented with vomiting, dizziness, and epigastric pain. Her 13C-urea breath test was negative, whereas both the SIBO and breath alcohol tests became positive after lactulose administration. Endoscopy revealed gastric candidiasis, gastroparesis, and pyloric spasm. Gastric aspirate culture was positive for Candida albicans in one patient.
Conclusions: Candida albicans ferments carbohydrates and produces ethanol. Positive breath alcohol tests after lactulose administration may represent a novel, non-invasive marker of digestive candidiasis. Combining breath alcohol testing with lactulose breath testing warrants further investigation as a potential diagnostic approach.

Conflicts of Interest
Adriana Barrios: None.

P05.10.

GUT MICROBIAL TAXA AND FUNCTIONS AS MARKERS AND PREDICTORS OF GASTRIC PRECANCEROUS LESIONS: A LONGITUDINAL COHORT STUDY USING SHOTGUN METAGENOMICS

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Objective: This study aimed to explore gut microbial taxa and functions in patients with gastric precancerous lesion (GPL) and longitudinally evaluate whether gut microbiota can predict future GPL development.
Patients and Methods: A total of 1,442 individuals who underwent screening upper endoscopy and provided baseline stool samples for shotgun metagenomic sequencing were enrolled, including chronic gastritis (CG, n = 738) as controls, and chronic atrophic gastritis (n = 572) and intestinal metaplasia (n = 132) as GPL. For longitudinal validation, 1,185 participants with follow-up endoscopy were analyzed.

Results: Compared with CG controls, GPL was associated with 32 enriched taxa, including *Prevotella copri* (log2 fold change 0.85, q = 0.006), and 10 depleted taxa, including *Ruminococcus gnavus* (log2 fold change -0.56, q = 0.011), consistent with previously reported microbial alterations in gastric cancer. A total of 39 microbial pathways were significantly altered in GPL (3 enriched and 36 depleted; all $q < 0.05$) with enrichment of bacterial purine biosynthesis (DENOVOPURINE2-PWY; log2 fold change 0.36) and depletion of bacterial cell surface biosynthesis (PWY-7332, log2 fold change -0.26) and pathways for microbial-derived protective metabolites (PWY3O-355, log2 fold change -0.21). In longitudinal validation, a LASSO-derived microbial risk score predicted future GPL development after adjusting for covariates (hazard ratio 1.48 per one standard deviation increase; 95% confidence interval, 1.26-1.74; $p < 0.001$).
Conclusions: GPL-associated gut microbiota featured gastric cancer-related taxa and functional alterations and predicted future GPL development, supporting its potential as a biomarker for risk stratification.

Conflicts of Interest
Hyo-Joon Yang: None, Hyun-Woo Yang: None, Soomin Lee: None, Yoosoo Chang: None, Han-Na Kim: None.

P05.11.

SMALL INTESTINAL BACTERIAL OVERGROWTH IN VIRAL HEPATITIS-RELATED LIVER DISEASE: ASSOCIATION WITH HCV ACTIVITY AND HEPATOCELLULAR BIOCHEMICAL INJURY

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Objective: Small intestinal bacterial overgrowth (SIBO) may represent a clinically relevant but underexplored intestinal disturbance in patients with viral hepatitis-related liver disease. However, the prevalence of SIBO across different viral hepatitis phenotypes and its association with biochemical liver injury remain insufficiently characterized. This study aimed to evaluate the prevalence of SIBO in patients with viral hepatitis-related liver disease and to investigate its association with viral hepatitis phenotype, liver biochemical activity, fibrosis-related indices, and viral load parameters.
Patients and Methods: We performed a retrospective real-world analysis of 178 recorded cases. After excluding non-viral or unclassified liver diseases and cases without interpretable SIBO status, 158 patients with viral hepatitis-related liver disease were included. Patients were categorized as HBV-related disease, active/uncured HCV-related disease, cured HCV-related disease, HBV/HDV coinfection, or HBV/HCV coinfection. SIBO status was standardized as positive or negative according to recorded test results. Demographic variables, liver enzymes, cholestatic markers, platelet count, hemoglobin, FIB-4 score, viral titers, ultrasound-based cirrhosis findings, and splenomegaly were analyzed. Continuous variables were compared using non-parametric tests, categorical variables using Chi-square or Fisher's exact testing, and exploratory logistic regression was used to evaluate factors associated with SIBO positivity.
Results: SIBO was detected in 63 of 158 patients, corresponding to an overall prevalence of 39.9%. SIBO prevalence differed significantly across viral hepatitis phenotypes. The highest prevalence was observed in active/uncured HCV-related disease, 33 of 57 patients (57.9%), compared with 19 of 60 patients with HBV-related disease (31.7%), and 6 of 32 patients with cured HCV-related disease (18.8%). The difference across major viral hepatitis categories was statistically significant (p=0.0004). Active/uncured HCV-related disease showed significantly higher odds of SIBO compared with HBV-related disease (OR 2.97, p=0.005), while cured HCV-related disease showed a markedly lower prevalence compared with active/uncured HCV (OR 0.17, p<0.001). SIBO-positive patients were younger than SIBO-negative patients, median age 42.0 *vs.* 48.0 years (p=0.008). Biochemically, SIBO-positive patients demonstrated higher ALT levels, median 36.7 U/L *vs.* 25.7 U/L (p=0.011), suggesting an association with hepatocellular injury. AST was also numerically higher in the SIBO-positive group, median 32.4 U/L *vs.* 25.5 U/L, showing a borderline trend (p=0.064). In contrast, GGT, ALP, platelet count, hemoglobin, FIB-4 score, ultrasound-defined cirrhosis, splenomegaly, and viral titers were not significantly associated

with SIBO status. In exploratory multivariable analysis adjusted for age, sex, HCV-related disease, ALT, GGT, and FIB-4, younger age remained independently associated with SIBO positivity, while HCV-related disease showed a borderline association, adjusted (OR 2.36, *p*=0.053).
Conclusions: These findings are hypothesis-generating and support future prospective studies incorporating standardized breath testing, antiviral treatment status, microbiome profiling, inflammatory markers, and longitudinal liver outcomes to clarify whether SIBO is a marker of viral hepatitis activity or a modifiable contributor to liver injury.

Conflicts of Interest
Rashad Hasanov: None, Gulustan Babayeva: None, Esmira Abdullayeva: None.

POSTER SESSION 06 - CANCER 1

P06.01.

ABSTRACT WITHDRAWN

P06.02.

PRETREATMENT SARCOPENIA PREDICTS SURVIVAL AFTER ENDOSCOPIC SUBMUCOSAL DISSECTION OR TOTAL GASTRECTOMY FOR EARLY GASTRIC CANCER

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Objective: Sarcopenia is associated with poor outcomes in patients with gastric cancer (GC). We aimed to compare the clinical outcomes and body composition changes between patients with proximal EGC who underwent ESD and those who underwent TG.
Patients and Methods: We retrospectively reviewed 329 patients who underwent either ESD (n=127) or TG (n=202) for T1N0M0 gastric cancer located in the upper third of the stomach between 2015 and 2019 at a tertiary care center. Skeletal muscle index (SMI), visceral/subcutaneous fat, and abdominal circumference were measured preoperatively and at 1- and 3 years postoperatively using cross-sectional computed tomography.
Results: No significant differences were observed between the two groups regarding overall survival (*p*=0.266), disease-specific survival (*p*=0.24) or recurrence-free survival (*p*=0.079). The recurrence rates were 4/127 (3.1%) and 2/202 (1.0%) in the ESD and TG groups, respectively. Patients in the ESD group showed more preserved SMI (*p*<0.001), visceral/subcutaneous fat (*p*<0.001), and abdominal circumference (*p*<0.001) at both 1 and 3 years after surgery than those in the TG group. Pretreatment sarcopenia had a significant impact on survival, with 5-year OS rates being lower in patients with sarcopenia (85.3% *vs.* 95.6%, *p*=0.005). Multivariate analysis revealed that pre-treatment sarcopenia was independently associated with worse OS (hazard ratio, 2.678; 95% confidence interval, 1.029-6.974; *p*=0.044).
Conclusions: Pretreatment sarcopenia is associated with poor prognosis in patients with proximal EGC. Although the survival outcomes were comparable between the ESD and TG groups, ESD was associated with better preservation of skeletal muscle and visceral/subcutaneous fat.

Conflicts of Interest
Ga Hee Kim: None, Sung Kwan Shin: Speakers Bureau/Honoraria: Noone, Sung Hyun Park: None, Minah Cho: None, Da Hyun Jung: None, Yoo Min Kim: None, Jun Chul Park: None, Sang Kil Lee: None, Woo Jin Hyung: None, Yong Chan Lee: None, Hyoung-Il Kim: None.

P06.03.

MECHANISTIC INSIGHTS INTO THE ACTION OF HISTAMINE-FUNCTIONALIZED PLA NANOPARTICLES LOADED WITH 5-FLUOROURACIL AGAINST GASTRIC CANCER CELLS *IN VITRO*

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Objective: Gastric cancer remains one of the leading causes of cancer-related deaths worldwide. Current treatments are exploring nanoparticles (NPs) engineered to target cancer cells and deliver therapeutic agents, thereby inhibiting tumor growth and enhancing anti-tumor effects. The effectiveness of NPs, designed to transport anti-cancer drugs and bioactive compounds, may depend on how they target cancer cells.
Patients and Methods: This study investigated the effects of polylactic acid (PLA) NPs with histamine (His) end groups loaded with 5-fluorouracil (5-FU), a known anti-cancer drug (PLA-His-5-FU), on human gastric cancer AGS cells *in vitro.*
Results: When AGS cells were incubated with PLA-His-5-FU NPs, there was a reduction in mitochondrial membrane potential, increased apoptosis, cell cycle arrest, and decreased cell proliferation. Additionally, these NPs stimulated the secretion of pro-inflammatory cytokines, such as tumor necrosis factor alpha (TNF-α) and interleukin (IL)-1, from AGS cells and activated the NF-kappa B signaling pathway in THP-1 blue monocytes, suggesting a role in creating an environment conducive to immune cell infiltration and activation. The NPs did not enhance intracellular adhesion molecule (ICAM-1) expression on AGS cells, possibly preventing cancer cell dissemination.
Conclusions: PLA-His-5-FU NPs demonstrate promising anti-cancer activity against gastric cancer AGS cells *in vitro*, outperforming PLA-OH-5-FU, and warrant further *in vivo* investigation to confirm these effects.

Conflicts of Interest
Patrycja Jaroniek: None, Zuzanna Świnarska: None, Marek Brzezinski: None, Magdalena Chmiela: None, Weronika Gonciarz: None.

P06.04.

LONG-TERM OUTCOMES OF EARLY AND LATE METACHRONOUS RECURRENCE AFTER CURATIVE ENDOSCOPIC RESECTION OF EARLY GASTRIC CANCER

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Objective: Metachronous recurrence is a common long-term outcome after curative resection (CR) for early gastric cancer (EGC). This study evaluated the clinicopathologic characteristics associated with early and late metachronous recurrence following curative endoscopic submucosal dissection (ESD).
Patients and Methods: Among 1,200 patients who achieved CR after ESD for EGC and were followed for ≥12 months, those with metachronous recurrence were analyzed. Early recurrence was defined as occurring within 60 months after ESD, and late recurrence as occurring beyond 60 months.
Results: Metachronous recurrence was identified in 185 patients (15.4%), including 116 (62.7%) early and 69 (37.3%) late recurrences. Histologically, 83 patients had adenoma and 102 had cancer. Late recurrence was associated with a higher proportion of undifferentiated histology (10.1% *vs.* 0.9%, $p = 0.005$), younger age, higher serum albumin levels, and higher prognostic nutritional index. In subgroup analyses, undifferentiated histology and younger age were associated with late recurrence in adenoma, whereas higher serum triglyceride levels were associated with late recurrence in cancer. Multivariate analysis identified

undifferentiated histology as an independent risk factor for late recurrence (OR 11.8, 95% CI 1.7-100.6), and elevated triglyceride levels for late recurrent cancer (OR 2.6, 95% CI 1.0-6.6).
Conclusions: Metachronous recurrence after curative ESD for EGC may occur beyond 5 years. Undifferentiated histology at index ESD and elevated triglyceride levels may help identify patients at risk for late recurrence, supporting the need for prolonged surveillance.

Conflicts of Interest
Moon Kyung Joo: None, Seung Han Kim: None, Won Shik Kim: None, Beom Jae Lee: None.

P06.05.

IMPACT OF BLOOD UREA NITROGEN LEVELS ON DELAYED BLEEDING AFTER GASTRIC ENDOSCOPIC SUBMUCOSAL DISSECTION

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Objective: Endoscopic submucosal dissection (ESD) is a widely accepted treatment for early gastric cancer and adenoma, but it is often accompanied by post-ESD bleeding. In this study, we evaluated the association between elevated blood urea nitrogen (BUN) levels 24 hours after ESD and post-procedural bleeding. Additionally, we investigated whether an increase in BUN level is associated with artificial gastric ulcers classified as high-risk by the Forrest classification during second-look endoscopy (SLE) following ESD.
Materials and Method: We analyzed data from patients who underwent ESD for early gastric cancer or gastric adenoma. Baseline characteristics, endoscopic findings, and blood test results were collected for each enrolled patient.
Results: A total of 424 patients were included in the study. Second-look endoscopy performed one day after ESD identified 44 post-ESD lesions classified as high-risk and 385 lesions as low-risk according to the Forrest classification. Artificial gastric ulcers classified as high-risk were significantly associated with increased rates of post-ESD bleeding. Elevated BUN levels at 24 hours post-ESD were significantly associated with high-risk Forrest classification ulcers observed during SLE (p = 0.003).
Conclusions: A significant increase in BUN levels after ESD may indicate the development of post-ESD bleeding. Since BUN is easy to measure, it may serve as an early and practical marker to identify patients at risk of high-risk Forrest classification ulcers, thereby helping to predict post-ESD bleeding.

Conflicts of Interest
Beom Jin Kim: None, Jae Yong Park: None, Jae Gyu Kim: None.

P06.06.

EARLY-ONSET GASTRIC CANCER IS A DISTINCT HIGH-RISK PHENOTYPE MARKED BY STAGE-INDEPENDENT MORTALITY: A LARGE POPULATION-BASED STUDY

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Objective: Early-onset gastric cancer (EOGC) is increasingly recognized, but clinical phenotype and prognostic impact remain poorly defined in Asia. We investigated predictors of EOGC and whether young-onset disease independently influences survival.
Materials and Methods: We retrospectively analyzed 250 patients diagnosed with gastric cancer at tertiary referral center in Thailand between 2014 and 2025. EOGC was defined as diagnosis before 50 years of age. Clinical characteristics, comorbidities, *Helicobacter pylori* status, histology, stage, and survival were compared between early- and late-onset gastric cancer. Predictors of EOGC were assessed using multivariable logistic regression, and mortality was evaluated using Kaplan-Meier analysis and Cox proportional hazards modeling.

Results: Fifty-seven patients (22.8%) had EOGC. Compared with late-onset disease, EOGC patients were more frequently female and had higher rates of dyspepsia (73.7% *vs.* 57.1%; *p*=0.024) and family history of gastric cancer (8.8% *vs.* 1.6%; *p*=0.007), but fewer metabolic comorbidities. *H. pylori* prevalence was similar between groups (56.1% *vs.* 61.3%; *p*=0.539). Diffuse-type histology was markedly more common in EOGC (78.9% *vs.* 47.6%; *p*<0.001). Independent predictors of EOGC were dyspepsia (OR 2.14; 95% CI 1.06-4.34; *p*=0.03) and diffuse-type histology (OR 4.30; 95% CI 2.06-9.01; *p*<0.001). Despite comparable stage distribution, EOGC had poorer 1-year survival (13.0% *vs.* 32.9%; *p*=0.009). After adjustment for stage and sex, EOGC remained independently associated with mortality (HR 1.69; 95% CI 1.18-2.42; *p*=0.004).
Conclusions: EOGC represents a high-risk gastric cancer phenotype with distinct warning signals and stage-independent mortality. Persistent dyspepsia and family history in younger adults should prompt earlier diagnostic evaluation and risk-based endoscopic strategies.

Conflicts of Interest
Omarit Saengsakul: None, Phubordee Bongkotvirawan: None, Nattaporn Kongphakdee: None, Natsuda Aumpan: None, Varocha Mahachai: None, Ratha-korn Vilaichone: None.

P06.07.

SERUM PEPSINOGEN AND KYOTO CLASSIFICATION REFLECT DISTINCT DIMENSIONS OF GASTRIC MUCOSAL CHANGES: A HISTOLOGY-BASED COMPARATIVE STUDY

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Objective: Serum pepsinogen (PG) is a noninvasive biomarker for gastric mucosal atrophy; however, its relationship with the Kyoto classification remains unclear. This study evaluated the association of PG levels with histologic phenotypes and endoscopic findings.
Materials and Methods: 103 patients who underwent esophagogastroduodenoscopy with systematic biopsies were included. Serum PG I, PG II, and PG I/II ratio were measured. Histologic atrophy and intestinal metaplasia were assessed using the updated Sydney system across five gastric sites and categorized into topographic phenotypes. Endoscopic findings were evaluated using the Kyoto classification. Correlations were compared by PG-based risk groups (PG I ≤100 ng/mL; PG I/II ratio ≤5.3).
Results: PG I/II ratio showed significant negative correlations with histologic atrophy and intestinal metaplasia, particularly in the corpus (all *p* <0.001). PG levels differed across histologic phenotypes, with lower ratios in corpus-predominant and pangastric patterns (*p* <0.001). Associations between PG and Kyoto classification components were weak or inconsistent, with only modest correlations for diffuse redness and total Kyoto score. Histologic phenotypes differed significantly between PG risk groups (*p* <0.001), whereas Kyoto scores did not.
Conclusions: Serum PG, particularly the PG I/II ratio, reflects histologic gastric mucosal changes more accurately than the Kyoto classification, suggesting that serologic and endoscopic approaches capture distinct aspects of mucosal pathology and may play complementary roles in gastric cancer risk stratification.

Conflicts of Interest
Yuri Kim: None, Jung Mogg Kim: None, Ji Yong Ahn: None.

P06.08.

LONG-TERM CLINICAL OUTCOMES AFTER ENDOSCOPIC SUBMUCOSAL DISSECTION FOR EARLY GASTRIC CANCER IN ELDERLY PATIENTS AGED OVER 75 YEARS: A SINGLE-CENTER RETROSPECTIVE STUDY

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Objective: Gastric cancer (GC) remains a significant global health concern including deaths, and endoscopic submucosal dissection (ESD) is considered as safe and effective management tool for early gastric cancer (EGC) without regional lymph node metastasis, particularly in elderly patients. Our study aims to assess the safety and efficacy of ESD in elderly patients and propose new recommendations.
Materials and Methods: A single-center retrospective cohort study was conducted, including elderly patients aged 75 or older, diagnosed with EGC and underwent ESD between January 2010 and December 2020. Characteristics of patients and tumors and results of ESD were collected. Patients were grouped into 3 groups based on attainment of curative resection (CR) and surgery. Overall survival (OS) and disease-specific survival and prognostic factors for survival rate were analyzed.
Results: A total of 139 elderly patients were enrolled. The median observation time was 2.75 years. OS was 95.7%, with a disease-specific survival rate of 99.3%. However, no significance was found for OS or disease-specific survival. The presence of other cancers and high age-adjusted Charlson's comorbidity index (ACCI≥8) was statistically significant for OS.
Conclusions: This study found no significant effect on OS or disease-specific survival, comparing groups based on CR and surgery. Comorbidity with other cancers and a high ACCI score were significant predictors of OS. Further large-scale studies are needed to establish guidelines for elderly patients.

Conflicts of Interest
Samryong Jee: None, Seungjung Yu: None, Sangheon Lee: None.

P06.09.

OPTIMIZING FEXUPRAZAN TREATMENT DURATION FOR ENDOSCOPIC SUBMUCOSAL DISSECTION-INDUCED ARTIFICIAL GASTRIC ULCERS: A MULTICENTER, RANDOMIZED, ACTIVE-CONTROLLED TRIAL

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Objective: Endoscopic submucosal dissection (ESD) induces large artificial gastric ulcers, and incomplete healing can increase the risk of post-procedural complications. Although proton pump inhibitors are commonly used, the optimal duration of acid-suppressive therapy remains uncertain, particularly for potassium-competitive acid blockers (P-CABs). This study aimed to compare the efficacy and safety of fexuprazan with esomeprazole in the healing of ESD induced gastric ulcers and to explore the optimal duration of P-CAB therapy.
Patients and Methods: This multicenter, double-blind, randomized controlled trial was conducted between April 2024 and October 2025 and enrolled patients undergoing ESD for gastric neoplasms. Patients were randomized to receive fexuprazan 40 mg or esomeprazole 40 mg once daily for 8 weeks. The main outcomes were ulcer shrinkage rate and complete healing at 4 and 8 weeks.
Results: A total of 107 patients were analyzed. The 8-week complete healing rate was significantly higher in the fexuprazan group than in the esomeprazole group (90.2% *vs.* 75.0%, $p = 0.040$). Ulcer shrinkage rates at both 4 and 8 weeks were also significantly greater with fexuprazan than with esomeprazole. The estimated time to complete healing was significantly shorter in the fexuprazan group than in the esomeprazole group (40.31 *vs.* 47.22 days; $p = 0.0449$), particularly among patients with large baseline ulcers (≥800 mm2). Safety profiles were comparable between the two groups.

Conclusions: Fexuprazan led to faster and more complete healing of ESD-induced gastric ulcers than esomeprazole, with a comparable safety profile, suggesting that effective healing can be achieved within approximately 6 weeks in most cases.

Conflicts of Interest
Da Hyun Jung: None, Jin Won Chang: None.

P06.10.

IDENTIFICATION OF PLASMA EXOSOMAL MIRNA SIGNATURES AS NON-INVASIVE BIOMARKERS FOR GASTRIC DYSPLASIA AND EARLY GASTRIC CANCER

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Objective: Plasma-derived exosomal microRNAs (miRNAs) offer a molecularly stable, minimally invasive alternative reflecting tumor-specific transcriptional alterations. This study aimed to identify plasma exosomal miRNA signatures as non-invasive biomarkers for gastric dysplasia and early gastric cancer (EGC).
Patients and Methods: A two-stage discovery-validation design was employed. In the discovery phase, small RNA next-generation sequencing was performed on plasma-derived exosomes from patients with gastric dysplasia (n=11), EGC (n=8), and healthy controls (n=5). Candidate miRNAs were validated by quantitative reverse transcription PCR (qRT-PCR) in an independent cohort of 80 participants (gastric dysplasia, n=40; EGC, n=20; healthy controls, n=20). Diagnostic performance was assessed by receiver operating characteristic (ROC) curve analysis.
Results: Of 423 miRNAs retained for bioinformatic analysis following quality filtering, seven candidates fulfilled the prespecified differential expression criteria. Of these, five exosomal miRNAs—miR-320e, miR-1290, miR-4732-5p, miR-1228-5p, and miR-483-3p—demonstrated consistent and statistically significant upregulation in patients with gastric dysplasia and EGC relative to healthy controls. ROC analysis revealed clinically meaningful discriminatory performance: miR-483-3p achieved the highest diagnostic accuracy (AUC=0.930; 95% CI, 0.868–0.992), followed by miR-4732-5p (AUC=0.838), miR-320e

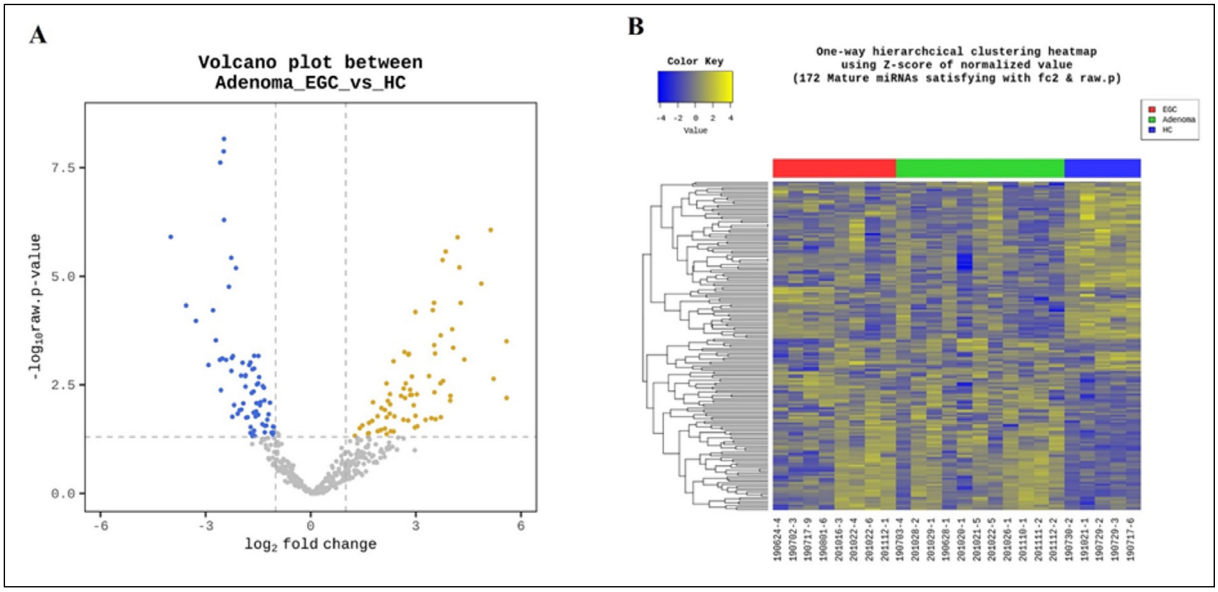

FIGURE 1. DIFFERENTIAL EXPRESSION AND MIRNA PROFILING OF PLASMA-DERIVED EXOSOMES FROM GASTRIC CANCER PATIENTS COMPARED TO HEALTHY CONTROL.

(AUC=0.818), miR-1290 (AUC=0.816), and miR-1228-5p (AUC=0.739). miR-214-3p and miR-483-5p, did not attain statistical significance in the validation cohort.
Conclusions: A panel of plasma exosomal miRNAs, particularly miR-483-3p, demonstrates robust diagnostic potential for the non-invasive detection of gastric dysplasia and EGC, supporting their further translational development as liquid biopsy biomarkers in gastric epithelial neoplasm screening.

Conflicts of Interest
Gwang Ha Kim: None, Dong Chan Joo: None, Su Jin Park: None, Moon Won Lee: None, Bong Eun Lee: None.

POSTER SESSION 07 - HELICOBACTER 5

P07.01.

PREVALENCE OF *HELICOBACTER PYLORI* INFECTION IN DYSPEPTIC CHILDREN AND ADULTS IN EAST AND WEST OF LIBYA: A MULTI-CENTER STUDY

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Objective: *Helicobacter pylori* (*H. pylori*) infection occurs earlier in life with a higher prevalence in developing countries. In Libya, the frequency of *H. pylori*-associated gastrointestinal disorders is still controversial. The objective of this study is to estimate the prevalence of *H. pylori* infection and its associated risk factors in symptomatic children and adults in Eastern and Western regions.
Materials and Methods: A total of 850 dyspeptic children and adult patients between 7 and 75 years, who lived in the east and west regions, were included. None had received antibiotics, antacids, or proton pump inhibitors in the preceding four weeks. Diagnosis of *H. pylori* was made by a non-invasive breath ammonium test ("Helic- test" Association of Medicine and Analytic, St-Petersburg). The diagnostic process is described as follows: 1. Detection of basal level of ammonium in oral cavity; 2. Drinking of carbamide solution (0.5 g of carbamide in 50 mL of still water); 3. Hydrolysis of carbamide by urease of *H. pylori*; 4. Detection of loading level of ammonium in oral cavity.
Results: Overall, *H. pylori* detection rates were 85% and 88% in dyspeptic children and adults in the West and East regions, respectively, with a peak prevalence of 20% in the age group ≥ 16 years. In both regions, there was a steady increase with age; no statistical difference between genders.
Conclusions: *H. pylori* prevalence was high in both East (Tobruk Region) and West (Tripoli Region) of Libya. There is a need for early screening programs, in particular for older children, awareness-raising about routes of transmission and necessity of cost-effective management strategies in Libyan society. However, large longitudinal research to confirm study findings.

Conflicts of Interest
Ali Almakhrem: None, Suifyan Nami: None, Fathi Al-Fagi: None, Ali Fadheel: None, Ahmed Eshakshouki: None, Abdulfaith Fitouri: None, Abdurrazag Nami: None, Ahmed Albeshte: None.

P07.02.

COMPARISON OF THE RESULTS ^{13}C-UREA BREATH TEST AND SEROLOGICAL DIAGNOSTIC METHODS WITH THREE DIFFERENT COMMERCIAL KITS FOR *H. PYLORI* INFECTION IN THE MOSCOW POPULATION

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Objective: Accurate diagnosis of *H. pylori* infection is essential due to its high prevalence and significant importance. The aim of the study is to compare the results of the ^{13}C-urease breath test (^{13}C-UBT) and serological testing for *H. pylori* using ELISA from different commercial kits in the Moscow population.
Materials and Methods: 1,860 *H. pylori*-infected patients (895 men and 965 women), mean age 47.45±13.91 years, were examined at A.S. Loginov Moscow Clinical Scientific Center. *H. pylori*-positive status of all patients was confirmed by ^{13}C-UBT (DOB value ≥4%). All patients underwent serological testing for detection of *H. pylori* by ELISA using three commercial kits: anti-*H. pylori* total antibodies («HEMA», Russia), positive >1.0 conventional units (c.u.); *H. pylori* IgG («HEMA», Russia), positive >1,0 c.u.; GastroPanel *H. pylori* IgG («BIOHIT Health Care», Finland), positive >30 EIU.
Results: Among 1,860 *H. pylori*-positive patients, serological results of testing were: in 63.06% (n=1,173) positive for total antibodies «HEMA», in 84.19% (n=1,566) positive for IgG «HEMA,» and only in 34.14% (n=635) positive for IgG «BIOHIT». In the group with a negative result for IgG «BIOHIT» (n=1,225), in 55.67% of cases both types of «HEMA» antibodies were positive, and in 79.02% of cases, IgG «HEMA» was positive. This suggests that the «BIOHIT» IgG cutoff value of >30 EIU is not a reference value for the studied Moscow population.
Conclusions: Serological methods for diagnosing *H. pylori* infection with three commercial kits showed insufficient agreement with ^{13}C-UBT results, with the lowest agreement in the «BIOHIT» test system. Each method for diagnosing *H. pylori* infection should be locally validated.

Conflicts of Interest
Dmitry Bordin: None, Elena Kuznetsova: None, Karina Nikolskaya: None, Aleksey Dorofeev: None, Margarita Chebotareva: None, Nataliya Neyasova: None, Irina Voynovan: None, Nargiz Gulieva: None, Valeriya Lomova: None, Igor Khatkov: None.

P07.03.

EFFECTIVENESS OF REUSE OF HELICOBACTER PYLORI ERADICATION THERAPIES AFTER PRIOR FAILURE: RESULTS FROM THE EUROPEAN REGISTRY ON *H. PYLORI* MANAGEMENT (HP-EUREG)

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Patients and Methods: A multicenter, prospective, non-interventional European registry (Hp-EuReg, WorldHpReg partner) was used to evaluate clinical practice and outcomes of *H. pylori* management by European gastroenterologists. Patients treated between 2013-2025 who received 2nd–6th line empirical therapy after ≥1 failure and with reuse of the same regimen were included. Regimens with ≥30 cases were analyzed. Effectiveness was evaluated by modified intention-to-treat analysis.

Results: Of 13,280 patients with prior failure, 628 (5%) were retreated with the same regimen. The most commonly reused therapies were triple therapy with amoxicillin-clarithromycin (Triple-CA), quadruple concomitant therapy with clarithromycin-amoxicillin-metronidazole (Conco-CAM), and bismuth-containing quadruple therapies with clarithromycin-amoxicillin (Quad-CAB) and metronidazole-tetracycline, either as a single-capsule formulation (Pylera®) or a classical formulation (Quad-MTcB). All regimens included a proton pump inhibitor. Treatment duration was the only factor influencing effectiveness, with longer treatments associated with better outcomes. Table 1 presents the effectiveness of each regimen by treatment line, and in 2nd line, by treatment length.

TABLE 1. Eradication rate by treatment line.

Scheme	2nd line	3rd line	4th line	5th line	6th line
Triple-CA	61%	48%	33%*	20%*	0%**
Conco-CAM	81%	71%	50%*	-	-
Quad-CAB	86%	100%**	-	100%**	-
Quad-MTcB	86%	57%*	67%**	100%**	0%**
Single-capsule	90%	72%	80%	50%**	100%*

* <10 patients per group; ** < 5 patients per group

Eradication rate by 2nd line treatment and length.

Scheme	7 days	10 days	14 days	*p*-value and OR (95% CI)
Triple-CA	37%	70%	65%	10 days: *p*=0.012, 3.85 (1.34-11.01) 14 days: *p*=0.025, 3.15 (1.15-8.60)
Conco-CAM	-	67%	83%	14 days: *p*=0.497
Quad-CAB	43%	96%	90%	10 days: *p*=0.996 14 days: *p*=0.997
Quad-MTcB	-	0%	92%	14 days: *p*=0.011, OR NA
Single-capsule	-	90%	100%	14 days: p=0.739

Triple-CA: triple therapy with amoxicillin-clarithromycin; Conco-CAM: quadruple concomitant therapy with clarithromycin-amoxicillin-metronidazole; Quad-CAB: bismuth-containing quadruple therapy with clarithromycin-amoxicillin; Quad-MTcB: bismuth-containing quadruple therapy with metronidazole-tetracycline; Single-capsule: Pylera®; OR: odds ratio; NA: not available due to sample size.

Conclusions: In real-world practice, the reuse of bismuth-containing quadruple therapies in 2nd line therapy achieves high eradication rates, particularly with 10-14-day regimens. Empirical reuse of some treatments may be considered when alternatives are limited.

Conflicts of Interest
Elisa Cantú-Germano: None, Leticia Moreira: Speakers Bureau/Honoraria: Juvisé, Laimas Jonaitis: None, Ángeles Pérez-Aísa: None, Bojan Tepes: None, Umud Mahmudov: None, Samuel J. Martínez-Domínguez: None, Javier Tejedor-Tejada: None, Alfredo J. Lucendo: None, Sayar R. Abdulkhakov: None, Juozas Kupcinskas: None, Mārcis Leja: None, Gülüstan Babayeva: None, Dmitry S. Bordin: None, Mónica Sánchez Alonso: None, Pablo Parra: None, Francis Mégraud: None, Colm O'Morain: Other Research Support: Mayoly, Allergan/Abbvie, Diasorin, Richen, Juvisé, Biocodex and Zambón; Speakers Bureau/Honoraria: Mayoly, Allergan/Abbvie, Diasorin, Richen, Juvisé, Biocodex and Zambón, Javier P. Gisbert: Other Research Support: Mayoly, Allergan/Abbvie, Diasorin, Richen, Juvisé, Biocodex and Zambón; Speakers Bureau/Honoraria: Mayoly, Allergan/Abbvie, Diasorin, Richen, Juvisé, Biocodex and Zambón; Consultant/Advisory Board: Mayoly, Allergan/Abbvie, Diasorin, Richen, Juvisé, Biocodex and Zambón, Olga P. Nyssen: Other Research Support: Mayoly, Allergan/Abbvie, Diasorin, Richen, Juvisé, Biocodex and Zambón.; Speakers Bureau/Honoraria: Mayoly, Allergan/Abbvie, Diasorin, Richen, Juvisé, Biocodex and Zambón.

P07.04.

EVALUATION OF TWO MOLECULAR ASSAYS FOR THE DETECTION OF *HELICOBACTER PYLORI* AND CLARITHROMYCIN RESISTANCE IN STOOL SAMPLES

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Objective: Several PCR tests have been developed to identify *Helicobacter pylori* (HP) and its resistance to clarithromycin, from gastric biopsies. When performed directly on stool, these tests have the advantage of being non-invasive.
Patients and Methods: In 2025, a clinical study has been conducted, wherein patients referred for gastroscopy, also provided a stool sample, enabling comparison between biopsy and stool. Two molecular assays, Allplex™ *H. pylori &* ClariR Assay® (Seegene) (AHP) and VIASURE *H. pylori +* clarithromycin resistance® (Certest) (VHP), were evaluated for both matrices. Biopsy culture and antimicrobial sensitivity testing were used as reference standard for stool PCR.
Results: Of the 145 patients with a stool sample, 34 (23.45%) had a positive gastric biopsy. For AHP and VHP the positivity rate in stool was 12.41% and 15.86%, respectively. Performance of stool PCR was determined as sensitivity, specificity, PPV, NPV and was 52.94%, 100%, 100%, 87.40%, respectively, for AHP and 67.65%, 100%, 100%, 90.98%, respectively, for VHP. Phenotypic clarithromycin resistance was confirmed in 4/5 and 5/7 HP positive samples with AHP and VHP in stool, respectively. The HP CT values in stool (median CT 42.2 for AHP and 37.0 for VHP), without proven inhibition, explain the discrepancies between biopsy and stool.
Conclusions: Positive HP and clarithromycin PCR results in stool samples deemed reliable, but negative results should be carefully examined. The selected PCR assay can impact the results. The high CT values in stool samples require further examination and make this non-invasive matrix not yet suitable for molecular HP post-treatment monitoring or screening.

Conflicts of Interest
Elke Vanlaere: None, Annick Van Der Straeten: None, Klaartje De Rauw: None, Charlotte Verfaillie: None, Jos Van Acker: None, Anne-Marie Van Den Abeele: None, Frederik de Clerck: None.

P07.05.

DIAGNOSIS OF HP INFECTION IN AUTOIMMUNE ATROPHIC GASTRITIS

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Objective: The gastropanel is a popular test, especially for young patients, but certain peculiarities must be considered. Since the coronavirus pandemic, the group of young people with immunodeficiencies has started to grow. With improved diagnostic capabilities and increased physician interest in identifying primary immunodeficiencies, this number will only rise.
Patients and Methods: A study involving 50 patients with autoimmune atrophic gastritis revealed that 21 patients had variable immunodeficiency syndrome and selective IgG deficiency. These patients had previously been diagnosed with HP infection using the gastropanel, but the results were negative. All patients underwent gastroscopy and biopsy using the OLGA system. Thirteen patients were found to have positive HP or coccal flora. All patients underwent fecal HP antigen testing.
Results: Of the 50 patients, 19 were positive (five in the endoscopy group and 14 in the IgG deficiency group).
Conclusions: Therefore, the gastropanel can be modified, and the use of fecal HP antigen testing is advisable to avoid diagnostic errors.

Conflicts of Interest
Tatsiana Haurylenka: None, Svetlana Zybleva: None.

P07.06.

IDENTIFICATION OF *HELICOBACTER PYLORI* AND ITS CLARITHROMYCIN RESISTANCE IN HISTOLOGICALLY NEGATIVE GASTRIC BIOPSIES BY QUANTITATIVE REAL-TIME PCR

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Objective: Low-density *Helicobacter pylori* (HP) infections may evade detection by conventional diagnostics such as histology. Our aim was to apply HP-specific qPCR (HPJ-qPCR) to formalin-fixed paraffin-embedded (FFPE) gastric biopsy samples previously classified as HP-negative by histology. For qPCR-positive cases, we investigated whether any symptoms were associated with HP and which symptoms might indicate the need for additional qPCR testing.
Patients and Methods: A total of 502 histologically HP-negative FFPE gastric biopsy samples were tested. DNA was extracted, and the isolates were subjected to HP-qPCR using a custom-designed FFPE-optimized primer pair (HPJ) targeting the 23S rRNA gene. For qPCR-positive cases, clinical data and histological diagnoses were reviewed.
Results: HP infection was identified by HPJ-qPCR in 16/502 samples (3.19%). Among these cases, gastritis and mucosal erosion were observed in 12 patients each. Within the overall histologically HP-negative cohort, gastritis was documented in 137 cases, with 8.76% showing HPJ-qPCR positivity, while erosion was present in 90 cases, of which 13.34% were HPJ-qPCR-positive. Clarithromycin resistance was detected in five of the 16 qPCR-positive samples (31.25%), including four homoresistant and one heteroresistant case.
Conclusions: The distribution of HP bacteria on the gastric mucosa may be discontinuous, and due to the low bacterial load, they cannot always be detected using histological methods. Molecular techniques based on bacterial DNA extraction effectively overcome this limitation. HPJ-qPCR has proven useful as a supplementary diagnostic method in histologically HP-negative cases, particularly when HP-related clinical or histological findings are also present.

Conflicts of Interest
Adrienn Biró: Research Grant: KDP-2023 Funding Scheme (2023-2.1.2-KDP-2023-00016) of the Ministry for Culture and Innovation from the source of the National Research, Development and Innovation Fund, Hungary, Anita Kurucz: None, Ákos Jakab: None, Evelin Barna: None, Ildikó Szirtes: None, György Miklós Buzás: None, Veronika Papp: None, Tamás Vass: None, Attila Szijártó: None, András Kiss: None, Éva Kocsmár: Research Grant: 2025-2.1.1-EKÖP-2025-00014 University Research Scholarship Programme (grant number EKÖP-2025-401) of the Ministry for Culture and Innovation from the source of the National Research, Development and Innovation Fund, Hungary, Gábor Lotz: Research Grant: K_22 142604 grant of the National Research, Development and Innovation Office (Hungary).

P07.07.

EFFICACY OF POSTBIOTIC *L. REUTERI* DSMZ17648 IN *HELICOBACTER PYLORI* ERADICATION IN CHILDREN WITH CHRONIC GASTRITIS

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Objective: Postbiotic *L. reuteri* DSMZ17648 specifically coaggregates with *H. pylori (HP) in vitro*. We aim to assess the efficacy of *L. reuteri* DSMZ17648 as monotherapy or adjuvant therapy in *HP* eradication in children with chronic gastritis.
Patients and Methods: 103 children aged 9-17 years with histologically confirmed *HP* chronic gastritis were randomized into three groups. The study was double blind. Group 1 (n = 37): *L. reuteri* DSMZ17648 monotherapy 200 mg twice a day for 56 days. Group 2 (n = 32): standard OAMB regimen for 14 days + placebo for 56 days. Group 3 (n = 34): OAMB regimen for 14 days + *L. reuteri* for 56 days. Before therapy and on day 56, all children underwent upper endoscopy with four biopsies, histology, and rapid urease test AMA RUT. Ammonia breath test (ABT) Helic® was done before therapy and on days 28 and 56.
Results: *HP* eradication was achieved in group 1 (60%); group 2 (68.8%); group 3 (77.8%). ABT showed a statistically significant decrease across all groups by day 28, but further reductions were observed only in children who received *L. reuteri*. Histologically, *L. reuteri* monotherapy effectively reduced the abundance of *HP*. Abdominal pain relieved more rapidly in children in groups 1 and 3. Side effects (diarrhea) were observed in just 3 patients of group 2 and 1 in group 3.
Conclusions: Long-term *L. reuteri* DSMZ17648 monotherapy was effective almost like standard quadruple therapy, but safer. It might be used for treatment in mild to moderate *H. pylori* gastritis in children.

Conflicts of Interest
Elena Kornienko: None, Marina Dmitrienko: Ownership Interest: Co-owner of AMA Co. Ltd, Natalia Parolova: None.

P07.08.

EMPIRICAL SECOND-LINE TREATMENT IN EUROPE: DATA FROM 10,000 CASES FROM THE EUROPEAN REGISTRY ON *HELICOBACTER PYLORI* MANAGEMENT (HP-EUREG)

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Objective: After a first eradication attempt, a relevant proportion of patients fail to eradicate *Helicobacter pylori* (*H. pylori*). We aimed to evaluate second-line empirical treatment effectiveness.

Materials and Methods: A systematic, prospective registry of European gastroenterologists' clinical practice in *H. pylori* management was established (Hp-EuReg, a WorldHpReg partner). Infected adults were registered at AEG-REDCap e-CRF between January 2013 and January 2026. Modified intention-to-treat (mITT) and per-protocol (PP) analyses were performed.

Results: Overall, 10,350 patients received second-line empirical therapy. Overall effectiveness was 82% (mITT) and 83% (PP), with 97% compliance. Adverse events occurred in 19% of cases, mostly mild. Effectiveness of the most frequent empirical second-line treatments is shown in Table 1. Under optimized conditions (14-day duration and high-dose proton pump inhibitors), no therapy exceeded 90% effectiveness. After failure of first-line clarithromycin-containing therapy, triple therapy with amoxicillin-rifabutin/levofloxacin achieved 84% and 81%, respectively. Bismuth quadruple therapy with tetracycline-metronidazole (single-capsule or classical), clarithromycin-amoxicillin and levofloxacin-amoxicillin achieved 88%, 86%, 88% and 86%, respectively. In this subgroup under optimized conditions, concomitant therapy with amoxicillin-clarithromycin-metronidazole reached 90%, while bismuth quadruple therapy with tetracycline-metronidazole (classical) achieved 94% and with levofloxacin-amoxicillin 90%. After failure of bismuth quadruple therapy (classical or single-capsule), bismuth quadruple therapy with clarithromycin-amoxicillin achieved 95%, whereas the single-capsule regimen achieved 86%.

TABLE 1. Second-line empirical treatment prescriptions and effectiveness by treatment scheme and geographical region.

Treatment	N	Use (%)	mITT, N (%)	(95% CI)	PP, N (%)	(95% CI)
Single-capsule*	2,427	24	2,217 (88)	(86-89)	2,167 (88)	(87-90)
Triple-A+L	2,229	22	1,971 (80)	(78-82)	1,947 (80)	(78-82)
Quadruple-A+L+B	1,393	14	1,123 (86)	(84-88)	1,099 (86)	(84-88)
Quadruple-C+A+M	630	6.2	599 (82)	(79-85)	585 (83)	(79-86)
Quadruple-M+Tc+B	600	5.9	535 (85)	(82-88)	514 (86)	(83-89)
Triple-C+A	514	5.1	421 (74)	(70-78)	415 (74)	(70-79)
Quadruple-C+A+B	413	4	289 (89)	(86-93)	279 (90)	(86-94)
Triple-A+R	273	2.7	247 (83)	(78-88)	245 (83)	(80-88)
Triple-A+M	221	2.2	196 (59)	(52-66)	195 (59)	(52-66)
Other	1,460	14	NA	NA	NA	NA
Overall	10,160	100	8,864 (82)	(82-83)	8,689 (83)	(82-84)
Overall (optimized conditions)	2,227	22	1,907 (87)	(85-88)	1,866 (87)	(86-89)
East	1,610	16	1,333 (84)	(82-86)	1,293 (85)	(83-87)
East-Centre	1,901	18	1,366 (85)	(83-87)	1,349 (85)	(84-87)
South-West	4,462	43	4,182 (82)	(81-83)	4,095 (82)	(81-84)
West-Centre	1,669	16	1,512 (85)	(83-87)	1,489 (85)	(83-87)
North	708	6.8	634 (69)	(65-72)	615 (70)	(66-74)
Total	10,350	100	9,027 (82)	(81-83)	8,841 (83)	(82-83)

95% CI –confidence interval; mITT: modified intention-to-treat; PP: per-protocol, N: total number of patients analysed; C – clarithromycin; M – metronidazole; A – amoxicillin; L – levofloxacin; B – bismuth salts; Tc – tetracycline; R – rifabutin; Other – Other second-line empirical treatments with less than 150 patients treated in each category; East – Ukraine, Serbia, Bulgaria, Turkey, Russia, Romania, Albania, North Macedonia, Bosnia and Herzegovina, Kosovo, Moldova, Montenegro; East-Centre – Croatia, Poland, Hungary, Latvia, Lithuania, Greece, Slovenia, Czech Rep, Azerbaijan, Slovakia, Malta, Armenia, Georgia, Estonia; South-West – Portugal, Spain; West-Centre – France, Austria, Belgium, Germany, Italy; North – The United Kingdom, Finland, The Netherlands, Ireland, Israel, Norway, Switzerland, Sweden, Denmark; *three-in-one single-capsule containing tetracycline, metronidazole and bismuth.

Conclusions: In Europe, overall empirical second-line treatment effectiveness is suboptimal. Findings highlight the need for improved treatment strategies and support optimized approaches after first-line failure.

Conflicts of Interest

Pablo Parra: None, Laimas Jonaitis: None, Ángeles Pérez-Aísa: None, Samuel J. Martínez-Domínguez: None, Bojan Tepes: None, Matteo Pavoni: None, Giuseppe Losurdo: None, Ludmila G. Vologzanina: None, Irina N. Voynovan: None, Javier Tejedor-Tejada: None, Alfredo J. Lucendo: None, Juozas Kupcinskas: None, Antonio Gasbarrini: None, Dmitry S. Bordin: None, Mónica Sánchez Alonso: None, Leticia Moreira: None, Francis Mégraud: None, Colm O'Morain: None, Olga P. Nyssen*: Consultant/Advisory Board: -, Javier P. Gisbert*, on behalf of the Hp-EuReg investigators. *Both senior authors contributed equally to the study.: Employment (full or part-time): Full; Research Grant: -

P07.09.

T-LENGTH VARIATION IN THE PROMOTER REGION OF NICKEL-REGULATED SRNA IN *HELICOBACTER PYLORI* ISOLATES FROM CHILDREN

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Objective: *Helicobacter pylori* small regulatory RNA NikS is a nickel-responsive regulator of key virulence factors, including CagA and VacA in adults. Its expression is modulated by the length of a poly-thymine sequence in the promoter region. We investigated the previously unexplored association between T-repeat length variation and gastric inflammation severity and iron-deficiency anemia in children.

Patients and Methods: We analyzed 31 HP isolates from pediatric patients with gastritis. The *nikS* promoter region was amplified and sequenced using primers described by Kinoshita-Daitoku et al. (2020). Associations between T-repeat length and clinical and hematological variables were tested using the Mann-Whitney U test or Fisher's exact test.

Results: The *nikS* promoter poly-T tract ranged from 7 to 17 thymine residues (median: 15; IQR: 11-16). In contrast to previous studies, which evaluated adults who reported a narrower range of T-repeat variation with infection-driven elongation, we identified a broader distribution of T-repeat lengths in pediatric isolates. T-repeat length showed no association with inflammatory activity in the gastric antrum or body, hemoglobin levels, or iron-deficiency anemia. No association was detected between T-repeat variation and *cagA* status.

Conclusions: T-repeat length variation within the *nikS* promoter is common in pediatric HP isolates but was not associated with histopathological severity or hematological parameters. The clinical impact of NikS-mediated regulation likely reflects the interplay between bacterial and host factors, including virulence profiles and host immune responses. Our results suggest that the child HP-*nikS* may act as a protector against severe disease in HP infection in children.

Conflicts of Interest

Fabrício De Melo: Research Grant: Research productivity fellowship C – CNPq, Caio Lopes: Research Grant: Undergraduate research assistantship PRPPG/UFBA PIBIC-AF, Carlos Aguiar: Research Grant: Undergraduate research assistantship PRPPG/UFBA – PIBITI, Fabian Lemos: Research Grant: Undergraduate research assistantship PRPPG/UFBA – PIBIC, Nilton Rodrigues: Research Grant: Postdoctoral fellow at the Centro de Pesquisa René Rachou (Fiocruz Minas), Nagila Secundino: Research Grant: Research productivity fellowship 2 – CNPq, Alice Rodrigues: None, Maria Arantes: None, Henrique Delgado: Research Grant: Undergraduate research assistantship PRPPG/UFBA – PIBIC, Pedro Lima: None, Gifone Rocha: None, Dulciene De Queiroz: Research Grant: Research Productivity Fellowship 1A – CNPq.

P07.10.

PREVALENCE OF *HELICOBACTER PYLORI* INFECTION AMONG RESIDENTS OF MOSCOW

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Objective: The majority of gastric cancer cases are attributable to chronic *H. pylori* infection. The aim of the study is to assess the prevalence of *H. pylori* and precancerous lesions of gastric mucosa in the population of Moscow.

Materials and Methods: A representative sample of age and sex groups reflecting the city's population structure was formed. A total of 5,278 respondents (2,327 men (44.1%) and 2,951 women (55.9%), aged 18 to 80 years, who had not previously received eradication therapy were examined. All respondents underwent a ^{13}C-UBT and a blood test for pepsinogens (PG) I and II. EGDS with gastric mucosal biopsy using the new Sydney system and morphological examination using the OLGA system was performed in 515 individuals.
Results: *H. pylori* was found in 2,140 (40.7%) respondents. In 18-25-year-olds, it was 26%, increasing with age to 46.8% in the 56-65-year group. The serological marker of gastric mucosal atrophy (PG I ≤ 30 µg/L) was detected in 8.4% of cases. A PG I/PG II ratio of ≤3 was noted in 11.7% of cases. This atrophy marker increased from 3.4% in the 18–25-year-old cohort to 17.2% in those over 66 years of age. A correlation was observed between the PG I/PG II ratio and the stage of gastritis according to OLGA (r_s = -0.433; $p < 0.001$), most pronounced in the 46-55-year-old age group (r_s = -0.536; $p < 0.001$).
Conclusions: *H. pylori* prevalence was 40.7% among Moscow residents. A serological marker of gastric mucosal atrophy was revealed in 11.7% of respondents and increased with age.
Conflicts of Interest
Bordin Dmitriy: Ownership Interest: author, Nikolskaya Karine: Ownership Interest: co-author, Chebotareva Margarita: Ownership Interest: co-author, Voynovan Irina: Ownership Interest: co-author, Khomeriki Sergey: Ownership Interest: co-author, Parfenchikova Elena: Ownership Interest: co-author, Kuznetsova Elena: Ownership Interest: co-author, Maev Igor: Ownership Interest: co-author, Khatkov Igor: Speakers Bureau/Honoraria: co-author.

P07.11

INFLUENCE OF *H. PYLORI* STATUS ON THE FREQUENCY OF GASTROESOPHAGEAL REFLUX DISEASE SYMPTOMS

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Objective: Gastroesophageal reflux disease (GERD) affects 14% of adults worldwide, but the impact of concomitant *H. pylori* infection on the development of its symptoms is controversial. The aim of the study is to analyze the incidence of GERD symptoms depending on the presence of *H. pylori* infection.
Patients and Methods: We conducted an epidemiological study in the Moscow population in 2022-2025. A representative sample of age and sex groups reflecting the city's population structure was formed. We examined 5,107 people: 2,270 (44.4%) male and 2,837 (55.6%) female. The age of the subjects ranged from 18 to 80 years; the average age was 46.10 ± 15.18 years [median age was 45 (34; 59) years]. All respondents underwent ^{13}C-urea breath test (^{13}C-UBT). The results of ^{13}C-UBT, obtained using infrared spectrometry, were assessed using quantitative criteria: negative (DOB less than 4%) and positive (DOB more than 4%). All respondents completed a questionnaire on the presence and frequency of heartburn and regurgitation. The epidemiological criterion for GERD was the presence of heartburn and/or regurgitation at least once a week for the last 12 months.
Results: Among 5,107 subjects, *H. pylori* infection was detected in 2,016 (39.5%) of cases. The epidemiological criterion for GERD was found among respondents in both groups: 19.2% (387 of 2016) in *H. pylori*-positive respondents and 17.6% (545 of 3091) in *H. pylori*-negative respondents (p=0.157).
Conclusions: The epidemiological study in the Moscow population did not reveal any association between *H. pylori* status and the frequency of GERD symptoms.

Conflicts of Interest
Nikolskaya Karine: Ownership Interest: author, Chebotareva Margarita: Ownership Interest: co-author, Lomova Valeria: Ownership Interest: co-author, Bordin Dmitriy: Ownership Interest: co-author.

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P08.01.

CURRENT LIMITATION OF PCR-GUIDED OUTCOMES OF *HELICOBACTER PYLORI* ERADICATION THERAPY

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Objective: Clarithromycin resistance is a major cause of *Helicobacter pylori* eradication failure. PCR-based mutation testing may help guide tailored therapy, but real-world evidence remains limited. This study evaluated eradication outcomes according to PCR-detected resistance mutations and treatment regimens in routine practice.
Patients and Methods: This single-center retrospective study analyzed 38 patients. Mean age was 61.8±8.9 years, and 23 patients (60.5%) were male. Patients were classified by PCR results into A2143G mutation, A2142G mutation, and no-mutation groups. Eradication success was defined as a negative follow-up urea breath test (UBT).
Results: Overall eradication rate was 86.8% (33/38). PCR identified 17 patients with A2143G, 1 with A2142G, and 20 without detectable mutation. Eradication rates were 76.5% (13/17), 100.0% (1/1), and 95.0% (19/20), respectively. By regimen, eradication rates were 100.0% for clarithromycin-based triple therapy, 90.0% for clarithromycin-amoxicillin-metronidazole quadruple therapy, 75.0% for tetracycline-metronidazole-bismuth quadruple therapy, and 0% for levofloxacin-based therapy. Four of five treatment failures occurred in patients with the A2143G mutation.
Conclusions: PCR-based clarithromycin resistance testing may provide clinically useful information for selecting *H. pylori* eradication therapy. However, the lower eradication rate in the A2143G group suggests that a new empirical regimen should be considered in these patients.

Conflicts of Interest
Seunggyu Sun: None, Sujin Kim: None, Soobin Synn: None, Cheolwoong Choi: None.

P08.02.

SAFETY OF *HELICOBACTER PYLORI* ERADICATION THERAPIES: AN ANALYSIS OF 59,000 PATIENTS FROM THE EUROPEAN REGISTRY ON H. PYLORI MANAGEMENT (HP-EUREG)

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Objective: *Helicobacter pylori* (*H. pylori*) infection causes peptic ulcer disease and gastric cancer. While eradication treatment effectiveness is well established, real-world data on adverse events (AEs) and their impact on adherence remain limited.

Patients and Methods: We aimed to evaluate AEs frequency, type, intensity, and duration, and their influence on adherence, across commonly prescribed regimens. A multicenter, prospective registry evaluating *H. pylori* management by European gastroenterologists (Hp-EuReg, WorldHpReg partner). Data were registered at AEG-REDCap e-CRF between January 2013 and January 2026. Patients with at least one AE recorded were included. Patients receiving pro/prebiotics were excluded. Analyses were restricted to regimens prescribed in more than 100 patients.

Results: Overall, 58,911 patients from 38 European countries were analyzed (mean age 50 years, 60% female). At least one AE occurred in 18% of cases. Diarrhea (6%), nausea (5.6%), dysgeusia (4.9%), and abdominal pain (3.3%) were the most frequent. Most AEs were mild (58%), moderate (34%), and severe (7.6%). The duration was most commonly seven days. Among patients with AEs, 7.8% discontinued treatment, while 0.5% developed a serious AE. The highest incidence of AEs occurred with amoxicillin-metronidazole triple therapy (33%), and the lowest with clarithromycin-levofloxacin triple therapy and clarithromycin-metronidazole-bismuth quadruple therapy (11% each). Compliance was 97%, with all regimens above 90%. Table 1 shows AEs incidence and compliance by therapy.

Conclusions: AEs during *H. pylori* eradication therapy, although frequent, are generally mild, transient, and do not affect adherence.

Conflicts of Interest

Pablo Parra: None, Ángeles Pérez-Aísa: None, Bojan Tepes: None, Laimas Jonaitis: None, Umud Mahmudov: None, Samuel J. Martínez-Domínguez: None, Irina N. Voynovan: None, Luis Bujanda: None, Alfredo J. Lucendo: None, Javier Tejedor-Tejada: None, Juozas Kupcinskas: None, Gülüstan Babayeva: None, Dmitry S. Bordin: None, Irene Arteagoitia: None, Mónica Sánchez Alonso: None, Leticia Moreira: None, Francis Mégraud: None, Colm O'Morain: None, Olga P. Nyssen*: Consultant/Advisory Board: -, Javier P. Gisbert*, on behalf of the Hp-EuReg investigators. *Both senior authors contributed equally to the study.: Employment (full or part-time): Full; Research Grant: -

TABLE 1. Treatment safety and compliance according to the eradication therapy.

	Adverse events, N (%; 95% CI) **	Compliance, N (%; 95% CI) **
Dual-A	470 (13; 9.5-16)	469 (99; 98-100)
Triple-ML	107 (16; 8.5-23)	107 (97; 92-99)
Triple-CM	2,205 (13; 12-14)	2,192 (98; 97-98)
Triple-CL	202 (11; 6.3-15)	201 (97; 94-100)
Triple-CA	17,430 (12; 11-12)	17,202 (97; 97-97)
Triple-AM	1,311 (33; 30-35)	1,297 (97; 96-98)
Triple-AR	207 (18; 13-24)	206 (94; 91-98)
Triple-AL	2,624 (13; 12-15)	2,600 (97; 96-97)
Single-capsule*	11,659 (19; 18-20)	11,623 (97; 97-98)
Sequential-CAT	417 (15; 11-18)	416 (95; 93-98)
Sequential-CAM	517 (13; 9.6-16)	514 (99; 98-100)
Hybrid-CAM	197 (29; 23-36)	197 (99; 96-100)
Quadruple-MTcB	1,672 (25; 23-27)	1,623 (96; 95-97)
Quadruple-MDB	454 (18; 15-22)	449 (96; 94-98)
Quadruple-CMB	236 (11; 7.2-16)	236 (98; 95-99)
Quadruple-CAT	349 (22; 18-27)	348 (94; 91-96)
Quadruple-CAM	9,433 (22; 21-22)	9,402 (97; 97-98)
Quadruple-CAB	6,361 (26; 25-27)	6,354 (98; 98-99)
Quadruple-AMB	1,032 (25; 22-28)	1,022 (99; 98-99)
Quadruple-ALB	1,536 (21; 19-23)	1,530 (97; 96-98)
Quadruple-ABJ	492 (28; 24-33)	492 (97; 96-99)
Total	58,911 (18; 18-18)	58,480 (97; 97-97)

A: amoxicillin; B: bismuth; C: clarithromycin; D: doxycycline; J: josamycin; L: levofloxacin; M: metronidazole; R: rifabutin; T: tinidazole; Tc: tetracycline; *three-in-one single-capsule containing tetracycline, metronidazole and bismuth; **Statistically significant differences (p<0.05) between the analyzed therapies.

P08.03.

HELICOBACTER PYLORI LARGE LANGUAGE MODELS BENCHMARK AND FINE-TUNING USING INFORMATION FROM THE EUROPEAN REGISTRY ON *H. PYLORI* MANAGEMENT (HP-EUREG)

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Objective: This study aimed to develop a specialized language model capable of answering complex, domain-specific questions on *Helicobacter pylori* (*H. pylori*) using data from the European Registry on *H. pylori* Management (Hp-EuReg, WorldHpReg partner), with the goal of improving access to structured clinical knowledge through AI tools.

Materials and Methods*:* Up to 50 Hp-EuReg scientific publications were analyzed. Text was extracted using an automated PDF processing pipeline and manually reviewed to ensure accuracy. After data cleaning, approximately 500 high-quality question-answer pairs were generated. A web-based platform enabled Hp-EuReg gastroenterologists to validate the dataset. This curated corpus was used to fine-tune three compact models: Llama 3.1 8B, Phi-4 4B, and MedGemma3 4B. Performance was assessed using an automated benchmark of 114 expert-designed multiple-choice questions and compared with leading large language models, including GPT-5 mini, GPT-4o, and o4-mini.

Results: Benchmark results showed that GPT-5 mini, GPT-4o, and GPT-4.1 achieved the highest accuracy (92%), followed by o4-mini (88%). Among compact models, MedGemma3 4B reached 72%, Llama 3.1 8B 71%, and Phi-4 improved from 56% to 67% after fine-tuning. Large models showed strong reasoning capacity and extensive embedded medical knowledge. Fine-tuning provided limited gains for MedGemma3 but significantly improved performance in the general-purpose Phi-4 model.

Conclusions: Fine-tuning with a curated, domain-specific dataset enhances the performance of compact models in *H. pylori*-related tasks, particularly for general-purpose architectures such as Phi-4. Future work will focus on expanding the dataset and developing a Retrieval-Augmented Generation (RAG) chatbot integrating national guidelines to support personalized, region-specific clinical decision-making.

Conflicts of Interest

Antonello Scalmato*: None, Olga P. Nyssen*: None, Carola Motolese: None, Riccardo Gjini: None, Samuel J. Martínez-Domínguez: None, Pablo Parra: None, Leticia Moreira: None, Tania Fleitas Kanonnikoff**: Consultant/Advisory Board: -, Javier P. Gisbert**, on behalf of the AIDA Consortium. *Both first authors contributed equally to the study, **Both senior authors contributed equally to the study: None.

P08.04.

EFFECTIVENESS OF FIRST-LINE EMPIRICAL *HELICOBACTER PYLORI* TREATMENT OUTSIDE EUROPE: RESULTS OF 15,000 CASES FROM THE WORLD-WIDE REGISTRY ON *H. PYLORI* MANAGEMENT (WORLDHPREG)

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Objective: *Helicobacter pylori* (*H. pylori*) infection remains a major global health concern, with treatment effectiveness varying across regions due to antibiotic resistance, healthcare practices, and access to care.
Materials and Methods: We aimed to evaluate the effectiveness of empirical first-line therapies for *H. pylori* infection outside Europe. Data were obtained from the global, multicenter, prospective registry on *H. pylori* management (WorldHpReg; AEG-REDCap; 2022-2025). Effectiveness was analyzed using a modified intention-to-treat (mITT) analysis. Optimal effectiveness was defined as a mITT cure rate ≥90%.
Results: Overall, 15,559 empirical first-line treatments were analyzed. More than 100 regimens were prescribed, though most cases involved only 12. Overall effectiveness was 86%. Bismuth-based quadruple therapies achieved the highest effectiveness (≈90%), particularly those including amoxicillin-levofloxacin, metronidazole-tetracycline (single-capsule or traditional formulation), amoxicillin-metronidazole, and amoxicillin-doxycycline. Clarithromycin-amoxicillin triple therapy, concomitant quadruple therapy (clarithromycin-amoxicillin-metronidazole), and dual amoxicillin therapy reached optimal effectiveness only in specific regions. Multivariate analysis showed higher effectiveness for concomitant quadruple and dual therapies. The remaining regimens were suboptimal (Table 1). Adherence was the strongest predictor of success. Only 10-day regimens with high-dose proton pump inhibitors or potassium-competitive acid blockers (PCABs) achieved approximately 90% effectiveness. Higher effectiveness was independently associated with PCAB use and 14-day treatment duration.

Conclusions: Outside Europe, bismuth-based quadruple therapies are the most consistently effective first-line treatments. Treatment success is strongly influenced by adherence, longer duration (10-14 days), and use of PCABs.

Conflicts of Interest

Olga P. Nyssen*: None, Pablo Parra*: None, Arnoldo Riquelme: None, Diego Reyes-Placencia: None, Luiz Gonzaga Vaz Coelho: None, Mohamed Alboraie: None, Shivaram Prasad Singh: None, Ratha-korn Vilaichone: None, Stella I. Smith: None, Shailja C. Shah: None, Lubna Kamani: None, Fahad Alsohaibani: None, Sander Veldhuyzen van Zanten: None, Maisam Waid Akroush: None, Stephen J. Inns: None, Peter Katelaris: None, Ibrahim A. Naqid: None, Gantuya Boldbaatar: None, Leticia Moreira**: Consultant/ Advisory Board: -, Javier P. Gisbert**, on behalf of the WorldHpReg investigators. *Both first authors contributed equally to the study, **Both senior authors contributed equally to the study: None.

TABLE 1. First-line empirical modified intention-to-treat effectiveness in non-European countries/regions.

Treatment	LATAM	Brazil	North Africa	Sub-Saharan Africa	ASEAN	India	Pakistan	United States	Jordan	Saudi Arabia	Canada	New Zealand	Australia	Total
Triple-C+A	1,811 (80.3%)	2,208 (79.3%)	397 (86.1%)	53 (92.5%)	445 (68.3%)	526 (99.6%)	69 (62.3%)	81 (100%)	14 (100%)	4 (50%)	2 (50%)	35 (94.3%)	19 (94.7%)	5,664 (81.5%)
Concomitant-C+A+M	867 (91.2%)	1 (100%)	167 (82.6%)	40 (90%)	185 (57.8%)	–	–	1 (100%)	29 (86.2%)	–	45 (91.1%)	– –	– –	1,335 (85.4%)
Dual-A	656 (84%)	218 (86.7%)	–	–	38 (92.1%)	–	–	–	–	–	–	–	–	912 (85%)
Quadruple-A+M+B	302 (93.7%)	–	–	–	–	–	–	–	–	–	–	–	–	302 (93.7%)
Quadruple-M+D+B	385 (83.9%)	4 (100%)	–	–	2 (50%)	–	–	49 (98%)	–	–	–	–	–	440 (85.5%)
Triple-A+L	318 (83%)	24 (70.8%)	346 (88.2%)	14 (100%)	41 (80.5%)	345 (99.7%)	17 (35.3%)	5 (100%)	–	11 (100%)	1 (100%)	–	–	1,122 (89.1%)
Quadruple-M+Tc+B	187 90.9%)	51 (98%)	–	2 (100%)	33 (51.5%)	–	–	29 (100%)	–	1 (100%)	6 (100%)	–	–	309 (89%)
Quadruple-C+A+B	267 (80.9%)	12 (91.7%)	–	–	58 (72.4%)	–	–	–	–	–	–	–	–	337 (79.8%)
Quadruple-A+D+B	183 (97.3%)	–	–	–	–	–	–	–	–	–	–	–	–	183 (97.3%)
Single-capsule*	519 (94.6%)	–	7 (100%)	– –	– –	– –	– –	3 (100%)	1 (100%)	68 (88.2%)	–	–	–	598 (94%)
Triple-C+T	–	–	–	46 (69.6%)	–	–	–	–	–	–	–	–	–	46 (69.6%)
Others	446 (85.7%)	88 (78.4%)	572 (96.5%)	24 (91.7%)	387 (80.4%)	874 (99.4%)	102 (73.5%)	15 (100%)	46 (100%)	1 (100%)	–	2 (100%)	–	2,557 (91.7%)
Overall	**5,941 (85.9%)**	**2,606 (80.3%)**	**1,489 (90.3%)**	**179 (86.6%)**	**1,189 (71.5%)**	**1,745 (99.5%)**	**188 (66%)**	**183 (99.5%)**	**90 (95.6%)**	**85 (88.2%)**	**54 (90.7%)**	**37 (94.6%)**	**19 (94.7%)**	**13,805 (85.8%)**

A: amoxicillin; C: clarithromycin; M: metronidazole; Tc: tetracycline; T: tinidazole; B: bismuth; D: doxycycline; L: levofloxacin; Single capsule: single-capsule bismuth quadruple therapy containing metronidazole, tetracycline and bismuth salts; LATAM: Latin America – Mexico, Argentina, Chile, Colombia, Peru, Bolivia, Costa Rica, Honduras, Ecuador, Paraguay, Uruguay, and Guatemala; North Africa: Egypt, Tunisia, Mauritania, and Morocco; Sub-Saharan Africa: Zambia, Cameroon, Namibia, Nigeria, and Tanzania; ASEAN: Association of Southeast Asian Nations – Thailand, Cambodia, Myanmar, Laos, and Vietnam.

P08.05.

ANTIBIOTIC-INDUCED BIOCHEMICAL SHIFTS IN THE PREFORMED *HELICOBACTER PYLORI* BIOFILM

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Objective: The biofilm matrix acts as a robust, non-selective barrier that shields *Helicobacter pylori* from antimicrobial agents. Our previous findings established a correlation between antibiotic resistance and the production of proteinaceous biofilm matrix of *H. pylori*. The current research aimed to evaluate the efficacy of antibiotics at minimum inhibitory concentrations (MICs) against preformed *H. pylori* biofilms and their impact on the matrix's biochemical composition.
Materials and Methods: Biofilms of clinical *H. pylori* strains were developed using both stationary and microfluidic models. These preformed biofilms were then treated with antibiotics (clarithromycin, metronidazole, or levofloxacin) at their respective MICs. Antibiotic-exposed biofilms were evaluated for biomass, protein level, and the specific matrix amino acid profiles.
Results: Exposure of mature *H. pylori* biofilms to MIC values slowed their further development but failed to exert a bactericidal effect. Clarithromycin exhibited the most significant inhibitory effect on continued biofilm growth, while metronidazole was the least effective. Despite antibiotic exposure, the overall protein level within the biofilm matrix remained relatively stable across all experimental groups; however, significant modifications were observed within the amino acid profile of the biofilm matrix.
Conclusions: While antibiotics at MIC values influence various physiological characteristics of the *H. pylori* biofilm, this structure in its mature form remains highly resilient and effectively resists antibiotic exposure.

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Conflicts of Interest
Paweł Krzyżek: None, Kaja Tusiewicz: None, Barbara Krzyżanowska: None, Michał Małaszczuk: None, Paweł Szpot: None.

P08.06.

PRESCRIPTION OF FIRST-LINE EMPIRICAL TREATMENTS FOR *HELICOBACTER PYLORI* INFECTION OUTSIDE EUROPE: RESULTS FROM 15,000 CASES IN THE WORLD-WIDE REGISTRY ON *H. PYLORI* MANAGEMENT (WORLDHPREG)

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**BOTH FIRST AUTHORS CONTRIBUTED EQUALLY TO THE STUDY, ***BOTH SENIOR AUTHORS CONTRIBUTED EQUALLY TO THE STUDY*[1]
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Objective: *Helicobacter pylori* (*H. pylori*) infection is a global health problem. We evaluated non-European empirical first-line prescription patterns.
Materials and Methods: Data were retrieved from the global, multicenter, prospective registry on *H. pylori* management (WorldHpReg; AEG-REDCap; 2022-2025). Descriptive analyses were performed.
Results: Overall, 19,377 non-European cases were included, of whom 15,559 (80%) received empirical first-line therapy. The mean age was 48 years, with 59% female, 26% Caucasian, 22% Asian, and 4.5% Black. Main symptoms were dyspepsia (68%) and heartburn (26%). The main diagnostic methods used were histology (60%), the rapid urease test (19%), and the monoclonal stool antigen test (14%). Over 100 regimens were prescribed (Table 1). PPI-amoxicillin-clarithromycin triple therapy was the most

TABLE 1. First-line empirical prescriptions in non-European countries/regions.

Treatment	LATAM	Brazil	North Africa	Sub-Saharan Africa	ASEAN	India	Pakistan	United States	Jordan	Saudi Arabia	Canada	New Zealand	Australia	Total
Triple-C+A	1,811 (30.5%)	2,208 (84.7%)	397 (26.7%)	53 (29.6%)	445 (37.4%)	526 (30.1%)	69 (36.7%)	81 (44.3%)	14 (15.6%)	4 (4.7%)	2 (3.7%)	35 (94.6%)	19 (100%)	5,664 (41%)
Concomitant-C+A+M	867 (14.6%)	1 (0%)	167 (11.2%)	40 (22.3%)	185 (15.6%)	–	–	1 (0.5%)	29 (32.2%)	–	45 (83.3%)	–	–	1,335 (9.7%)
Dual-A	656 (11%)	218 (8.4%)	–	–	38 (3.2%)	–	–	–	–	–	–	–	–	912 (6.6%)
Quadruple-A+M+B	302 (5.1%)	–	–	–	–	–	–	–	–	–	–	–	–	302 (2.2%)
Quadruple-M+D+B	385 (6.5%)	4 (0.2%)	–	–	2 (0.2%)	–	–	49 (26.8%)	–	–	–	–	–	440 (3.2%)
Triple-A+L	318 (5.4%)	24 (0.9%)	346 (23.2%)	14 (7.8%)	41 (3.4%)	345 (19.8%)	17 (9.0%)	5 (2.7%)	–	11 (12.9%)	1 (1.9%)	–	–	1,122 (8.1%)
Quadruple-M+Tc+B	187 (3.1%)	51 (2.0%)	–	2 (1.1%)	33 (2.8%)	–	–	29 (15.8%)	–	1 (1.2%)	6 (11.1%)	–	–	309 (2.2%)
Quadruple-C+A+B	267 (4.5%)	12 (0.5%)	–	–	58 (4.9%)	–	–	–	–	–	–	–	–	337 (2.4%)
Quadruple-A+D+B	183 (3.1%)	–	–	–	–	–	–	–	–	–	–	–	–	183 (1.3%)
Single-capsule*	519 (8.7%)	–	7 (0.5%)	–	–	–	–	3 (1.6%)	1 (1.1%)	68 (80.0%)	–	–	–	598 (4.3%)

Continued

TABLE 1 *(Continued)*. First-line empirical prescriptions in non-European countries/regions.

Treatment	LATAM	Brazil	North Africa	Sub-Saharan Africa	ASEAN	India	Pakistan	United States	Jordan	Saudi Arabia	Canada	New Zealand	Australia	Total
Triple-C+T	–	–	–	46 (25.7%)	–	–	–	–	–	–	–	–	–	46 (0.3%)
Others	446 (7.5%)	88 (3.4%)	572 (38.4%)	24 (13.4%)	387 (32.5%)	874 (50.1%)	102 (54.3%)	15 (8.2%)	46 (51.1%)	1 (1.2%)	–	2 (5.4%)	–	2,557 (18.5%)
Overall	**5,941 (100%)**	**2,606 (100%)**	**1,489 (100%)**	**179 (100%)**	**1,189 (100%)**	**1,745 (100%)**	**188 (100%)**	**183 (100%)**	**90 (100%)**	**85 (100%)**	**54 (100%)**	**37 (100%)**	**19 (100%)**	**13,805 (100%)**

A: amoxicillin; C: clarithromycin; M: metronidazole; Tc: tetracycline; T: tinidazole; B: bismuth; D: doxycycline; L: levofloxacin; Single capsule: single-capsule bismuth quadruple therapy containing metronidazole, tetracycline and bismuth salts; LATAM: Latin America – Mexico, Argentina, Chile, Colombia, Peru, Bolivia, Costa Rica, Honduras, Ecuador, Paraguay, Uruguay, and Guatemala; North Africa: Egypt, Tunisia, Mauritania, and Morocco; Sub-Saharan Africa: Zambia, Cameroon, Namibia, Nigeria, and Tanzania; ASEAN: Association of Southeast Asian Nations – Thailand, Cambodia, Myanmar, Laos, and Vietnam.

frequent (47%) in New Zealand (100%), Pakistan (80%), and India (61%). PPI-amoxicillin-clarithromycin-metronidazole concomitant quadruple therapy was prescribed in 11% of cases in Canada (82%) and Jordan (65%). Other regimens included PPI-amoxicillin-levofloxacin triple therapy (9.1%) and PPI-amoxicillin dual therapy (8.1%). Single-capsule therapy was mainly used in Saudi Arabia (78%) and Latin America (6.2%); other bismuth-containing combinations accounted for 18%. Dual therapy with amoxicillin and a potassium-competitive acid blocker was used in Latin America (89%) and ASEAN (11%). Most treatments lasted 14 days (82%), with low-dose (33%) or high-dose (37%) PPIs. Vonoprazan, tegoprazan, and fexuprazan were used in 9.2%, 2.8%, and 1%, respectively.

Conclusions: Marked regional heterogeneity exists in empirical first-line *H. pylori* therapies, with predominance of PPI-amoxicillin-clarithromycin triple therapy and limited use of quadruple regimens, highlighting the need for improved local protocols to increase eradication rates.

Conflicts of Interest

Pablo Parra*: None, Leticia Moreira*: None, Arnoldo Riquelme: None, Diego Reyes-Placencia: None, Luiz Gonzaga Vaz Coelho: None, Mohamed Alboraie: None, Shivaram Prasad Singh: None, Ratha-korn Vilaichone: None, Stella I. Smith: None, Shailja C. Shah: None, Lubna Kamani: None, Fahad Alsohaibani: None, Sander Veldhuyzen van Zanten: None, Maisam Waid Akroush: None, Stephen J. Inns: None, Peter Katelaris: None, Ibrahim A. Naqid: None, Gantuya Boldbaatar: None, Olga P. Nyssen**: Consultant/Advisory Board: -, Javier P. Gisbert**, on behalf of the WorldHpReg investigators. *Both first authors contributed equally to the study, **Both senior authors contributed equally to the study: None.

P08.07.

EPITOPE-LEVEL PROFILING OF CAGA ANTIBODY RESPONSE IN CANCER-ASSOCIATED COHORTS

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Objective: *Helicobacter pylori* CagA seropositivity is commonly assessed as a binary marker of exposure, although antibody recognition may differ across individual CagA epitopes. Epitope-level profiling could provide additional information on the cancer-associated heterogeneity of CagA-directed humoral responses.

Materials and Methods: Serum samples from various cancer and precancerous cohorts and study controls were analyzed using a peptide-based CagA ELISA panel that covers selected immunoreactive CagA regions. Peptide reactivity was evaluated in relation to comparator *H. pylori* and CagA serology. Epitope level response profiles were compared across study groups and associated clinical characteristics.
Results: *H. pylori* CagA-directed antibody responses exhibited heterogeneous epitope-recognition patterns across the study groups analyzed. Among CagA-seropositive samples, cancer displayed distinct peptide-reactivity profiles, suggesting that binary CagA serostatus does not fully capture the diversity of anti-CagA humoral responses. Epitope-level profiling revealed differences in both response magnitude and targeted regions across the CagA antigen. These patterns were further analyzed against tumor-associated and clinical variables to determine relations between specific epitope-reactivity profiles with disease severity and potential confounders.
Conclusions: Epitope-resolved *H. pylori* CagA serology provides a more detailed characterization of anti-CagA antibody responses than binary serostatus alone. This reveals distinct patterns of immune heterogeneity across cancer and related cohorts and establishes epitope-level profiling as a powerful tool for dissecting CagA-associated disease mechanisms.

Conflicts of Interest
Alex Sirp: Research Grant: Protobios acknowledges fundings from the Estonian Ministry of Economic Affairs and Communications (8-1/79-1) , the Estonian Ministry of Education and Research (5.1-4/20/170 and the Center of Excellence grant No TK214), the Estonian Research Council (PRG1953 and PSG691), the EBIA (RE.5.04.22-0077) and from the EU Horizon Europe programme grants No 101095436 and 101188432., Maria Piirsalu: Research Grant: Protobios acknowledges fundings from the Estonian Ministry of Economic Affairs and Communications (8-1/79-1) , the Estonian Ministry of Education and Research (5.1-4/20/170 and the Center of Excellence grant No TK214), the Estonian Research Council (PRG1953 and PSG691), the EBIA (RE.5.04.22-0077) and from the EU Horizon Europe programme grants No 101095436 and 101188432., Arno Pihlak: Research Grant: Protobios acknowledges fundings from the Estonian Ministry of Economic Affairs and Communications (8-1/79-1) , the Estonian Ministry of Education and Research (5.1-4/20/170 and the Center of Excellence grant No TK214), the Estonian Research Council (PRG1953 and PSG691), the EBIA (RE.5.04.22-0077) and from the EU Horizon Europe programme grants No 101095436 and 101188432., Annika Rähni: Research Grant: Protobios acknowledges fundings from the Estonian Ministry of Economic Affairs and Communications (8-1/79-1) , the Estonian Ministry of Education and Research (5.1-4/20/170 and the Center of Excellence grant No TK214), the Estonian Research Council (PRG1953 and PSG691), the EBIA (RE.5.04.22-0077) and from the EU Horizon Europe programme grants No 101095436 and 101188432., Helen Ausman: Research Grant: Protobios acknowledges fundings from the Estonian Ministry of Economic Affairs and Communications (8-1/79-1) , the Estonian Ministry of Education and Research (5.1-4/20/170 and the Center of Excellence grant No TK214), the Estonian Research Council (PRG1953 and PSG691), the EBIA (RE.5.04.22-0077) and from the EU Horizon Europe programme grants No 101095436 and 101188432., Regina Maruste: Research Grant: Protobios acknowledges fundings from the Estonian Ministry of Economic Affairs and Communications (8-1/79-1) , the Estonian Ministry of Education and Research (5.1-4/20/170 and the Center of Excellence grant No TK214), the Estonian Research Council (PRG1953 and PSG691), the EBIA (RE.5.04.22-0077) and from the EU Horizon Europe programme grants No 101095436 and 101188432., Loviisa Pihlas: Research Grant: Protobios acknowledges fundings from the Estonian Ministry of Economic Affairs and Communications (8-1/79-1) , the Estonian Ministry of Education and Research (5.1-4/20/170 and the Center of Excellence grant No TK214), the Estonian Research Council (PRG1953 and PSG691), the EBIA (RE.5.04.22-0077) and from the EU Horizon Europe programme grants No 101095436 and 101188432., Maarja Toots: Research Grant: Protobios acknowledges fundings from the Estonian Ministry of Economic Affairs and Communications (8-1/79-1) , the Estonian Ministry of Education and Research (5.1-4/20/170 and the Center of Excellence grant No TK214), the Estonian Research Council (PRG1953 and PSG691), the EBIA (RE.5.04.22-0077) and from the EU Horizon Europe programme grants No 101095436 and 101188432, Margus Annuk: Research Grant: Protobios acknowledges fundings from the Estonian Ministry of Economic Affairs and Communications (8-1/79-1) , the Estonian Ministry of Education and Research (5.1-4/20/170 and the Center of Excellence grant No TK214), the Estonian Research Council (PRG1953 and PSG691), the EBIA (RE.5.04.22-0077) and from the EU Horizon Europe programme grants No 101095436 and 101188432., Jayden Khakurel: Research Grant: Protobios acknowledges fundings from the Estonian Ministry of Economic

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P08.08.

INVESTIGATING PREDICTORS OF *HELICOBACTER PYLORI* ERADICATION FAILURE IN A LATVIAN POPULATION-BASED SCREENING COHORT

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Objective: Patient-level predictors of *H. pylori* eradication failure may inform tailored treatment, but population-based data from Northern/Eastern Europe are scarce.

Patients and Methods: Within the Multicentric randomized study of *H. pylori* eradication and pepsinogen testing for prevention of gastric cancer mortality (GISTAR) in Latvia, generally healthy individuals aged 40-64 were randomized during 2013-2023; those in the intervention group testing *H. pylori*-positive received 14-day standard triple therapy. Participants enrolled ≥4 years were retested by urea breath test (UBT) during 2023-2026. Binary logistic regression modeled eradication failure against baseline type 2 diabetes (T2D), smoking status, BMI, proton pump inhibitor (PPI) use, and alcohol intake (log2 g/month), adjusting for age and sex, with sensitivity analyses for ≤8- and ≤6-year follow-up windows.

Results: Of 1,086 participants (median age 52, IQR 11; 61% female), 175 (16.1%) had persistent infection at follow-up. T2D was the strongest predictor of failure (aOR 3.75, 95% CI 1.60-8.49, $p < 0.01$), with an effect that strengthened at ≤8 years (aOR 5.35, 95% CI 1.70-16.9) but lost significance at ≤6 years, likely due to small group size. Male sex was protective (aOR 0.67, 95% CI 0.45-0.98, $p = 0.04$). Current smoking was non-significant overall but emerged in shorter windows (≤8 years: aOR 1.97, $p = 0.02$; ≤6 years: aOR 2.60, $p = 0.03$).
Conclusions: In this Latvian population-based cohort, T2D was strongly and independently associated with *H. pylori* eradication failure, confirming this association in an underrepresented population and supporting consideration of T2D status when planning eradication therapy.

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Conflicts of Interest
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P08.09.

FIRST CANADIAN DATA OF THE WORLD-WIDE REGISTRY ON *HELICOBACTER PYLORI* MANAGEMENT (WORLDHPREG)

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Objective: The optimal treatment regimen for *Helicobacter pylori* (*H. pylori*) infection remains uncertain. Canadian data on treatment practices, effectiveness, and adverse events are limited.
Patients and Methods: This was a multicenter, prospective registry evaluating the management of *H. pylori* infection and its outcomes by Canadian gastroenterologists (Hp-CanadaReg, a WorldHpReg partner). Data were collected using the AEG-REDCap electronic case report form (e-CRF). Treatment success was evaluated by modified intention-to-treat analysis.
Results: Since August 2024, 147 patients were enrolled across Canada; most were treatment-naïve (76%, 112/147) and 90% (73/81) achieved eradication after treatment (Table 1). Most patients (95%, 140/147) received treatment for 14 days. Patients received treatment with low-dose (71%, 103/145), standard-dose (8%, 12/145), or high-dose (21%, 30/145) proton-pump inhibitors (PPIs). Among first-line treatments, eradication rates were 90% (45/50) with the non-bismuth quadruple concomitant therapy, consisting of PPI-amoxicillin-metronidazole-clarithromycin (PAMC), and 100% (7/7) with the bismuth quadruple therapy, consisting of PPI-bismuth-metronidazole-tetracycline (PBMT). At least one adverse event occurred in 62% (68/110) of patients, most commonly diarrhea (30%, 33/110), nausea (23%, 25/110), dysgeusia (20%, 22/110), and vomiting (9%, 10/110). One patient who received PAMC experienced a serious adverse event, requiring hospitalization for suspected penicillin allergy. Treatment compliance (>90% of prescribed medication) was 95% (91/96).

TABLE 1. Treatments for *H. pylori* and success rates by treatment line.

Treatment	1st line (mITT)	2nd line (mITT)	3rd line (mITT)	4th line (mITT)	5th line (mITT)	Total
PAMC	45/50 (90%)	0/1 (0%)				45/51 (88%)
PBMT	7/7 (100%)	6/7 (86%)	3/3 (100%)	1/3 (33%)	1/1 (100%)	18/21 (86%)
PAL	1/1 (100%)		1/1 (100%)	0/1 (0%)		2/3 (67%)
PAC	1/2 (50%)	1/1 (100%)				2/3 (67%)
PAR			0/1 (0%)	0/1 (0%)	2/2 (100%)	2/4 (50%)
HDDT		1/1 (100%)			1/2 (50%)	2/3 (67%)
PAMB			1/1 (100%)			1/1 (100%)
PACB		0/1 (0%)				0/1 (0%)

mITT (modified intention-to-treat); PAMC (PPI-amoxicillin-metronidazole-clarithromycin); PBMT (PPI-bismuth-metronidazole-tetracycline); PAL (PPI-amoxicillin-levofloxacin); PAC (PPI-amoxicillin-clarithromycin); PAR (PPI-amoxicillin-rifabutin); HDDT (high-dose dual therapy, consisting of PPI and amoxicillin); PAMB (PPI-amoxicillin-metronidazole-bismuth); PACB (PPI-amoxicillin-clarithromycin-bismuth).

Conclusions: In Canada, most *H. pylori* eradication regimens are prescribed for 14 days and with low-dose PPIs. Both PAMC and PBMT achieved first-line treatment success rates ≥90% in treatment-naïve patients.

Conflicts of Interest

Thomas Krahn: None, George Ou: None, Chris Rueda-Clausen: None, Matthew Miles: Speakers Bureau/Honoraria: Knight Pharmaceutical and Lupin Pharmaceuticals, Ray Odsen: None, Tina Khalilzadehsabet: None, Nicholas Ting: None, Cherry Galorport: None, Micah Ten-Pow: None, Shari Smith: None, Natalie Willett: None, Pablo Parra: Research Grant: None for this topic, Leticia Moreira: Research Grant: None for this topic; Consultant/Advisory Board: Juvisé, Olga P. Nyssen: Research Grant: None for this topic; Consultant/Advisory Board: Juvisé, Javier P. Gisbert*: Research Grant: None for this topic; Consultant/Advisory Board: Dr. Gisbert has served as speaker, consultant, and advisory member for or has received research funding from: Mayoly, Diasorin, Juvisé, Biocodex, Zambon, Sander Veldhuyzen van Zanten*: Speakers Bureau/Honoraria: Xediton Pharmaceuticals Inc.

P08.10.

EMPIRICAL RESCUE THERAPY FOR *HELICOBACTER PYLORI* INFECTION IN ITALY: DATA FROM THE ITALIAN REGISTRY ON *HELICOBACTER PYLORI* TREATMENT (HP-ITAREG)

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Objective: *Helicobacter pylori* (*H. pylori*) eradication is difficult to achieve in at least 10-20% of patients. We aimed to assess the patterns and effectiveness of empirical rescue treatment of *H. pylori* infection in clinical practice in Italy.
Materials and Methods: The "Italian Registry on *Helicobacter pylori* treatment" (Hp-ItaReg) is a prospective, multicenter study enrolling adult patients who received treatment for *H. pylori* infection across 18 centers in Italy. All patients who received treatment after failure of at least two empirical eradication attempts were assessed for effectiveness using modified intention-to-treat (mITT) and per-protocol (PP) analyses.
Results*:* A total of 555 cases were included. Of these, 242 (43.6%) received single capsule bismuth quadruple therapy (BQT), 153 (27.6%) rifabutin triple therapy, 71 (12.8%) levofloxacin triple therapy, 25 (4.5%) sequential therapy, 20 (3.6%) amoxicillin-metronidazole triple therapy, and 44 (7.9%) other regimens. A total of 65 cases were lost to follow-up, 490 were included in the mITT analysis and 479 in the PP analysis. According to mITT and PP analyses, eradication rates were 82.2% (180/219) and 84% (179/213) with single capsule BQT, 64.7% (86/133) and 65.2% (86/132) with rifabutin triple therapy, 59.7% (37/62) and 59% (36/61) with levofloxacin triple therapy, 52.4% (11/21) and 55% (11/20) with sequential therapy, 83.3% (15/18) and 87.5% (14/16) with amoxicillin-metronidazole triple therapy.
Conclusions: Single-capsule BQT and rifabutin triple therapy are the regimens most frequently prescribed for rescue treatment of *H. pylori* in Italy. Single-capsule BQT and amoxicillin-metronidazole triple therapy were the most effective, with eradication rates slightly above 80%.

Conflicts of Interest
Rocco Maurizio Zagari: None, Berardino Vaira: None, Alessandro Federico: None, Alba Panarese: None, Davide Giuseppe Ribaldone: None, Antonio Gasbarrini: None, Marco Ferrara: None, Fausto Lella: None, Gerardo Nardone: None, Omero Alessandro Paoluzi: None, Roberto Catanzaro: None, Claudia Chiala: None, Bruno Annibale: None, Simona Bartolozzi: None, Rita Conigliaro: None, Francesco Luzza: None, Stefano Bargiggia: None, Renato Cannizzaro: None, Enrico Mussomeli: None, Franco Bazzoli: None.

P08.11.

INTERLEUKIN (IL)-27 UNCOUPLES FROM IMMUNE REGULATION IN PEDIATRIC *HELICOBACTER PYLORI*-ASSOCIATED DUODENAL ULCER

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Objective: *Helicobacter pylori* infection is typically acquired in childhood and usually results in mild disease. However, a subset of children develops duodenal ulcer (DU), likely due to heterogeneity in host immune responses. We assessed whether DU is associated with an IL-27–related imbalance between pro-inflammatory (Th1/Th17) and Th2/regulatory pathways.
Patients and Methods: Gastric mucosal cytokines (IL-12p70, TNF-α, IFN-γ, IL-6, TGF-β, IL-23, IL-17, IL-4, IL-10, and IL-27) were quantified using ELISA in children classified as HP-negative (n = 25), HP-positive gastritis (n = 34), or DU (n = 14). Group differences were analyzed using the Kruskal-Wallis test with pairwise comparisons. Cytokine correlations were assessed using Spearman's rank test.

Results: IL-27 increased progressively, reaching the highest levels in DU. Gastritis exhibited a regulated profile, with higher IL-10 and detectable IL-4. In contrast, DU showed a predominant pro-inflammatory pattern, marked by increased IL-12p70 and TNF-α and absence of IL-4. Despite elevated IL-27 levels, regulatory activity was not preserved in DU. IL-27 correlated positively with IL-12p70 and TNF-α and negatively with IL-6. IL-17 was higher in infected children and greater in gastritis than in DU, whereas IL-23 remained unchanged. No association was observed between IL-27 and *cagA/vacA* status.
Conclusions: DU reflects an immune imbalance with predominance of Th1/Th17 over regulatory and Th2 responses. Although IL-27 levels are highest in DU, this increase does not correspond to effective immune regulation; instead, it is associated with a sustained pro-inflammatory profile, consistent with impaired regulatory control and persistent Th1 polarization.

Conflicts of Interest
Dulciene De Queiroz: Research Grant: Research Productivity Fellowship 1A - CNPq, Carlos Aguiar: Research Grant: Undergraduate research assistantship PRPPG/UFBA - PIBITI, Fabian Lemos: Research Grant: Undergraduate research assistantship PRPPG/UFBA - PIBIC, Filipe Da Silva: None, Breno De Brito: None, Maria Santos: None, Hanna Marques: None, Caio Lopes: Research Grant: Undergraduate research assistantship PRPPG/UFBA PIBIC-AF, Gifone Rocha: None, Fabrício De Melo: Research Grant: Research productivity fellowship C – CNPq.

P08.12.

EFFECTIVENESS AND SAFETY OF SINGLE-CAPSULE BISMUTH QUADRUPLE THERAPY IN 16,000 PATIENTS FROM THE EUROPEAN REGISTRY ON *HELICOBACTER PYLORI* MANAGEMENT (HP-EUREG)

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Objective: Three-in-one single-capsule bismuth quadruple therapy (proton pump inhibitor [PPI]-bismuth-tetracycline-metronidazole) is widely used in Europe for eradicating *Helicobacter pylori* (*H. pylori*) infection, although real-world evidence requires evaluation.
Patients and Methods: We assessed the effectiveness and safety of single-capsule (Pylera®) therapy for *H. pylori* eradication. Data from the European Registry on *H. pylori* Management (Hp-EuReg, World-HpReg partner) were analyzed (AEG-REDCap, 2013-January 2026). Adults treated with the 10-day single-capsule regimen, 3 capsules q.i.d. (standard) or 4 t.i.d. (alternative), were included. Effectiveness was evaluated using modified intention-to-treat analysis.
Results: Among 90,264 patients, 15,800 (17%) received single-capsule therapy. Most were treatment-naïve (79%). Overall effectiveness was 92% with the standard regimen and 94% with the alternative (p<0.001). First-line eradication reached 94%, decreasing to 88% in second-line, and 84% in rescue therapy. Optimized regimens in rescue settings did not achieve ≥90% effectiveness. Compliance was high (97%) and strongly associated with success (OR: 8.1; 95% CI: 6.2-10.5). Standard- (OR: 1.4; 1.2-1.6) and high-dose PPIs (OR: 1.5; 1.2-1.7) improved effectiveness, whereas rescue therapy (OR: 0.3; 0.3-0.4) was associated with lower eradication rates. Adverse events occurred in 22% of patients, were generally mild, and led to treatment discontinuation in 1.8%; serious events were rare (0.1%).
Conclusions: Single-capsule bismuth quadruple therapy achieves high first-line effectiveness with a favorable safety profile. Effectiveness declines in rescue settings but improves with adherence and adequate acid suppression.

Conflicts of Interest
Olga P. Nyssen: None, Ángeles Pérez-Aísa: None, Javier Tejedor-Tejada: None, Antonietta G. Gravina: None, Samuel J. Martínez-Domínguez: None, Alfredo J. Lucendo: None, Monica Perona: None, Antonio Gasbarrini: None, María Soledad Marcos: None, Blas José Gómez Rodríguez: None, Giuseppe Losurdo: None, Óscar Núñez: None, Antonio Moreno Loro: None, Mónica Sánchez Alonso: None, Virginia Flores: None, Pablo Parra: None, Leticia Moreira: None, Francis Mégraud: None, Colm O'Morain: None, Javier P. Gisbert: None.

TABLE 1. Three-in-one single-capsule effectiveness, compliance and safety in first line and rescue treatment lines.

	Use, N (%)	mITT, N (%)	95% CI	PP, N (%)	95% CI	Compliance, N (%)	95% CI	AEs, N (%)	95% CI
Overall	15,800 (17*)	13,797 (92)	(91-92)	13,630 (93)	(92-93)	15,393 (97%)	(97-97)	15,372 (21.5%)	(20-23)
1st line (naïve)	12,493 (79)	9,449 (93)	(93-94)	9,299 (94)	(93-94)	11,896 (97%)	(97-98)	12,213 (21%)	(20-22)
2nd line	2,427 (15)	1,721 (87)	(85-89)	1,684 (88)	(86-89)	2,314 (96%)	(95-97)	2,307 (23%)	(21-25)
3rd to 6th line	879 (5.6)	662 (83)	(80-86)	643 (84)	(81-87)	858 (94%)	(94-96)	852 (30%)	(26-33)

*Of the total of treatments included in the Hp-EuReg up to January 2026 (i.e., N= 90,264); mITT: modified intention-to-treat; PP: per-protocol; N: total number of patients analysed; CI: confidence interval; AEs: adverse events.

POSTER SESSION 09 - HELICOBACTER 7

P09.01.

OPTIMUM SECOND-LINE REGIMENS FOR *HELICOBACTER PYLORI* ERADICATION: RESULTS OF A SYSTEMATIC REVIEW WITH META-ANALYSIS

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Objective: *Helicobacter pylori* (*H. pylori*) infection remains a global health burden. First-line eradication therapies fail in 10-20% of cases, mainly due to increasing antibiotic resistance, requiring effective second-line strategies. The aim of the study is to assess comparative efficacy of second-line *H. pylori* treatments *via* head-to-head randomized controlled trials (RCTs).

Materials and Methods: A systematic review of RCTs was conducted up to January 2026. Eligible studies compared at least two second-line eradication therapies, reported prior first-line treatment including ≥2 antibiotics, and excluded susceptibility-guided or adjuvant-based regimens. Efficacy was evaluated by intention-to-treat analysis and stratified by first-line therapy. Data were pooled using the Mantel-Haenszel method to estimate risk differences (RDs). Heterogeneity was explored through subgroup analyses. The Cochrane tool assessed risk of bias.

Results: Overall, 53 RCTs (41 head-to-head comparisons) across six first-line failure scenarios were included. Significant differences were observed between second-line regimens (Table 1). Bismuth-containing quadruple therapies were consistently more effective than other alternatives. Classical bismuth quadruple therapy, with proton pump inhibitor (PPI)-metronidazole-tetracycline, outperformed multiple comparators, including clarithromycin-based and non-bismuth regimens. Tetracycline-containing therapies generally surpassed levofloxacin-based regimens, while levofloxacin-based and some simplified regimens showed lower eradication rates.

Conclusions: Efficacy of second-line *H. pylori* therapies varies depending on the initially failed regimen. Bismuth-based quadruple therapies, particularly PPI-bismuth-metronidazole-tetracycline, were the most effective option after first-line failure. Tetracycline-containing regimens showed superior performance than levofloxacin-based therapies. Findings support preferential use of bismuth-based and tetracycline-containing regimens.

Conflicts of Interest

Daniel J. Garcia Martinez*: None, Olga P. Nyssen*: None, Pablo Parra: None, Alicia C. Marín: None, Almudena Crespo Cañizares: None, Gema Escobar Aguilar: None, Elia Fernández-Martínez: None, Elena García García: None, Sonsoles Hernandez Iglesias: None, Carlos Enrique Sánchez Martín: None, David Varillas Delgado: None, Jesús López-Alcalde: None, Carlos Martín-Saborido**: Consultant/Advisory Board: -, Javier P. Gisbert**, *Both first authors contributed equally to the study, **Both senior authors contributed equally to the study.: None.

TABLE 1. Risk Difference (RD) of second-line rescue regimens for *H. pylori* infection according to previous treatment failure.

First-line therapy failed	Comparison of second-line therapies	Risk Difference [95% CI]	No. of studies[1]
PPI + A + C	RBC + M + Tc *vs.* RBC + Az	-0.32 [-0.55, -0.10] *	1
PPI + A + C	PPI + B + M + Tc *vs.* PPI + A + Mx	0.03 [-0.09, 0.16]	3
PPI + A + C	PPI + A + B + M *vs.* PPI + A + B + Tc	0.07 [-0.05, 0.19]	1
PPI + A + C	PPI + A + L *vs.* PPI + A + Tc	-0.11 [-0.25, 0.03]	1
PPI + A + C	PPI + A + L *vs.* PPI + B + M + Tc	-0.04 [-0.22, 0.13]	5
PPI + A + C	PPI + B + C + M *vs.* PPI + B + M + Tc	0.25 [0.07, 0.43] *	1
PPI + A + C	RBC + M + Tc *vs.* PPI + B + M + Tc	-0.30 [-0.52, -0.09] *	1
PPI + A + C	RBC + M + Tc *vs.* PPI + A + L	0.00 [-0.18, 0.18]	1
PPI + A + C	PPI + A + L *vs.* PPI + A + M	0.21 [0.09, 0.33] *	2
PPI + A + C	PPI + A *vs.* PPI + A + M	0.01 [-0.22, 0.23]	3
PPI + A + C	PPI + A + M + Tc *vs.* PPI + B + M + Tc	0.02 [-0.08, 0.12]	1
PPI + A + C	PPI + B + M + Tc *vs.* PPI + Az + L	-0.08 [-0.40, 0.24]	2
PPI + A + C	RBC + A + C *vs.* RBC + M + Tc	0.25 [0.03, 0.47] *	1
PPI + A + C	PPI + A + M *vs.* H2RA + A + M	-0.02 [-0.09, 0.06]	2
PPI + A + C	PPI + B + M + Tc (7d) *vs.* PPI + B + M + Tc (14d)	0.08 [-0.01, 0.16]	5
PPI + A + C	PPI + A + M (500 mg) *vs.* PPI + A + M (750 mg)	0.03 [-0.08, 0.14]	1
PPI + A + C	PPI + B + M + Tc *vs.* RBC + B + M + Tc	-0.03 [-0.22, 0.17]	1
PPI + A + C	PPI + B + M + Tc *vs.* PPI + L + M	-0.16 [-0.32, -0.01] *	1
PPI + A + C	PPI + A + L *vs.* PPI + L + T	-0.04 [-0.13, 0.05]	1
PPI + A + C	PPI + A + L *vs.* PPI + Az + L	-0.07 [-0.25, 0.12]	1
PPI + A + C	RBC + A + C *vs.* RBC + A + T	0.38 [0.16, 0.59] *	1
PPI + A + C	RBC + A + C *vs.* RBC + C + T	0.19 [-0.05, 0.43]	1
PPI + A + C	PPI + A + L *vs.* RBC + A + T	0.02 [-0.11, 0.15]	1
PPI + A + C	PPI + A + M *vs.* PPI + A + C + M	0.04 [-0.10, 0.18]	1
PPI + A + C	PPI + B + M + Tc *vs.* PPI + C + M + Tc	-0.03 [-0.20, 0.15]	1
PPI + A + C	PPI + B + M + Tc/D *vs.* [PPI + A] + [PPI + C + T]	0.06 [-0.14, 0.26]	1
PPI + A + C	PPI + A + L *vs.* [PPI + A] + [PPI + L + M]	0.10 [-0.01, 0.20]	1
PPI + A + C	PPI + A + B + F *vs.* PPI + A + L	0.07 [-0.05, 0.20]	1
PPI + A + C	PPI + A + B *vs.* PPI + A	-0.04 [-0.21, 0.12]	1
PPI + A + C	PPI + B + L + Tc *vs.* PPI + A + L	-0.29 [-0.42, -0.16] *	1
PPI + A + C	PPI + B + L + Tc *vs.* PPI + A + B + L	-0.10 [-0.36, 0.15]	1
PPI + A + C	[PPI + A] + [PPI + L + M] *vs.* PPI + B + M + Tc	-0.00 [-0.06, 0.05]	1
PPI + C + M	PPI + B + F + L *vs.* PPI + B + F + R	0.15 [0.01, 0.30] *	1
PPI + C + M	PPI + A + C *vs.* PPI + B + M + Tc	0.50 [-0.10, 1.10]	1
PPI + B + M + Tc	PPI + B + Tc + L *vs.* PPI + A + L	0.00 [-0.48, 0.48]	1
RBM + M + Tc	PPI + A + C *vs.* PPI + B + M + Tc	-0.15 [-0.50, 0.20]	1
PPI + A + B + M	PPI + A + B + C *vs.* PPI + Az + B + O	0.13 [0.01, 0.25] *	1
PPI + A + C + M	PPI + B + L + Tc *vs.* PPI + A + L	0.43 [0.18, 0.67] *	1
PPI + A + C + M	PPI + B + L + Tc *vs.* PPI +A + B + L	-0.26 [-0.49, -0.04] *	1

Number of studies included in each comparison; RD-risk difference; CI-confidence interval; PPI-proton pomp inhibitor; A-amoxicillin; Az-azithromycin; B-bismuth; C-clarithromycin; D-doxycycline; F-furazolidone; L-levofloxacin; Mx-moxifloxacin; M-metronidazole; O-ofloxacin; R-rufloxacin; T-tinidazole; Tc-tetracycline; RBC-ranitidine bismuth citrate; H2RA: Histamine-2 receptor antagonist; *significant differences in head-to-head comparisons (p<0.05). Interpretation of RD: a positive RD (>0) favours the treatment listed on the right of the comparison, whereas a negative RD (<0) favors the treatment listed on the left.

P09.02.

DIAGNOSTIC APPROACHES FOR *HELICOBACTER PYLORI* IN EUROPE: INSIGHTS FROM OVER 80,000 PATIENTS IN THE EUROPEAN REGISTRY ON *H. PYLORI* MANAGEMENT (HP-EUREG)

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Objective: Multiple diagnostic methods are available for detecting *Helicobacter pylori* (*H. pylori*) infection, classified as invasive or non-invasive. Test selection depends on clinical context, including age and alarm symptoms. The aim of the study is to analyze real-world clinical practices in *H. pylori* testing, evaluating invasive and non-invasive methods used for initial diagnosis and post-treatment confirmation.
Patients and Methods: We analyzed data from a multicenter, prospective registry evaluating *H. pylori* management by European gastroenterologists (Hp-EuReg, WorldHpReg partner). Data were registered at AEG-REDCap e-CRF from January 2013 to January 2026. Only patients with validated diagnostic and eradication confirmation methods were analyzed.
Results: Overall, 81,360 patients (mean age 50±15 years; 60% female) from 41 European countries were included. In treatment-naïve patients (n=68,808), non-invasive tests alone were used in 31%, invasive in 60%, and both in 9%. Histology and rapid urease test (37% each) were most frequent, followed by the ^{13}C-urea breath test (24%). Invasive testing was more common in patients >50 years (63% *vs.* 56%). The distribution of diagnostic tests in treatment-naïve patients across countries is shown in Table 1. For eradication confirmation (regardless of the treatment line), non-invasive tests were used in 91%, invasive in 7.5%, and both in 1.9%. The ^{13}C-urea breath test (63%) and the monoclonal stool antigen test (24%) were the most used.

Conclusions: *H. pylori* testing shows variability across Europe and suboptimal adherence to non-invasive recommendations, highlighting the need to improve guideline implementation.

Conflicts of Interest

Pablo Parra*: None, Olga P. Nyssen*: None, Ángeles Pérez-Aísa: None, Irina N. Voynovan: None, Bojan Tepes: None, Umud Mahmudov: None, Laimas Jonaitis: None, Samuel J. Martínez-Domínguez: None, Alfredo J. Lucendo: None, Javier Tejedor-Tejada: None, Luis Bujanda: None, Dmitry S. Bordin: None, Gülüstan Babayeva: None, Juozas Kupcinskas: None, Mónica Sánchez Alonso: None, Irene Arteagoitia: None, Leticia Moreira: None, Francis Mégraud: None, Colm O'Morain: Consultant/Advisory Board: -, Javier P. Gisbert, on behalf of the Hp-EuReg investigators. *Both first authors contributed equally to the study.: Employment (full or part-time): Full; Research Grant: -

TABLE 1. The test used to establish the initial diagnosis of *H. pylori* infection in treatment-naïve patients per country.

	Non-invasive test	13C-urea breath test	14C-urea breath test	Serology	Monoclonal stool antigen test	Polyclonal stool antigen test	Urea Breath Test Helik	Stool PCR test	Invasive test	Histology	Rapid urease test	Culture	Biochemical resistance test (antigens, FISH)	Gastric tissue PCR test	Non-invasive test + Invasive test
Albania (n=139)	48.9%	2.2%	2.2%	1.4%	29.5%	13.7%	0%	0%	51.1%	50.4%	0.7%	0%	0%	0%	0%
Armenia (n=25)	0%	4%	0%	0%	0%	0%	0%	0%	96%	0%	100%	0%	0%	0%	4%
Austria (n=442)	5.7%	1.6%	0%	1.4%	2.7%	0.5%	0%	0%	93.9%	88.9%	4.5%	0.9%	0.7%	0%	0.5%
Azerbaijan (n=7,005)	1.3%	0%	0%	0.1%	1.1%	0.1%	0.1%	0%	98.7%	0.3%	98.5%	0%	0%	0%	0.1%
Belgium (n=108)	2.8%	3.7%	0%	2.8%	0.9%	0%	0%	0%	93.5%	96.3%	0%	35.2%	0%	0%	3.7%
Bosnia & Herzegovina (n=91)	57.1%	2.2%	1.1%	15.4%	27.5%	18.7%	0%	1.1%	36.3%	5.5%	38.5%	0%	0%	1.1%	6.6%
Bulgaria (n=172)	18%	4.7%	3.5%	1.2%	14.5%	0.6%	0%	0%	77.9%	23.3%	27.3%	50%	2.3%	0%	4.1%
Croatia (n=752)	16%	0.3%	0%	0%	16.2%	0.1%	0.1%	0%	83.2%	50.1%	27.8%	7.2%	0%	0%	0.8%
Czech Republic (n=940)	7.7%	0.9%	0.1%	0.1%	4.5%	2.8%	0.1%	0%	91.6%	63.3%	37%	4.6%	0%	0%	0.7%
Denmark (n=21)	19%	14.3%	0%	0%	4.8%	0%	0%	0%	81%	19%	61.9%	0%	0%	0%	0%
Estonia (n=1)	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%	0%	0%	0%	0%	0%
Finland (n=6)	0%	0%	0%	0%	16.7%	0%	0%	0%	83.3%	83.3%	0%	100%	0%	0%	16.7%
France (n=212)	5.7%	6.6%	0.5%	3.3%	0%	0%	0%	0%	90.1%	93.4%	0.5%	10.4%	2.4%	4.2%	4.2%
Georgia (n=263)	30.8%	1.9%	0%	1.1%	27.4%	0%	3.8%	0%	66.5%	59.7%	14.1%	0%	0%	0%	2.7%
Germany (n=498)	7.6%	6%	0%	2.8%	4%	0.6%	0%	0%	88.8%	88.6%	18.5%	4%	0%	0%	3.6%
Greece (n=846)	6.1%	7.6%	0%	1.3%	0.2%	0.4%	0%	0%	90.5%	45%	64.1%	32.3%	0.2%	0%	3.3%
Hungary (n=375)	23.2%	22.7%	1.3%	20.5%	6.7%	0.3%	0%	0%	50.4%	68.5%	34.1%	0.5%	29.1%	0%	26.4%
Ireland (n=1,408)	33.8%	33.7%	0%	3.2%	0.3%	0.1%	0.1%	0%	65.8%	37.5%	44.2%	2.3%	0.1%	0%	0.4%

Continued

TABLE 1 *(Continued)*. The test used to establish the initial diagnosis of *H. pylori* infection in treatment-naïve patients per country.

	Non-invasive test	13C-urea breath test	14C-urea breath test	Serology	Mono-clonal stool antigen test	Polyclonal stool antigen test	Urea Breath Test Helik	Stool PCR test	Invasive test	Histology	Rapid urease test	Culture	Bioche-mical resistance test (antigens, FISH)	Gastric tissue PCR test	Non-invasive test + Invasive test
Israel (n=233)	32.2%	26.2%	1.7%	0.4%	5.6%	1.7%	0%	0%	65.7%	49.4%	19.3%	0.9%	0%	0%	2.1%
Italy (n=4,571)	15.9%	79.5%	0.2%	0.2%	3.5%	0.9%	0.1%	1.8%	16.3%	83.2%	65.4%	63.3%	1.7%	0%	67.8%
Kosovo (n=62)	58.1%	1.6%	0%	16.1%	41.9%	0%	0%	0%	41.9%	4.8%	37.1%	0%	0%	0%	0%
Latvia (n=951)	16.6%	9.4%	0%	8.5%	0.1%	0%	0%	0%	82.1%	45.1%	39.5%	0%	0%	0%	1.3%
Lithuania (n=1,932)	34.3%	2.9%	0.4%	27.6%	3.2%	1.3%	0.1%	0%	64.9%	26%	40.1%	0.1%	0%	0%	0.8%
Malta (n=99)	0%	0%	0%	0%	0%	0%	0%	0%	100%	2%	98%	0%	0%	0%	0%
Moldova (n=308)	40.6%	0.6%	0%	2.3%	39.6%	0%	0%	0.3%	57.8%	1.9%	57.8%	0%	0%	0%	1.6%
Montenegro (n=17)	41.2%	0%	0%	0%	41.2%	0%	0%	0%	58.8%	58.8%	0%	0%	0%	0%	0%
Netherlands) (n=125)	21.6%	18.4%	0%	4.8%	1.6%	0%	0%	0%	75.2%	69.6%	6.4%	4%	0%	0%	3.2%
North Macedonia (n=256)	100%	88.7%	0%	10.9%	0.4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Norway (n=1,293)	20%	1.9%	0%	28.2%	4.5%	0.2%	0.2%	0%	66.7%	9.3%	21.1%	56.9%	0%	0%	13.3%
Poland (n=623)	23.6%	3.5%	0%	1.8%	6.1%	3.9%	9.8%	0%	75.6%	15.2%	69.3%	0.2%	0%	0%	0.8%
Portugal (n=843)	7.4%	0.7%	4.5%	2.3%	0%	0%	0.1%	0%	92.4%	92.6%	0.1%	0.1%	0%	0%	0.2%
Romania (n=82)	18.3%	3.7%	0%	12.2%	3.7%	0%	0%	0%	81.7%	70.7%	28%	0%	0%	0%	0%
Russia (n=12,915)	47%	34.4%	0.1%	19.1%	9.8%	1.5%	1.5%	0.9%	36.9%	23.5%	32%	0.9%	0.9%	0.9%	16.1%
Serbia (n=974)	34.1%	2.4%	0.2%	3.3%	28.2%	1.6%	0.2%	0.2%	64%	23.5%	42.1%	0.1%	2.4%	6%	2%
Slovakia (n=21)	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%	4.8%	14.3%	0%	0%	0%
Slovenia (n=4,011)	10.2%	13.5%	0.1%	2.8%	1.6%	0.1%	0%	0%	84.5%	27.2%	72.7%	5.5%	0%	0%	5.2%
Spain (n=24,135)	43.7%	26.2%	0.5%	1%	16.6%	1.5%	0.1%	0%	54.9%	43.7%	13.1%	3%	0%	0.1%	1.4%
Switzerland (n=445)	5.6%	3.6%	0%	0.2%	2.2%	0%	0%	0.2%	93.7%	80%	66.3%	0.2%	0%	0%	0.7%
Turkey (n=467)	12.8%	0.2%	5.4%	0.9%	6.9%	0%	0%	0%	86.7%	55.7	32.3%	0%	0%	0%	0.4%
United Kingdom (n=509)	48.7%	1.2%	0.8%	18.9%	30.6%	0.8%	0%	0%	48.9%	27.7%	26.3%	0.4%	0%	0%	2.4%
Ukraine (n=632)	29.3%	3.5%	0%	18.4%	6%	0.3%	2.7%	0.3%	68.8%	60.1%	11.1%	0.2%	0%	0%	1.9%
Total (n=68,808)	31.4%	23.6%	0.3%	6.3%	9.9%	1.1%	0.5%	0.3%	59.5%	37.3%	37.1%	7.7%	0.5%	0.3%	9%

P09.03.

COMPARATIVE EVALUATION OF SELECTIVE RAPID UREASE TEST VERSUS PCR IN DIAGNOSTIC OF *HELICOBACTER PYLORI* INFECTION

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Objective: Invasive diagnostic methods for *Helicobacter pylori* detection often suffer from interference by blood, bile, and other contaminants. Selective rapid urease tests (RUTs) that minimize such interference are therefore clinically valuable. However, their diagnostic performance relative to molecular methods remains insufficiently studied. This study compares a novel selective rapid urease test (AMA-RUT) with PCR and culture in patients with dyspepsia.
Patients and Methods: A total of 35 patients presenting with dyspepsia were enrolled. Biopsy samples were obtained from both the gastric body and antrum. Each sample was tested using PCR (reference molecular method) and AMA-RUT (selective rapid urease test). Positivity rates were calculated for each method and anatomical site.
Results: PCR detected *H. pylori* in 34.3% of patients overall (28.8% in the gastric body, 34.3% in the antrum). The AMA-RUT detection rates: 35.5% in the body and 36.4% in the antrum. Overall, the detection rates of AMA-RUT were close to those of PCR. The minimal observed differences may be attributed to the reduced interference of blood and biliary components with the selective rapid urease test. No substantial evidence of false-positive results associated with specimen impurities was noted within the framework of this study.
Conclusions: The selective rapid urease test AMA-RUT demonstrates detection rates comparable to those of PCR for *H. pylori* in gastric biopsies. Its relative independence from blood and biliary contaminants suggests potential utility in routine clinical practice, particularly in settings where molecular diagnostic methods are not readily accessible. Further studies with larger sample sizes are warranted to more precisely evaluate the specificity and potential limitations of this method.

Conflicts of Interest
Natalia Baryshnikova: None, Elena Ermolenko: None, Anastasia Ilyina: None, Yury Uspenskiy: None, Alexander Suvorov: None.

P09.04.

PREVALENCE OF VAC AND *JHP* GENES IN *H. PYLORI*-ASSOCIATED GASTRITIS AND GASTRIC ULCER

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Objective: The role of cag genes of *Helicobacter pylori* in disease development is actively studied, while vac and *jhp* genes remain less investigated. Understanding the prevalence of these genetic markers is crucial for predicting clinical outcomes. The study aims to analyze the frequency of vac and *jhp* genes in patients with *H. pylori*-associated gastritis and gastric ulcer to identify potential genotype-phenotype associations.
Patients and Methods: A total of 16 patients were enrolled: 12 with *H. pylori*-associated gastritis and 4 with gastric ulcer. Bacterial DNA was analyzed for *vacA* subtypes (m1b, m1a, m2, s1a) and *jhp* genes (*jhp0918*, *jhp0917*) using PCR-based methods. Frequency distributions were calculated for each group.

Results: In gastritis patients, *vacAm2* was the most common subtype (58.3%), followed by *vacAm1b* (41.7%) and *vacAm1a* (16.7%). In contrast, all ulcer patients (100%) carried vacAm2, while vacAm1b and vacAm1a were absent. vacAs1a showed equal prevalence in both groups (25% each). Regarding *jhp* genes, *jhp0918* was detected in 36.4% of gastritis cases but 0% of ulcers; *jhp0917* was found in 33.3% of gastritis cases and 0% of ulcers.
Conclusions: The vacAm2 subtype is universally present in gastric ulcer patients and predominates in gastritis. Notably, *vacAm1b, vacAm1a, jhp0918, and jhp0917* were exclusive to gastritis, suggesting their potential protective or neutral role. These findings highlight the need for larger studies to clarify the clinical utility of vac and jhp genotyping in *H. pylori* management.

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Research Grant
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P09.05.

REAL-WORLD EFFICACY AND SAFETY OF ADDING REBAMIPIDE TO FIRST-LINE *HELICOBACTER PYLORI* ERADICATION THERAPY: RESULTS FROM THE EUROPEAN REGISTRY ON *H. PYLORI* MANAGEMENT (HP-EUREG)

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Objective: Rebamipide is a gastroprotective agent widely used in Japan, South Korea, and Russia. Meta-analyses of randomized controlled trials indicate that adding rebamipide to *Helicobacter pylori* (*H. pylori*) eradication therapy improves treatment effectiveness; however, large-scale real-world data are lacking. This study evaluates the effectiveness and safety of first-line empirical therapy with rebamipide added to eradication regimens in Russia.

Patients and Methods: Data from treatment-naïve patients were collected at AEG-REDCap (from January 2020 to August 2024) in Russian centers participating in the European Registry on *H. pylori* Management (Hp-EuReg, WorldHpReg partner), an international, prospective, multicenter, observational study. Rebamipide-containing regimens were analyzed and compared with those without rebamipide. Effectiveness was assessed using a modified intention-to-treat approach.
Results: Overall, 4,581 patients (mean age 48±15 years, 64% women) were included: 820 received rebamipide and 3,761 did not. Overall effectiveness was higher with rebamipide (96% [731/763] *vs.* 91% [2,785/3,059]; $p<0.001$). Adding rebamipide to proton pump inhibitor (PPI)-clarithromycin-amoxicillin triple therapy (Triple-CA) improved effectiveness to 93% ($p<0.001$) and adding to PPI-clarithromycin-amoxicillin-bismuth quadruple therapy (Quad-CAB) to 97% ($p<0.05$), compared with 79% and 95% without rebamipide, respectively. Multivariate analysis confirmed the added benefit of rebamipide in these regimens. Adverse events were more frequent with rebamipide (46% *vs.* 29%, $p<0.0001$), mainly dyspepsia and nausea; none were serious or caused discontinuation. Compliance was similar (99% *vs.* 98.5%, $p>0.05$).
Conclusions: In real-world Russian clinical practice, adding rebamipide to Triple-CA or Quad-CAB significantly improved *H. pylori* eradication rates but increased adverse events, predominantly dyspepsia and nausea; however, compliance remained unchanged, reflecting acceptable overall tolerability.

Conflicts of Interest
Dmitry Bordin: Speakers Bureau/Honoraria: speaker for Abbott, AstraZeneca, Biocodex, PRO.MED.CS Praha a.s., Dr. Reddy's Laboratories, Alfasigma, Reckitt Benckiser., Dmitry Andreev: None, Sayar Abdulkhakov: None, Irina Voynovan: None, Igor Bakulin: None, Natalia Bakulina: None, Ludmila Vologzhanina: None, Larisa Tarasova: None, Alla Kononova: None, Galina Tarasova: None, Olga Kolokolnikova: None, Maria Livzan: None, Alba Singla: None, Oriol Farrés: None, Leticia Moreira: None, Pablo Parra: Research Grant: European Union programme HORIZON (grant agreement number 101095359) and supported by the UK Research and Innovation (grant agreement number 10058099). European Union programme EU4Health (grant agreement number 101101252).; Other Research Support: European Helicobacter and Microbiota Study Group (EHMSG; www.helicobacter.org) and received support from the Spanish Association of Gastroenterology (AEG) and the Centro de Investigación Biomédica en Red de Enfermedades Hepáticas y Digestivas (CIBERehd)., Olga Nyssen: Research Grant: European Union programme HORIZON (grant agreement number 101095359) and supported by the UK Research and Innovation (grant agreement number 10058099). European Union programme EU4Health (grant agreement number 101101252).; Other Research Support: European Helicobacter and Microbiota Study Group (EHMSG; www.helicobacter.org) and received support from the Spanish Association of Gastroenterology (AEG) and the Centro de Investigación Biomédica en Red de Enfermedades Hepáticas y Digestivas (CIBERehd).; Speakers Bureau/Honoraria: speaker for Mayoly, Diasorin, Juvisé, Biocodex, Zambon., Francis Megraud: None, Colm O'Morain: None, Javier Gisbert: Research Grant: European Union programme HORIZON (grant agreement number 101095359) and supported by the UK Research and Innovation (grant agreement number 10058099). European Union programme EU4Health (grant agreement number 101101252).; Other Research Support: European Helicobacter and Microbiota Study Group (EHMSG; www.helicobacter.org) and received support from the Spanish Association of Gastroenterology (AEG) and the Centro de Investigación Biomédica en Red de Enfermedades Hepáticas y Digestivas (CIBERehd).; Speakers Bureau/Honoraria: speaker for Mayoly, Diasorin, Juvisé, Biocodex, Zambon.

P09.06.

THE METABOLIC PRICE OF CURE: LONG-TERM ANTHROPOMETRIC, GLUCOSE AND LIPID SHIFTS FOLLOWING QUADRUPLE THERAPIES FOR *HELICOBACTER PYLORI* INFECTION

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Objective: *Helicobacter pylori* (*H. pylori*) infection remains a major public health problem. Given the high resistance to antibiotics worldwide, quadruple regimens have emerged as first-line therapies for *H. pylori* infection, though their long-term consequences remain unclear. This study aimed to evaluate major changes in the metabolic profile and body composition of patients submitted to *H. pylori* eradication using different quadruple therapies.

Patients and Methods: Patients were enrolled in a blind, randomized trial and assigned to one of five eradication regimens: A (Concomitant with metronidazole tid, 14 days); B (Concomitant with metronidazole bid, 14 days); C (Bismuth-containing Quadruple, 10 days); D (Sequential, 14 days); E (Hybrid, 14 days). Esomeprazole was the proton-pump inhibitor of choice. Efficacy, clinical safety, and metabolic changes were evaluated at 2 and 12 months post-treatment, including changes in body composition assessed by anthropometry and bioelectrical impedance analysis, lipid profile, glucose metabolism (glucose, insulin, glycohemoglobin, HOMA-IR), and systemic inflammation (ESR, CRP).

Results: A total of 233 patients completed the protocol (mean age 57.6±16.2 years; 52.8% males). Overall eradication and clinical adverse event rates were 97.9% and 53.6%, respectively. Following successful eradication, significant metabolic shifts were observed across all groups, including decreases in insulin and glycated hemoglobin (Z=4.04-5.12; p<0.03). Conversely, there was a significant increase in LDL-cholesterol, BMI, abdominal circumference, waist-to-hip ratio (WHR), total/visceral fat mass, and rates of obesity/visceral obesity (Z=4.33-13.05; p<0.03). Comparing the different treatment protocols, regimen B (Concomitant with metronidazole bid, 14 days) induced the most pronounced metabolic impact, significantly increasing WHR and total/visceral fat mass, compared to other therapies (Z=2.00-2.52; p<0.05). During follow-up, 37 patients (16.4%) experienced *H. pylori* recurrence, which was significantly associated with increased HDL-cholesterol and decreased fat-free mass (Z=2.26-6.95; p<0.05).

Conclusions: While quadruple therapies are highly effective for *H. pylori* eradication, they are associated with significant long-term metabolic and body composition shifts, most notably weight gain and increased visceral adiposity. The concomitant therapy with metronidazole bid was associated with the most pronounced worsening of anthropometric fat parameters. *H. pylori* recurrence tends to restore the metabolic profile observed prior to eradication. These findings highlight the potential need for metabolic surveillance and nutritional counseling following *H. pylori* eradication.

Conflicts of Interest

Elisa Gravito-Soares: None, Nuno Almeida: None, Marta Gravito-Soares: None, Bárbara Rocha: None, Maria Manuela Donato: None, Pedro Narra Figueiredo: None.

P09.07.

TARGETED OXFORD NANOPORE SEQUENCING ENABLES CULTURE-FREE ANTIMICROBIAL SUSCEPTIBILITY TESTING OF *HELICOBACTER PYLORI* FOR GUIDING RESCUE THERAPIES IN AFRICAN CLINICAL SETTINGS

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Objective: Antimicrobial resistance (AMR) in *Helicobacter pylori* is highly prevalent in Africa, where access to antimicrobial susceptibility testing (AST) remains limited. We aimed to develop a rapid and cost-effective culture-free assay for detecting molecular markers of AMR in *H. pylori* directly from gastric biopsies.
Patients and Methods: The *Hp-AmpliSeq* was developed as a multiplex PCR–based Oxford Nanopore targeted sequencing assay covering five key *H. pylori* AMR genes (*23S rRNA, 16S rRNA, gyrA, gyrB, pbp1A*). Analytical validation relied on 20 archived gastric biopsy samples with matched WGS-based AST data. The assay was piloted in Kinshasa (from July to October 2025) among patients with eradication failure. Sequencing was performed on a *MinION Mk1C* and analyzed using customized bioinformatics. Variants were interpreted through an evidence-based framework distinguishing clinically relevant AMR markers from non-relevant polymorphisms.
Results: The assay showed near-perfect concordance with WGS-based AST and a 95% detection limit of 9.69×10^{-6} ng/µL (5.29 genome-equivalents/µL). In real-world settings, 52 patients with confirmed eradication failure were prospectively tested on-site. Gastric biopsy processing enabled AST results for four key antibiotics within 48 hours at an estimated cost of 50 USD per sample. Clarithromycin resistance was most prevalent (86.5%), mainly driven by *23S rRNA* A2143G/A2142G mutations. Levofloxacin resistance reached 65.4% (due to GyrA N87/D91 mutations), and amoxicillin resistance was 26.9% (due to Pbp1A T593A, S414R, and G595S mutations). In contrast, tetracycline resistance remained low (5.8%), due to the *16S rRNA* A928G mutation. Multidrug resistance was frequent, affecting 50.0% of cases.
Conclusions: *Hp-AmpliSeq* provided a rapid, accurate, and clinically actionable tool for profiling and surveillance of AMR in *H. pylori* in resource-limited settings.

Conflicts of Interest
Evariste Tshibangu-Kabamba: Research Grant: CAMRA/NIH; Other Research Support: ARES, Fabien Mbaya Tshibangu: Other Research Support: MEXT, Patrick Ngoma Kisoko: None, Alain Cimuanga-Mukanya: Research Grant: No., Nadine Kayiba-Kalenda: None.

P09.08.

REAL-WORLD EVIDENCE ON EMPIRICAL FIRST-LINE TREATMENT OF *HELICOBACTER PYLORI* IN MEXICO: RESULTS FROM THE LATIN AMERICAN REGISTRY ON *H. PYLORI* MANAGEMENT (HP-LATAMREG)

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Objective: *Helicobacter pylori* (*H. pylori*) infection remains a significant public health problem, with rising antibiotic resistance reducing the effectiveness of empirical regimens. Real-world data from Mexico are limited.
Patients and Methods: We evaluated effectiveness and safety of most used empirical first-line treatments in the Mexican cohort of the Latin American Registry on the Management of *H. pylori* Infection (Hp-LATAMReg, WorldHpReg partner) collected at AEG-REDCap. Adults receiving 14-day empirical first-line therapy in routine practice were included. Effectiveness was assessed by per-protocol, intention-to-treat and modified intention-to-treat analyses.
Results: Overall, 1,739 patients were analyzed (68% women, mean age 53 years, dyspepsia 69%). Commonly prescribed regimens were: quadruple therapy with proton pump inhibitor (PPI)-bismuth-doxycycline-metronidazole (PPI+BDM, 21%); concomitant quadruple therapy with PPI-clarithromycin-amoxicillin-metronidazole (PPI+CAM, 43%); and triple therapy with PPI-clarithromycin-amoxicillin (PPI+CA, 36%), all for 14 days. PPI+BDM and PPI+CAM achieved effectiveness >90% (96% and 94%, respectively), whereas PPI+CA yielded <90% and decreased to 64% with high-dose PPIs. In the potassium-competitive acid blockers subanalysis, tegoprazan-based BDM quadruple therapy achieved effectiveness >90%, comparable to PPI+BDM regimens, whereas tegoprazan-based CA triple therapy remained <80%, similar to PPI+CA (Table 1). Adherence was ≥95% across regimens, and adverse events did not significantly affect compliance.
Conclusions: PPI+CA showed suboptimal effectiveness, whereas PPI+BDM and PPI+CAM achieved optimal eradication rates (>90%). Tegoprazan-based quadruple regimens showed effectiveness comparable to PPI-based quadruple therapy. Adverse events did not significantly affect compliance.

TABLE 1. Effectiveness evaluated per-protocol, intention-to-treat, and modified intention-to-treat, by proton pump inhibitor dose and tegoprazan-containing regimens, compliance and safety among the three most frequently used 14-day therapies in the Hp-MexReg.

PPI	BDM (15%, n=170)	CAM (36%, n=403)	CA (29%, n=328)
	Low-dose PPI*		
PP analysis (p<0.01**)	97%, n=38/39	93%, n=265/285	79%, n=181/229
ITT analysis (p<0.01**)	95%, n=39/41	89%, n=265/299	73%, n=181/247
mITT analysis (p<0.01**)	95%, n=39/41	91%, n=266/292	78%, n=181/231
	Standard-dose PPI*		
PP analysis (p=0.43**)	96%, n=44/46	94%, n=31/33	88%, n=30/34
ITT analysis (p=0.44**)	92%, n=47/51	87%, n=32/37	83%, n=30/36
mITT analysis (p=0.38**)	96%, n=47/49	94%, n=32/34	88%, n=30/34
	High-dose PPI*		
PP analysis (p<0.01**)	84%, n=65/77	92%, n=55/60	64%, n=27/42
ITT analysis (p<0.01**)	85%, n=66/78	88%, n=56/64	64%, n=28/44
mITT analysis (p<0.01**)	85%, n=66/78	90%, n=56/62	64%, n=28/44

Continued

Conflicts of Interest

Ana Delfina Cano Contreras*: None, Diego Reyes Placencia*: None, Fatima Higuera de La Tijera: None, Jose Antonio Velarde Ruiz Velasco: None, Sarai Gonzalez Huezo: None, Luis Raul Valdovinos García: None, Francisco Bosques Padilla: None, Nayeli Ortiz Olvera: None, Eumir Israel Juárez Valdés: None, Jesus Kasuo Yamamoto Furusho: None, Guadalupe Morales Osorio: None, Guadalupe Quintero Aguilar: None, Enrique Coss Adame: None, Anna Cano Catalá: None, Pablo Parra Pineda: None, Olga Perez Nyssen: None, Leticia Moreira: None, Arnoldo Riquelme Perez**: None, Javier P. Gisbert**: None, Jose María Remes Troche**: None.

TABLE 1 *(Continued).* Effectiveness evaluated per-protocol, intention-to-treat, and modified intention-to-treat, by proton pump inhibitor dose and tegoprazan-containing regimens, compliance and safety among the three most frequently used 14-day therapies in the Hp-MexReg.

PPI	BDM (15%, n=170)	CAM (36%, n=403)	CA (29%, n=328)
	Compliance rate		
(%, n) (p=0.30**)	97%, n=164/170	98%, n=392/402	98%, n=322/328
	Adverse event rate		
(%, n) (p<0.01**)	48%, n=82/170	43%, n=173/403	33%, n=109/328
P-CAB	BDM (39%, n=43)	CAM (5.5%, n=6)	CA (55%, n=60)
PP analysis (p<0.01**)	93%, n=38/41	100%, n=3/3	77%, n=20/26
ITT analysis (p<0.01**)	93%, n=39/42	50%, n=3/6	74%, n=20/27
mITT analysis (p<0.01**)	93%, n=40/43	100%, n=3/3	77%, n=20/26
	Compliance rate		
(%, n) (p=0.048**)	95%, n=41/43	100%, n=6/6	100%, n=27/27
	Adverse event rate		
(%, n) (p<0.01**)	42%, n=18/43	17%, n=1/6	30%, n=8/27

C = clarithromycin; A = amoxicillin; B = bismuth salts; M = metronidazole; D = doxycycline; PPI = proton pump inhibitor; P-CAB= potassium-competitive acid blockers (tegoprazan); PP: per-protocol; ITT: intention-to-treat; mITT: modified intention-to-treat; *High-dose PPI (54 to 128 mg omeprazole-equivalent twice daily), Standard-dose PPI (32 to 40 mg omeprazole-equivalent twice daily), Low-dose PPI (4.5 to 27 mg omeprazole-equivalent twice daily); and **Chi-square test.

P09.09.

EFFICACY AND SAFETY OF REBAMIPIDE IN *HELICOBACTER PYLORI* ERADICATION: AN UMBRELLA REVIEW OF META-ANALYSES

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Objective: Several meta-analyses have shown that adding rebamipide to *Helicobacter pylori* (*H. pylori*) eradication regimens increases efficacy. However, these were limited to Asian and Russian populations, and no umbrella review has synthesized the evidence. This umbrella review aimed to evaluate the efficacy and safety of rebamipide in *H. pylori* eradication.

Materials and Methods: This umbrella review followed Joanna Briggs Institute standards. A comprehensive search of MEDLINE, EMBASE, Cochrane, and Scopus (from January 1, 1985 to September 10, 2025) was conducted to identify meta-analyses assessing rebamipide therapy in *H. pylori* eradication. Methodological quality was appraised using AMSTAR-2 and GRADE tools. Pooled data were analyzed using fixed- or random-effects models according to heterogeneity.

Results: Three meta-analyses (23 primary studies, n=2,212) were included. The pooled analysis demonstrated a statistically significant benefit of adding rebamipide to standard eradication regimens (OR 1.76, 95% CI 1.44-2.16). The pooled eradication rate was 82.94% (95% CI 73.09-90.91) in the rebamipide group, compared to 73.03% (95% CI 61.96-82.82) in controls. The benefit remained significant for triple therapy (OR 2.33, 95% CI 1.42-3.83) and other regimen (OR 1.67, 95% CI 1.23-2.28). Adverse events were significantly lower with rebamipide (OR 0.63, 95% CI 0.43-0.92); pooled rates were 21.08% (95% CI 6.80-40.56) *vs.* 24.57% (95% CI 16.11-34.17). Evidence quality was moderate to high with low risk of bias.
Conclusions: This umbrella review of three meta-analyses from diverse populations demonstrates that adding rebamipide to *H. pylori* eradication regimens significantly increases treatment efficacy and reduces the incidence of adverse events.

Conflicts of Interest
Dmitry Bordin: None, Dmitrii Andreev: None, Alsu Khurmatullina: None, Andrey Zaborovskiy: None, Igor Maev: None.

P09.10.

IMPACT OF MOLECULAR METHODS ON THE DIAGNOSIS AND ANTIMICROBIAL RESISTANCE DETECTION OF *HELICOBACTER PYLORI* INFECTION IN A GREEK PEDIATRIC POPULATION

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Objective: Detection of *Helicobacter pylori* (*Hp*) infection using conventional culture methods may result in false-negative findings, due to prior antibiotic or proton pump inhibitor (PPI) use, delays in specimen's transport or insufficient biopsy material, challenges that are all particularly relevant in pediatric populations. We aimed to evaluate the contribution of molecular techniques in the detection of *Hp* infection and the determination of clarithromycin susceptibility through identification of point mutations in the bacterial *23S rRNA* gene, especially in cases where conventional culture was not feasible.
Materials and Methods: Gastric biopsy specimens were collected from symptomatic children (mean age 9.8 ± 4.5) and the respective *Hp* clinical isolates were subjected to antibiotic susceptibility testing using the E-test method. In parallel, total genomic DNA was extracted from each biopsy and analyzed using Real-Time PCR for *Hp* presence and characterization of clarithromycin resistance-associated point mutations.
Results: Among 3,057 biopsies collected between 2014 and 2026, 216 (7.1%) were culture-positive. Resistance rates to metronidazole, clarithromycin, and levofloxacin were 9.8% (21/216), 31.5% (68/216), and 3.7% (8/216), respectively. Phenotypically, no resistance to amoxicillin or tetracycline was observed in our cohort. Molecular analysis showed 98.5% concordance with phenotypic clarithromycin susceptibility results. Among culture-negative biopsies, RT-PCR detected presence of *Hp* in 14.1% (400/2,841), including 236 clarithromycin-sensitive cases, 147 clarithromycin-resistant and 17 clarithromycin-susceptibility mixed infections.
Conclusions: RT-PCR significantly enhances *Hp* detection in pediatric patients and reliably identifies clarithromycin resistance. Its use can support more accurate diagnosis and enable clinicians to tailor eradication therapy, particularly in cases where culture-based methods fail.

Conflicts of Interest
Beatriz Martinez-Gonzalez: Research Grant: none; Other Research Support: none; Speakers Bureau/Honoraria: none; Ownership Interest: none; Consultant/Advisory Board: none, Eleftheria Roma-Giannikou: Research Grant: none; Other Research Support: none; Speakers Bureau/Honoraria: none; Ownership Interest: none; Consultant/Advisory Board: none, Ioannis Karayiannis: Research Grant: none; Other Research Support: none; Speakers Bureau/Honoraria: none; Ownership Interest: none; Consultant/Advisory Board: none, Aglaia Zellos: Research Grant: none; Other Research Support: none; Speakers Bureau/Honoraria: none; Ownership Interest: none; Consultant/Advisory Board: none, Giorgos Chouliaras: Research Grant: none; Other Research Support: none; Speakers Bureau/Honoraria: none; Ownership Interest: none; Consultant/Advisory Board: none, Panagiota Kafritsa: Research Grant: none; Other Research Support: none; Speakers Bureau/Honoraria: none; Ownership Interest: none; Consultant/Advisory Board: none, Ioanna Panayotou: Research Grant: none; Other Research Support: none; Speakers Bureau/Honoraria: none; Ownership Interest: none; Consultant/Advisory Board: none, Katerina Dimakou: Research Grant: none; Other Research Support: none; Speakers Bureau/Honoraria: none; Ownership Interest: none; Consultant/Advisory Board: none, Maria Rogalidou: Research Grant: none; Other Research Support: none; Speakers Bureau/Honoraria: none; Ownership Interest: none; Consultant/Advisory Board: none, Alexandra Papadopoulou: Research Grant: none; Other Research Support: none; Speakers Bureau/Honoraria: none; Ownership Interest: none; Consultant/Advisory Board: none, Dionyssios Sgouras: Research Grant: none; Other Research Support: none; Speakers Bureau/Honoraria: none; Ownership Interest: none; Consultant/Advisory Board: none.

P09.11.

MIC DROP: THE USE OF EFFLUX PUMP INHIBITOR PAβN TO REDUCE MINIMUM INHIBITORY CONCENTRATIONS IN MULTIDRUG-RESISTANT *HELICOBACTER PYLORI*

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Objective: Most antibiotic resistance in *Helicobacter pylori (H. pylori)* is attributed to DNA mutations. There is now increasing evidence highlighting a potential significant role for efflux pumps in mediating antibiotic resistance. The aim of the study is to assess changes in minimum inhibitory concentrations (MICs) of antibiotics in the presence of a broad-spectrum efflux pump inhibitor.
Materials and Methods: After obtaining ethical approval and informed consent, *H. pylori* was cultured from corpus and antrum biopsies regardless of *H. pylori* treatment history. Antimicrobial susceptibility testing (AST) was performed by culture and ETEST® (bioMérieux). Results were interpreted per EUCAST 2026 guidelines. Isolates underwent RT-qPCR targeting six *H. pylori* efflux pump genes hp0939, hp0471, hp0605, hp0497, hp1181, and hp1184 using RevertAid First Strand Kit and PowerUp SYBR Green Master Mix (Thermo Scientific). Gene expression relative to *H. pylori* ATCC60190 was analyzed by ΔΔCt method. 50 µg/mL phenylalanine-Arginine β-Naphthylamide (PAβN) was used for efflux pump inhibition within freshly prepared Columbia blood agar.
Results: AST was performed on isolates from 28 patients (mean age 49.1 years, 42.9 female. Three clinical isolates of multi-drug-resistant *H. pylori* with increased expression of efflux pump genes were chosen for testing with PAβN. PAβN decreased antibiotic MICs in all 3 isolates tested. The mean reductions were 53.4 µg/mL for amoxicillin, 64.5 µg/mL for metronidazole, 6.3 µg/mL for levofloxacin, 4.0 µg/mL for amoxicillin, and 3.7 µg/mL for rifampicin.
Conclusions: MICs for different antibiotics can be modulated using the efflux pump inhibitor PAβN. Further studies are required to fully evaluate the potential of efflux pump inhibition in *H. pylori* treatments.

Conflicts of Interest
Stephen D. Molloy: Research Grant: Health Research Board Ireland, Thomas J. Butler: Research Grant: Health Research Board Ireland, Darragh Berry: None, Deirdre McNamara: None, Sinead M. Smith: Research Grant: Health Research Board Ireland.

POSTER SESSION 10 - HELICOBACTER 8

P10.01.

SEROLOGICAL MARKERS AS PREDICTORS OF THE SEVERITY OF GASTRIC MUCOSAL ATROPHY IN AUTOIMMUNE AND *H. PYLORI*-ASSOCIATED GASTRITIS

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Objective: The data on the role of serum pepsinogens in detecting atrophic gastritis are conflicting. This study aimed to evaluate the accuracy of pepsinogen (PG) I and pepsinogen II for the detection and staging of atrophy.

Patients and Methods: 237 patients (56 men and 181 women) were examined. All respondents underwent a ^{13}C-UBT, a blood pepsinogens and antibodies to gastric parietal cells. ^{13}C-UBT positivity was defined as a DOB value ≥ 4%. Serological markers of atrophy were PGI≤30 µg/l and PGI/PGII≤3. EGD was performed with a biopsy of gastric mucosa from 5 standard points according to the Sydney system and a morphological study according to the OLGA system.

Results: *H. pylori*-associated gastritis was present in 135 patients, of whom 13 had severe atrophy (OLGA stages III-IV). Autoimmune gastritis (AIG) was diagnosed in 47 patients, of whom 34 had severe atrophy. AIG and *H. pylori* gastritis was present in 55 patients, of whom 13 had severe atrophy. Sensitivity and specificity of pepsinogens by gastritis etiology are shown in Table 1.

Conclusions: Serum pepsinogens showed the higher diagnostic accuracy in autoimmune gastritis (due to corpus involvement) and the lower in *H. pylori*-associated gastritis (likely due to isolated antral lesions).

Conflicts of Interest

Chebotareva Margarita: Ownership Interest: author, Nikolskaya Karine: Ownership Interest: co-author, Andreev Dmitriy: Ownership Interest: co-author, Khomeriki Sergei: Ownership Interest: co-author, Bordin Dmitriy: Ownership Interest: co-author.

TABLE 1. Sensitivity and specificity of pepsinogens according to the etiology of gastritis.

	H. pylori		AIG		*H. pylori* & AIG	
Parameter	PGI≤30 µg/l	PGI/PGII≤3	PGI≤30 µg/l	PGI/PGII≤3	PGI≤30 µg/l	PGI/PGII≤3
Sensitivity, %	33.33	53.85	96.97	100	74.42	84.62
Specificity, %	91.47	76.23	0.0	14.29	92.68	57.14

P10.02.

ABSTRACT WITHDRAWN

P10.03.

PREVALENCE OF *HELICOBACTER PYLORI* AND SYMPTOM BURDEN AMONG ADULTS AGED 30-34 IN A WESTERN EUROPEAN COUNTRY: PRELIMINARY INSIGHTS FROM TOGAS PILOT 1 IN IRELAND

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Objective: TOGAS (TOwards GAstric Cancer Screening Implementation in the EU) is a large EU-funded study providing data to inform the implementation of gastric cancer screening. Prevalence estimates exhibit geographical variation both within Europe and worldwide, highlighting the need for region-specific estimates. The study aimed to provide preliminary prevalence estimates for *H. pylori* in an asymptomatic population in Western European countries. Secondary aims included assessment of symptom burden. Despite recruitment from an asymptomatic population, when asked, directly many participants reported symptoms but had never attended a physician for same.

Patients and Methods: Over 5,000 invitations were distributed to adults aged 30-34 years *via* multiple recruitment streams. Response rate and subsequent participation rates were recorded. For those who participated, a questionnaire was completed including an assessment of symptoms and a serology sample was taken to test for *H. pylori* antigen. Those with a positive serology sample were invited for a urea breath test (UBT) to confirm active *H. pylori* infection. Those with confirmed active infections were offered treatment with bismuth-based quadruple therapy followed by a repeat UBT to confirm eradication. *p*-values were calculated using Fisher's exact test.

Results: Of 5,963 invites distributed, 1,077 responses were recorded (18.06%), with 764 participating (12.81%). 46.25% were male.

128 participants had a positive serology test (16.75%). 122 participants completed a urea breath test, of whom 81 [45 (55.56%) male] had a positive result (10.6% true positivity), and 41 had a negative result (34.17%). Of the true positives, 54.32% (p=0.0011) were born in Ireland, while 59.26% (p=0.0408) were from an urban area. 44% (p=0.0463) were active or previous smokers. The symptom burden of those testing positive is reported in Table 1. Symptom prevalence did not differ significantly between *H. pylori* positive individuals and the overall study population (all p>0.05).

Conclusions: *H. pylori* is prevalent in Ireland, with a slight preponderance for males. The absence of symptom-based predictors supports the limited utility of symptom-driven testing in gastric cancer screening strategies.

TABLE 1. The symptom burden of patients testing positive.

Symptom	N (%) of *H. pylori* positive	N (%) of study population	*p*-value
Heartburn	40 (49.38%)	379 (49.61%)	1.0000
Abdominal pain	28 (34.57%)	298 (39.01%)	0.4022
Regurgitation	18 (22.22%)	144 (18.85%)	0.4520
Nausea	21 (25.93%)	228 (29.84%)	0.4440
Dyspepsia	23 (28.4%)	193 (25.26%)	0.5001
Bloating	44 (54.32%)	448 (58.64%)	0.4064
Early satiety	16 (19.75%)	160 (20.94%)	0.8855

63 participants completed 1st line therapy, of whom 62 had a negative confirmatory UBT (98.41% per-protocol success rate). A further 3 participants were unable to tolerate the treatment resulting in an intention-to-treat success rate of 93.94%. 3 participants had successful 2nd line therapy while one was referred on for gastroscopy.

Conflicts of Interest
Orlaith Casey: Research Grant: EU4Health; Other Research Support: Department of Health, Ireland; Speakers Bureau/Honoraria: TOGAS Consortium; Ownership Interest: Public Health; Consultant/Advisory Board: Prof Colm O'Morain, Charlene Deane: Research Grant: EU4Health; Speakers Bureau/Honoraria: TOGAS consortium; Ownership Interest: Public Health; Consultant/Advisory Board: Prof Colm O'Morain, Marta Dobric: Research Grant: EU4Health; Speakers Bureau/Honoraria: TOGAS Consortium; Consultant/Advisory Board: Prof Colm O'Morain, Ana McKiernan: Research Grant: EU4Health; Speakers Bureau/Honoraria: TOGAS Consortium; Consultant/Advisory Board: Prof Colm O'Morain, Bojan Tepes: Research Grant: EU4Health; Other Research Support: Unknown; Speakers Bureau/Honoraria: TOGAS Consortium, Tatjana Kofol: Research Grant: EU4Health; Other Research Support: Unknown; Speakers Bureau/Honoraria: TOGAS Consortium, Marcis Leja: Research Grant: EU4Health; Other Research Support: Unknown; Speakers Bureau/Honoraria: TOGAS Consortium, Orlaith Kelly: Speakers Bureau/Honoraria: TOGAS Consortium, Colm O'Morain: Research Grant: EU4Health; Speakers Bureau/Honoraria: TOGAS Consortium.

P10.04.

SERIAL SERUM INTERLEUKIN-8 TRAJECTORIES ARE ASSOCIATED WITH PROGRESSION FROM *HELICOBACTER PYLORI*-ASSOCIATED PRECANCEROUS LESIONS TO GASTRIC CANCER: A PROSPECTIVE LONGITUDINAL COHORT STUDY

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Objective: Gastric cancer remains a leading cause of cancer-related mortality worldwide, with delayed diagnosis contributing to poor prognosis. Interleukin-8 (IL-8), a proinflammatory chemokine implicated in *H. pylori*-associated gastric carcinogenesis, has not been rigorously evaluated in longitudinal studies for its ability to predict malignant progression in patients with precancerous lesions. This study aimed to investigate whether serial serum IL-8 measurements predict progression to gastric cancer among Egyptian patients with *H. pylori*-associated atrophic gastritis and intestinal metaplasia over 24 months of follow-up.
Patients and Methods: This prospective multicenter cohort study enrolled 200 participants across five Egyptian centers: 50 with atrophic gastritis, 50 with intestinal metaplasia, 25 with *H. pylori*-positive gastric cancer, 25 with *H. pylori*-negative gastric cancer, and 50 healthy controls. All underwent baseline clinical assessments, laboratory evaluation (including CEA, CA19-9), *H. pylori* testing (stool antigen and urea breath test per Maastricht VI), and endoscopy with histopathology (Updated Sydney System). Patients with precancerous lesions were followed for 24 months with serial IL-8 measurements at 0, 6, 12, 18, and 24 months, and repeat endoscopy at study completion. Multivariable logistic regression with penalization was used due to low event count. Time-dependent ROC analysis employed a cumulative/dynamic methodology.
Results: Of 100 patients with precancerous lesions, 94 completed follow-up, and 9 progressed to gastric cancer (7 from intestinal metaplasia, 2 from atrophic gastritis). Baseline IL-8 levels demonstrated a progressive increase across groups (controls: 9.7±3.2 pg/mL; atrophic gastritis: 42.1±11.8; intestinal metaplasia: 64.8±14.3; gastric cancer: 107.4±24.6; $p<0.001$). IL-8 elevation in gastric cancer was independent of *H. pylori* status across all stages ($p>0.50$ for all stage-stratified comparisons, though these subgroup analyses are limited by small sample sizes and should be considered exploratory). Baseline IL-8 >52.3 pg/mL was associated with progression risk AUC 0.84 (95% CI: 0.760.91; optimism-corrected AUC 0.82 after bootstrap validation), sensitivity 88.9%, specificity 78.0%, and negative predictive value 98.5%, significantly outperforming CEA (AUC 0.62) and CA19-9 (AUC 0.58). Time-dependent AUC increased to 0.91 at 12 months and 0.94 at 18 months. Trajectory modeling, performed blinded to outcome, identified three patterns: Stable-Low (n=42), Moderate-Rising (n=49), and High-Accelerating (n=9). The acceleration points in the High-Accelerating group preceded clinical cancer diagnosis by a median of 6 months (range 3-12). In multivariable analysis using Firth penalized regression, baseline IL-8 (adjusted OR per 10 pg/mL: 2.31, 95% CI: 1.48-3.61, $p<0.001$) and intestinal metaplasia (aOR: 4.22, 95% CI: 1.31-13.61, $p=0.016$) were independently associated with progression.

Conclusions: Serial serum IL-8 trajectories were significantly associated with progression from *H. pylori*-associated precancerous lesions to gastric cancer. Rising IL-8 levels preceded clinical diagnosis by approximately 6-12 months, suggesting potential utility for risk stratification. A baseline IL-8 >52.3 pg/mL demonstrated a high negative predictive value for short-term progression.

Conflicts of Interest
Atteyat Semeya: None.

P10.05.

EFFECTIVENESS OF EMPIRICAL *HELICOBACTER PYLORI* TREATMENT IN POLAND: RESULTS FROM THE EUROPEAN REGISTRY ON *H. PYLORI* MANAGEMENT (HP-EUREG)

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Objective: *Helicobacter pylori* (*H. pylori*) infection remains a major global health concern and a leading cause of gastric cancer, with treatment effectiveness influenced by regional antibiotic resistance. This study evaluates the effectiveness and safety of empirical first- and second-line therapies in Poland and compares real-world outcomes with current recommendations.
Patients and Methods: Data were analyzed from the Polish cohort of the European Registry on *H. pylori* Management (Hp-EuReg, WorldHpReg partner, AEG-REDCap e-CRF, 2013-June 2024). Treatment effectiveness was assessed using modified intention-to-treat analysis.
Results: A total of 638 patients were included. The overall first-line effectiveness was 89%. The most frequently used regimens were bismuth-based quadruple therapies (BQT), administered either as a single-capsule formulation or with drugs separately (metronidazole-tetracycline-bismuth), accounting for 78%. These regimens achieved eradication rates close to 90%, with the highest effectiveness in 14-day therapies (>90%). Triple therapy with amoxicillin-metronidazole (Triple-AM) achieved an eradication rate of 88%. Treatment duration significantly influenced outcomes: 14-day regimens were more effective than 10-day therapies. High-dose proton pump inhibitors (PPIs) improved effectiveness in first-line Triple-AM, whereas this benefit was not observed in quadruple regimens. Overall, second-line effectiveness was approximately 65%, but higher eradication rates (>90%) were observed in selected 14-day regimens (e.g., BQT or amoxicillin-levofloxacin triple therapy).
Conclusions: In Polish routine clinical practice, first-line eradication rates approached 90%, while second-line therapies remained below this threshold. The highest effectiveness was achieved with BQT regimens administered for 10-14 days, with improved outcomes at 14 days. High-dose PPIs enhanced the effectiveness of first-line Triple-AM, but not that of quadruple therapies.

Conflicts of Interest
Piotr Szredzki: None, Wojciech Marlicz: None, Piotr Eder: None, Michał Kukla: None, Georges Kamtoh: None, Aleksandra Szredzka: None, Maria Marlicz: None, Paweł Guzik: None, Wojciech Siwiaszczyk: None, Magdalena Kuźma: None, Gabriela Leniart: None, Anna Cano-Català: None, Leticia Moreira: None, Pablo Parra: None, Olga P. Nyssen: None, Francis Mégraud: None, Javier P. Gisbert: None, Colm O'Morain: None.

P10.06.

REAL-WORLD EFFECTIVENESS AND SAFETY OF OPTIMIZED BISMUTH-BASED FEXUPRAZAN QUADRUPLE THERAPY FOR *HELICOBACTER PYLORI* ERADICATION IN CHILE: RESULTS FROM THE LATIN-AMERICAN REGISTRY ON *H. PYLORI* MANAGEMENT (HP-LATAMREG).

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Objective: *Helicobacter pylori* (*H. pylori*) therapies face challenges due to antimicrobial resistance and variable acid suppression with proton pump inhibitors (PPIs). Potassium-competitive acid blockers, such as fexuprazan, provide potent acid suppression that may improve eradication rates.
Patients and Methods: A prospective observational study using the Latin-American Registry on *H. pylori* Management (Hp-LATAMReg; WorldHpReg partner) evaluated treatment-naïve adults from Chile. Data were registered using the AEG-REDCap e-CRF (from October 2024 to March 2025). Patients receiving three 14-day regimens, were evaluated: Standard Triple Therapy (STT: amoxicillin 1 g/12h, clarithromycin 500 mg/12h, omeprazole 20 mg/12h), Optimized Bismuth Quadruple Therapy with PPI (o-BQT-PPI: esomeprazole 40 mg/8h, amoxicillin 1 g/8h, metronidazole 500 mg/8h, bismuth 369 mg/8h, PPI 20 mg/8h), or Optimized Bismuth Quadruple Therapy with Fexuprazan (o-BQT-Fexu: fexuprazan 40 mg/12h, amoxicillin 50 mg/kg/day divided q8h, metronidazole 500 mg/8h, bismuth 369 mg/8h). Outcomes included modified intention-to-treat (mITT) effectiveness, adverse events, and adherence.
Results: Among 378 patients, mITT eradication rates were 85% (95% CI: 79-90%) for STT, 97% (95% CI: 92-99%) for o-BQT-PPI, and 96% (95% CI: 89-98%) for o-BQT-Fexu (p=0.032). Both quadruple regimens significantly outperformed STT. Adverse events occurred in 63% (95% CI: 56-70%) of STT patients, 54% (95% CI: 45-63%) of o-BQT-PPI patients, and 33% (95% CI: 24-43%) of o-BQT-Fexu patients, the latter associated with significantly (p<0.001) fewer adverse events than with other regimens. Adherence exceeded 90% across all groups.

Conclusions: Fourteen-day o-BQT-PPI and o-BQT-Fexu achieved similarly high *H. pylori* eradication rates, both superior to STT. Notably, o-BQT-Fexu was associated with fewer adverse events, positioning it as an effective and well-tolerated alternative.

Conflicts of Interest
Camila Jure: None, Patricio Medel-Jara: None, Diego Reyes-Placencia: None, Victor Acuña: None, Mauricio Morales: None, Carmen Gloria Tapia: None, Diego Acuña: None, Laura Huidobro: None, Francisca Venezian: None, Daniel Martínez: None, Camila Barrientos: None, María Jesus Fuenzalida: None, Francisco Villarreal: None, Alba Singla: None, Olga P. Nyssen: None, Pablo Parra: None, Leticia Moreira: None, Shailja Shah: None, Javier P. Gisbert: None, Arnoldo Riquelme: None.

P10.07

A NOVEL PLANT-BASED FORMULATION FOR *HELICOBACTER PYLORI* ERADICATION

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Objective: *Helicobacter pylori* eradication therapy commonly relies on quadruple regimens combining bismuth, two antibiotics and a proton pump inhibitor. Increasing antibiotic resistance is reducing treatment success and highlights the need for alternative therapeutic approaches. Plant essential oils possess potent antimicrobial activity and their complex composition may reduce the likelihood of resistance development. HerbELICO®, a blend of essential oils from *Satureja hortensis*, *Origanum vulgare* subsp. *hirtum* and *Thymus vulgaris*, previously demonstrated strong anti-*H. pylori* activity *in vitro* and *in vivo* in mice. This study evaluated its activity against diverse clinical *H. pylori* isolates, its ability to penetrate mucin, and its potential as an oral formulation for human use.
Materials and Methods: Anti-*H. pylori* activity was assessed using the agar dilution method against 20 *H. pylori* isolates representing diverse antibiotic resistance profiles and different geographical origins. The bactericidal effect was further evaluated following a 10-minute exposure to HerbELICO®. Mucin penetration was assessed using a 2.5% (v/v) artificial mucin barrier. For human administration, HerbELICO® was formulated either as a liquid preparation in sunflower oil or as a solid formulation adsorbed onto Fluorit®, with both formulations encapsulated in gelatin capsules. Fifteen volunteers received HerbELICO® capsules for 45 consecutive days: 260 mg/day for 15 days followed by 130 mg/day for an additional 30 days.
Results: All 20 *H. pylori* isolates remained susceptible to HerbELICO®, irrespective of their antibiotic resistance profiles or geographical origin. A 10-minute exposure to HerbELICO® was sufficient to completely eliminate viable *H. pylori* cells. In the mucin penetration assay, HerbELICO® successfully penetrated the 2.5% artificial mucin barrier and eliminated all bacteria underneath within one hour. In the volunteer study, HerbELICO® treatment resulted in *H. pylori* eradication in 93% of participants, with no reported adverse events.
Conclusions: HerbELICO® demonstrated potent anti-*H. pylori* activity across isolates with diverse antibiotic resistance profiles, rapid bactericidal activity, and effective penetration through an artificial mucin barrier. Oral administration in two capsule formulations was associated with a high eradication rate and no reported adverse events in the small volunteer cohort. These findings support further evaluation of HerbELICO® as a potential component of *H. pylori* eradication therapy.

Conflicts of interest: Nataša Simin, Marija Lesjak, and Ivana Beara are co-founders of HerbElixa d.o.o., a company involved in the development and commercialisation of HerbELICO®, the plant-based formulation evaluated in this study. They are also inventors on a patent related to the HerbELICO® formulation, owned by HerbElixa d.o.o. They had no involvement in the design, execution, or interpretation of the experiments evaluating the efficacy of HerbELICO® presented in this abstract, which were conducted independently by the other authors at their respective institutions.

P10.08.

SIBLING SRNAS: THE MISSING LINK BETWEEN ACID STRESS AND CAGA-MEDIATED VIRULENCE IN *HELICOBACTER PYLORI*

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Objective: As a successful gastric colonizer, apart from the worldwide infection profile (~44%), the existence of a huge non-coding RNA repertoire in the small genome of *Helicobacter pylori* makes it an exciting member to study 'riboregulation'. After being identified more than a decade ago, the functions of five 'sibling' sRNAs (Hpnc0480, -0580, -1980, -4620, and -7830) in the HP-genome are yet to be discovered. Their simultaneous acid-stress induction and complete functional anonymity make them a unique target for investigation. In this work, we sought to decipher the hidden functionality of these sRNAs and determine whether they play a role in HP virulence.
Materials and Methods: Comparative computational target prediction (CopraRNA) across three *H. pylori* reference genomes identified candidate mRNA targets and was refined with IntaRNA and RNAup. Translational activation was quantified using an *hp0449* 5' UTR-*lacZ* reporter co-expressed with HPnc1980 in *E. coli* DH5α. Direct sRNA-mRNA binding was confirmed by electrophoretic mobility shift assay (EMSA).
Results: All the investigated sRNAs are found to target and interact with the region upstream of the RBS of the *hp0449* mRNA, which is occluded in the unbound state by its own secondary structure, consistent with an anti-sequestering translational activation mechanism. The co-expression of HPnc1980 significantly increased reporter activity in a base-pairing-dependent manner. On the other hand, EMSA confirmed direct, specific sRNA-mRNA complex formation.
Conclusions: These findings assign the first validated mRNA target to a long-orphaned acid-induced sRNA-family, whereas the known HP0449-HP1076 interaction further implicates this axis in flagellar biology and CagA-associated virulence.

Conflicts of Interest
Bivash Sinha: Research Grant: University Grant Commission, Ahana Sarkar: None, Dr. Oindrilla Mukherjee: None.

P10.09.

MOLECULAR SEQUENCING DETECTS METABOLICALLY ACTIVE *HELICOBACTER PYLORI* SIGNAL IN PATIENTS WITH NEGATIVE DIAGNOSTIC CLINICAL TESTS

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Objective: Diagnosis of *Helicobacter pylori* (*H. pylori*) infection is usually based on conventional tests. Molecular sequencing is a more sensitive method as it allows to detect tiny amounts of transcriptionally active gastric bacteria. We aimed to assess the magnitude of concordance between clinically defined *H. pylori* status and molecular *H. pylori* detection in gastric mucosal biopsies.
Patients and Methods: In this prospective cohort, 138 patients undergoing esophagogastroduodenoscopy were enrolled. Clinical *H. pylori* status was determined by stool antigen test, rapid urease test, histology, and serology; patients were considered clinically positive if at least one test other than serology was positive. Gastric biopsies from the antrum and corpus were collected and gastric microbiota was analyzed by RNA-based 16S rRNA sequencing (V1-V2 regions). Samples with fewer than 1,000 reads were excluded. Agreement between clinical and molecular *H. pylori* detection was evaluated using Cohen's kappa.

Results: Of 138 patients, 52 (37.7%) resulted in *H. pylori* positive in conventional diagnostic tests. Molecular analysis detected *H. pylori* reads in 124/138 (89.9%) cases. Among clinically positive patients, relative abundance of *H. pylori*-related phylotypes was 72.5% ± 39.2% *vs.* 1.18% ± 32.3% in clinically negative patients. Among clinically negative patients with molecular detection, 68/85 (80%) had negative serology and no active inflammation on histology. Agreement between clinical and molecular detection was poor, with a kappa value of 0.04 (95% CI -0.04004 to 0.12034).
Conclusions: RNA-based 16S rRNA sequencing detected *H. pylori* signal in a surprisingly high number of cases with a negative conventional diagnostic test. It may reflect low-burden or transient colonization and should be carefully interpreted together with histologic findings in the context of the clinical scenario. The clinical relevance of an isolated positive molecular test result of *H. pylori* only requires further exploration.

Conflicts of Interest
Riccardo Vasapolli: Research Grant: DZIF TTU 06.715, Ramiro Vilchez-Vargas: None, Johannes Raphael Westphal: None, Nadine Koch: None, Kerstin Schuette: None, Peter Malfertheiner: None, Christian Schulz: None.

P10.10.

UNVEILING THE PREVALENCE OF *HELICOBACTER PYLORI* CAGA AND VACA VIRULENCE MARKERS IN MOROCCAN CHILDREN AND ADOLESCENTS

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Objective: Purpose heterogeneity in the vacA and cagA pathogenicity factors of *Helicobacter pylori* (*H. pylori*) has been correlated with the progression and the severity of gastrointestinal disease in adults; however, data regarding these markers in the pediatric population remain limited. The objective of this research was to assess the distribution of the vacA and cagA virulence markers in symptomatic Moroccan children and adolescents, as well as their association with histologic and endoscopic findings.
Materials and Methods: Gastric tissue samples were retrieved from two hundred children and adolescents referred to upper gastrointestinal endoscopy. Conventional PCR was employed to detect *H. pylori* infection and the presence of the cagA gene, whereas multiplex-PCR was used to characterize the vacA allelic variants (s and m alleles).
Results: From the 200 children and adolescents involved in this research, 84.5% tested positive for *H. pylori*. Among these, 32% carried the cagA gene, and vacA was identified in all *H. pylori* strains. The most prevalent genotype combination was the vacA s2/m2 genotype, affecting 67.5% of the infected patients, followed by s1/m2 (16%), s1/m1 (14.7%), with the vacA s2/m1 being the rarest genotype (1.8%). Gastric nodularity was frequently observed in patients harboring cagA-positive strains. A meaningful association was noted between *H. pylori* colonization density and the vacA s1 and m1 genotypes. Histological findings showed no significant variation according to vacA and cagA genotypes.
Conclusions: Our results showed that *H. pylori* strains harboring the vacA s2 m2 and cagA-negative genotypes were the most frequently detected among children and adolescents in our country. Larger-scale studies are needed to investigate the potential clinical relevance of other virulence markers in the progression of this infection among pediatric patients in our country.

Conflicts of Interest
Hasna Boura: Research Grant: None, Fatimezzahra Kheir: None, Ghizlane Bounder: None, Aicha Baalala: Research Grant: None.

P10.11.

THE ASSOCIATION BETWEEN *HELICOBACTER PYLORI* IGG SERO-PREVALENCE AND DIABETES MELLITUS

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Background: The role of *Helicobacter pylori* infection in diabetes mellitus (DM) remains unclear. We examined the association between *H. pylori* IgG seroprevalence, including virulence factor Cytotoxin-associated antigen A (CagA) positivity, and DM, while controlling for potential confounders.

Materials and Methods: We used archived sera obtained in a cross-sectional study conducted between 2004-2008, among 971 Arab and 712 Jewish residents of Jerusalem, aged 25-78 years, randomly selected from the national population registry. Sociodemographic and health data were collected *via* face-to-face interviews and by measuring height and weight. Fasting plasma glucose levels and a 75 g oral glucose tolerance test were performed for diabetes-free participants. Serum IgG antibodies against *H. pylori* and CagA, were tested using ELISA. Multivariable logistic regression and propensity score inverse probability weighting approach were used to account for confounders.

Results: Overall, 72.4% of the participants were *H. pylori*-positive (38.9% CagA-positive), and 18.8% had DM. Participants with DM had higher odds of being seropositive for *H. pylori*-CagA IgG than participants without DM: OR=1.56 (95% CI 1.10-2.18). The association for CagA-negativities was not significant: OR=1.35 (0.98-1.87). These associations were evident among Jewish participants: OR=2.34 (1.23-4.46), and OR=1.66 (0.93-2.96), respectively, but not among Arabs (*p* for interaction=0.045). These associations were attenuated after adjustment for sociodemographic and health-behavior variables and were consistent across various analytical approaches. The association between pepsinogen I and II levels, markers of gastritis, and DM was not statistically significant.

Conclusions: The association between *H. pylori* infection and DM is complex, influenced by sociodemographic and lifestyle confounders and by heterogeneity across ethnicities.

Conflicts of Interest

Ofir Fogel: None, Ronit Sinnreich: None, Hisham Nassar: None, Dani Cohen: None, Jeremy Kark: None, Khitam Muhsen: None.

P10.12.

THE ASSOCIATION OF *HELICOBACTER PYLORI* INFECTION AND INFLAMMATION WITH COGNITIVE DEVELOPMENT IN PREADOLESCENTS

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Objective: Limited evidence suggests an association between *Helicobacter pylori* (*H. pylori*) infection and diminished cognitive function in children; nonetheless, the role of gastric inflammation remains unclear. We examined the association of *H. pylori* infection and serum pepsinogens, markers of gastric inflammation, with cognitive function in children aged 10-12 years.

Patients and Methods: A prospective cohort study was conducted among 233 infants from Arab towns in Israel, who were followed up at ages 10-12 years. Cognitive function was assessed using the Wechsler Intelligence Scale for Children-IV edition. *H. pylori* in infancy and at school age was detected via stool antigen detection enzyme immunoassay. Serum pepsinogens I (PGI) and PGII, markers of gastric inflammation, were measured using ELISA. Covariates included sociodemographic, nutritional status, and systemic inflammation.

Results: Overall, 134 participants were enrolled, 81 (60.4%) tested *H. pylori*-positive. Compared to uninfected participants, those with *H. pylori*-positivity at school age, and with a ratio of PGI:PGII≤4.43 (indicating more severe inflammation) had lower full-scale IQ scores: beta coefficient -5.9 (95% CI -11.7, -0.01), as well as those with a PGI:PGII ratio>4.43 (milder inflammation) -7.5 (-12.7, -2.2), adjusting for confounders. Results were similar for the verbal comprehension and working memory scores, and in inverse probability weighed analysis that accounted for the non-inclusion of participants from the original cohort. Children with persistent infection from infancy to school age had the lowest cognitive performance.
Conclusions: *H. pylori* infection is associated with reduced cognitive performance in school-age children, regardless of gastric inflammation, highlighting its potential role in extra-gastrointestinal outcomes.

Conflicts of Interest
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POSTER SESSION 11 – MICROBIOTA 2 – MICROBIOTA IN DISEASES AND SYSTEMIC EFFECTS

P11.01.

HEALING THE SECOND BRAIN: THE ROLE OF MICROBIAL MODULATION AND BARRIER REPAIR IN DEPRESSION THERAPY

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Objective: Major Depressive Disorder (MDD) is increasingly recognized as a systemic condition linked to the bidirectional signaling of the enteric-brain axis. Beyond neurotransmitter imbalances, current evidence suggests that intestinal dysbiosis is a key driver of neuroinflammation and stress response. This review evaluates the correlation between microbial signatures, mucosal barrier alterations, and the clinical efficacy of psychobiotic interventions in managing depression.
Patients and Methods: We analyzed 20 studies published between 2021 and 2026, identified through PubMed and Science Direct. The selection focused on systematic reviews and randomized controlled trials involving adults diagnosed with MDD. Inclusion criteria targeted studies on microbial diversity and psychobiotic efficacy, while excluding patients with recent antimicrobial exposure or organic inflammatory diseases of the digestive tract to ensure data integrity.
Results: The synthesized data consistently demonstrate a significant reduction in microbial alpha-diversity and specific taxonomic shifts in depressed patients. Key findings include:
– A depletion of butyrate-producing bacteria, such as *Faecalibacterium prausnitzii*, which is essential for maintaining mucosal integrity.
– Elevated levels of barrier dysfunction markers (zonulin and LPS) that correlate with systemic inflammation (IL-6, TNF-α) and increased suicidal risk.
– Significant alterations in the tryptophan-kynurenine pathway, reducing central serotonin bioavailability.
– Adjuvant therapy with multi-strain psychobiotics (*Lactobacillus*, *Bifidobacterium*) showed a statistically significant improvement in HAM-D and BDI scores compared to standard treatment alone.
Conclusions: Microbial profiles and intestinal permeability markers are valuable tools for both understanding the inflammatory landscape of MDD and guiding clinical treatment. Targeting the enteric environment through psychobiotics and dietary interventions represents a promising adjuvant strategy to enhance antidepressant response and improve long-term patient outcomes.

Conflicts of Interest
Alexandra Oros: None, Daiana Onit: None, Elena Popovici: None.

P11.02.

GASTROINTESTINAL SYMPTOMS, DIETARY PATTERNS, AND MICROBIOTA ALTERATIONS IN CHILDREN AND YOUNG ADULTS WITH AUTISM SPECTRUM DISORDER: A RETROSPECTIVE OBSERVATIONAL STUDY FROM A GASTROENTEROLOGY OUTPATIENT CLINIC

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Objective: Autism spectrum disorder (ASD) is a neurodevelopmental condition associated with gastrointestinal (GI) comorbidities and gut microbiota dysbiosis. The gut-brain axis modulates both GI and behavioral symptoms. Recent metagenomic studies suggest that ASD-related dietary preferences, particularly reduced diversity, may drive microbiome alterations rather than ASD diagnosis directly causing dysbiosis. Chronic inflammation and increased intestinal permeability may exacerbate core ASD symptoms, but real-world clinical data from gastroenterology settings are limited.
Patients and Methods: This retrospective observational study characterized GI symptoms, dietary habits, and gut microbiota profiles in ASD patients followed at our center from 2021 onward. Data included clinical records, GI assessment, dietary patterns, and fecal microbiota analysis (16S rRNA sequencing) in 33 of 57 patients.
Results: The cohort included 57 patients (87.7% male, mean age 12.56 years). Common GI symptoms were constipation (43.9%), diarrhea (33.3%), dyspepsia/reflux (28.1%), and bloating (24.6%). Food selectivity occurred in 35.1% of cases. Among 33 patients profiled, increased Proteobacteria was seen in 48.5% of tested, reduced Actinobacteria in 69.7%, reduced Verrucomicrobia in 54.5%, and reduced Faecalibacterium in 15.2%. Therapeutic interventions included probiotics/prebiotics (84.2%), laxatives (31.6%), and non-absorbable antibiotics (33.3%).
Conclusions: In this real-world ASD cohort, GI symptoms, especially constipation and diarrhea, were highly prevalent, along with dietary selectivity. Dietary patterns like gluten/casein restriction influenced gut microbiota, and alterations matched previously described dysbiotic profiles. These findings support routine GI and dietary assessments in ASD and suggest microbiota-targeted interventions can be individualized. Prospective controlled studies are warranted.

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P11.03.

CIRCULATING MICROBIAL DNA IN HEALTHY INDIVIDUALS: BIOLOGICAL SIGNAL OR CONTAMINATION?

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Objective: The existence of a circulating microbiota in healthy individuals remains controversial, as blood is a low microbial biomass compartment highly susceptible to contamination. Although cfDNA sequencing can detect microbial DNA in plasma, the distinction between true microbial signals and technical/environmental background remains a major challenge. Our aim was to determine whether healthy blood donors have a circulating microbial signature by using a validated cfDNA metagenomic workflow.

Materials and Methods: We first developed and validated a workflow for bacterial cfDNA analysis, using synthetic samples containing a mock bacterial community, plasma cfDNA from healthy donors spiked with low bacterial loads, and simulated datasets containing bacterial DNA (range: 0.5% to 0.001%). The validated pipeline was then applied to plasma cfDNA of 122 prospectively recruited healthy blood donors.
Results: The workflow had high sensitivity and specificity, detecting all mock species in synthetic and spiked plasma samples. In simulated datasets, the pipeline had optimal performance down to 0.06% bacterial DNA, with reduced sensitivity below this level. In healthy donors, bacterial cfDNA represented a minor fraction of total sequencing reads (mean 0.16%). After decontamination, 78.9% of the initially detected taxa were removed. Most samples contained only few taxa (median: four taxa per sample), without consistent co-occurrence patterns or shared bacterial signatures identified across healthy individuals.
Conclusions: We found no evidence of circulating microbiota in healthy blood donors, with bacterial signals being inconsistent and largely attributable to contamination. Our findings also highlight the need for stringent contamination control in low microbial biomass studies.

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Conflicts of Interest
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P11.04.

GUT MICROBIOTA CHANGES IN NON-COELIAC GLUTEN/WHEAT SENSITIVITY DURING GLUTEN-FREE DIET

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Objective: Non-celiac gluten/wheat sensitivity (NCGWS) diagnosis is based on exclusion of celiac disease (CD) and wheat allergy and a positive response to gluten-free diet (GFD) but lacks validated biomarkers. While GFD can alleviate symptoms in both CD and NCGWS, it has been shown that it can alter gut microbiome.
Patients and Methods: Three cohorts of patients (CD, NCGWS, healthy controls-HC) undergoing a GFD were enrolled. Stool samples were collected at baseline (t0), 3 (t1), 7 (t2), and 30 (t3) days, and were sequenced *via* shotgun metagenomic and analyzed on MetaPhlAn 4.0 and HUMAnN 3.0 for taxonomic profiling. Alpha-diversity and relative abundances were computed. Symptomatology was scored using a modified Gastrointestinal Symptom Rating Scale (GSRS).
Results: At t0, most NCGWS had mixed bowel habits (29.6%) while 36.4% of CD had normal stools. Mean GSRS scores were higher in NCGWS *vs.* CD and HC. Alpha-diversity was similar across the cohorts, but beta-diversity differed. After 30 days of GFD, the scores in NCGWS for symptomatology decreased between t0 and all the time points considered; mean GSRS and GI scores were higher in NCGWS *vs.* HC and CD. Alpha-diversity remained stable over time. The relative abundance of *Clostridiaceae Bacterium* AF18-31LB decreased in NCGWS *vs.* HC (q<0.02), while for *Bifidobacterium longum* (SGB17248) and *Candidatus Cibionibacter quicibialis* decreased between t0 and t3 in NCGWS and HC (p<0.05).
Conclusions: NCGWS appears to be a multifactorial condition and shows a high burden of symptoms that partially improve on a GFD. Microbiome maintains a stable overall diversity after a GFD, showing a distinct taxonomic profile, not related to clinical changes.

Conflicts of Interest
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P11.05.

A TARGETED QPCR APPROACH TO PROFILE MICROBIAL ENZYMES DRIVING ONCOMETABOLITE SYNTHESIS IN GASTRIC CANCER

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Objective: The gastric microbiome contributes to gastric cancer (GC), potentially through microbial-derived metabolites that influence host-microbiome interactions driving tumor initiation and progression. Using machine learning, we identified 112 microbial-derived metabolites, including kynurenine, benzoquinone, and diaminopimelic acid, linked to specific microbial enzymatic pathways. Measuring these enzymes in gastric tissue may provide a functional readout of microbial metabolic activity within the tumor microenvironment. We aim to develop and validate quantitative PCR (qPCR) as a practical, cost-effective alternative to next-generation sequencing for large patient cohorts.
Materials and Methods: qPCR assays were designed using the PrimerQuest™ Tool (IDT, USA) with multiple reference sequences. *In silico* performance was evaluated using an in-house bioinformatics pipeline testing target detection across 114,218 bacterial genomes. Assays were prioritized based on sensitivity, specificity, precision, and F1 score, followed by *in vitro* validation.
Results: A total of 469 qPCR assays were designed: 38 for kynurenine, 50 for tryptophan catabolism, 240 for diaminopimelic acid, and 139 for benzoquinone. Top-performing assays (F1 score 0.5-1) targeted two kynurenine-, one tryptophan-, two diaminopimelic acid-, and one benzoquinone-related enzymes. Three multiplex assays were developed, each detecting four targets per reaction using distinct 5' fluorescent probe dyes. Each multiplex includes two microbial enzyme targets, one 16S rRNA gene (total bacterial abundance), and one host ACTB gene (normalization). Validation is underway in samples from 40 GC patients.
Conclusions: Targeted qPCR assays of microbial metabolic capacity enable scalable investigation of microbiome-cancer interactions and the role of microbial metabolites in GC development.

Conflicts of Interest
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P11.06.

GUT MICROBIOTA IN AZATHIOPRINE-TREATED INFLAMMATORY BOWEL DISEASE ACCORDING TO DISEASE ACTIVITY

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Objective: Azathioprine is widely used in the treatment of inflammatory bowel disease (IBD), yet therapeutic response varies considerably among patients. Since the gut microbiota may contribute to this variability, we investigated the association between gut microbiota composition, predicted microbial functions, and disease activity in azathioprine-treated IBD patients.
Materials and Methods: This cross-sectional study included 89 adult patients with Crohn's disease (CD) or ulcerative colitis (UC) receiving stable azathioprine therapy for at least three months. Fecal microbiota was profiled by 16S rRNA gene sequencing (V3–V4 region). Taxonomic analysis was performed using QIIME 2, followed by statistical and functional analyses in R. Patients were compared according to clinical and endoscopic disease activity. An independent cohort of healthy Serbian individuals served as a descriptive reference.
Results: No significant differences in alpha diversity were observed between CD and UC or between patients with active disease and those in clinical remission, although patients with more severe disease tended to have lower alpha diversity. Beta diversity showed only weak separation between CD and UC and no significant differences according to clinical disease activity. Compared with the healthy reference cohort, IBD patients exhibited lower microbial diversity. Differential abundance analysis identified enrichment of *Bifidobacterium, Collinsella,* and *Butyricicoccus* in remission, whereas *Butyricimonas* abundance positively correlated with fecal calprotectin. Functional prediction suggested increased microbial potential for folate biosynthesis and amino acid metabolism in remission, while active disease was associated with higher predicted potential for flagellar assembly and xenobiotic degradation pathways.
Conclusions: Although overall microbial diversity remained largely unchanged, disease activity was associated with differences in specific bacterial taxa and predicted microbial functions. These findings support a potential contribution of the gut microbiota to variability in clinical outcomes during azathioprine therapy and warrant validation in larger longitudinal studies.

Conflicts of Interest
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P11.07.

COEXISTENCE OF RIGHT-SIDED ULCERATIVE COLITIS AND SUSPECTED EOSINOPHILIC ESOPHAGITIS WITH COMPLEX GASTRODUODENAL MOTILITY DISORDERS: A CASE REPORT

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Background: This report presents the clinical case of a 42-year-old male with chronic gastrointestinal distress who underwent a comprehensive diagnostic evaluation comprising upper endoscopy, barium radioscopy, and colonoscopy with histopathology.
Case report: Initial upper gastrointestinal endoscopy and histological examination performed in July 2025 revealed non-erosive reflux disease, a 1.5-cm axial hiatal hernia, and Helicobacter pylori-negative chronic inactive gastritis. Notably, esophageal biopsies demonstrated a marked mucosal eosinophilic infiltration of 10-20 eosinophils per high-power field, raising a strong clinical suspicion of underlying eosinophilic esophagitis. Subsequent functional assessment via barium radioscopy in December 2025 revealed significant gastroduodenal motility impairment, characterized by partial cardia insufficiency leading to gastroesophageal reflux, alongside marked duodenogastric bile reflux. A follow-up colonoscopy in March 2026 identified macroscopic inflammatory changes, including edema, hyperemia, and fibrin deposits localized specifically to the ascending colon and cecum (Mayo score 2). Histopathological evaluation confirmed chronic, mildly active non-specific ulcerative colitis (Nancy grade 2), characterized by lymphocytic and eosinophilic infiltration, crypt deformation, and microabscesses. Overall, this case illustrates an intricate overlap of upper and lower gastrointestinal pathologies, suggesting a potential broader systemic immune-mediated dysregulation. Furthermore, the objective coexistence of dual reflux mechanisms – both acidic and biliary – complicates clinical management.

Conclusions: Taken together, these findings highlight the complexity of the patient's condition and underscore the necessity for a personalized, multidisciplinary therapeutic approach incorporating the management of underlying inflammatory bowel disease, gastrointestinal motility disturbances, dual reflux, and the eosinophilic component.

Conflicts of Interest
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P11.08.

PYRIDOSTIGMINE FOR FUNCTIONAL CONSTIPATION AND CONSTIPATION-PREDOMINANT IRRITABLE BOWEL SYNDROME: A 5-YEARS REAL WORLD EXPERIENCE

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Objective: Functional constipation (FC) and constipation-predominant irritable bowel syndrome (IBS-C) are highly frequent diseases characterized by chronic constipation (up to 24% in adults). The initial management of chronic constipation typically involves dietary and lifestyle modifications, fiber supplementation, and laxative therapy. For patients who do not respond to these interventions, second line therapies, such as medications with prokinetic effects are recommended. Pyridostigmine, an anticholinesterase agent commonly used in the treatment of myasthenia gravis and paralytic ileus, may play a role in refractory chronic constipation.
Patients and Methods: This work follows our previous, positive experience with pyridostigmine for FC and IBS-C. We carried out a retrospective observational study involving all patients diagnosed with FC or IBS-C, according to the Rome IV criteria, who met the definition of severe chronic constipation (defined as two or fewer spontaneous and complete bowel movements per week for a minimum of 6 months, associated with hard stools, sensation of incomplete evacuation, or straining during defecation in at least 25% of bowel movements), refractory to first-line treatments (dietary and lifestyle counseling, bulk-forming laxatives, osmotic laxative such as polyethylene glycol and stimulant laxative such as bisacodyl) and who were treated with pyridostigmine in our outpatient gastroenterology clinic from April 2021 to March 2026. Patients were included if they attended at least one follow-up visit within 12 weeks after treatment. We excluded all patients with organic gastrointestinal disorders. We evaluated the improvement in constipation at follow-up, defined as patients having three or more spontaneous, complete bowel movements per week during the follow-up period. We also evaluated any improvement in other gastrointestinal symptoms and the safety profile of the treatment.
Results: Overall, 233 patients were included in the study, of whom 149 (64%) met the criteria for IBS-C and 84 for chronic idiopathic constipation (37%). Other gastrointestinal symptoms included bloating (n=186, 80%), abdominal pain (n=152, 65%), dyspepsia (n=63, 27%). Overall, 173 (74%) patients experienced an improvement in constipation. Additionally, the treatment provided improvements in other gastrointestinal symptoms: 124/152 (81%) patients experienced relief from abdominal pain, 110/186 from bloating (59%), and 41/63 (65%) from dyspepsia. Finally, 10 (0.4%) patients have discontinued therapy due to pyridostigmine intolerance (6 patients experienced diarrhea, 2 patients fatigue, and 2 patients urinary urgency); no severe therapy-related adverse events were observed.
Conclusions: In our 5-years real world cohort, pyridostigmine was an effective and safe treatment for IBS-C and chronic idiopathic constipation in patients unresponsive to first-line treatments, providing benefits not only in alleviating constipation but also in ameliorating other gastrointestinal symptoms. This work strengthens our previously reported data. Further prospective and randomized studies are needed to confirm our findings.

Conflicts of Interest
William Fusco: None, Andrea Severino: None, Antonio Sibilla: None, Ernesto Margarita: None, Simone Varca: None, Serena Porcari: None, Giovanni Gasbarrini: None, Antonio Gasbarrini: Speakers Bureau/Honoraria: Takeda S.p.A, AbbVie, Sandoz S.p.A; Consultant/Advisory Board: Eisai S.r.l., 3PSolutions, Real Time Meeting, Fondazione Istituto Danone, Sinergie S.r.l. Board MRGE, Sanofi S.p.A, VSL3, Gianluca Ianiro: Speakers Bureau/Honoraria: Biocodex, Danone, Sofar, Malesci, Metagenics, Tillotts Pharma, Alfa Sigma, Biocodex, Illumina, Malesci, Sofar, Tillotts Pharma; Consultant/Advisory Board: Biocodex, Malesci, Tillots Pharma.

P11.09.

SMALL INTESTINAL BACTERIAL AND METHANOGEN OVERGROWTH IN METABOLIC AND VIRAL LIVER DISEASES: A POOLED COMPARATIVE COHORT

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Objective: The gut-liver axis has an important role in the progression of chronic liver diseases (CLD); small intestinal bacterial overgrowth (SIBO) may contribute to intestinal permeability, systemic inflammation, altered bile acid metabolism and liver-related biochemical abnormalities. However, comparative data on SIBO and intestinal methanogen overgrowth (IMO) across different etiological groups of CLD remain limited. This study aimed to evaluate the prevalence of SIBO and IMO in patients with metabolic liver disease and viral hepatitis, and to investigate whether microbial overgrowth patterns differ according to liver disease etiology and biochemical profile.
Patients and Methods: We performed a pooled analysis of two clinical datasets including patients evaluated for SIBO/IMO. After data cleaning and de-identification, 311 patients were included in the final analysis: 133 patients with metabolic liver disease (MLD), 178 patients with viral hepatitis (VH). SIBO and IMO status were standardized from breath-test based source variables. Laboratory parameters included ALT, AST, GGT, ALP, platelet count, hemoglobin, ESR and FIB-4 index. Ultrasonographic findings were also evaluated where available. Continuous variables were expressed as median with interquartile range and compared using the Mann-Whitney U test. Categorical variables were compared using chi-square or Fisher's exact test, odds ratios with 95% confidence intervals were calculated when appropriate.
Results: SIBO status was available for 310 patients. Overall, 109 patients were SIBO-positive, corresponding to a prevalence of 35.2% in the pooled CLD cohort. SIBO was detected in 40/133 patients with MLD and in 69/177 patients with VH (30.1% and 39.0%). Although SIBO was numerically more frequent among patients with VH, the difference did not reach statistical significance (p=0.104; OR for VH *vs.* MLD 1.49, 95% CI 0.92-2.40). In contrast, IMO showed a distinct distribution between the two etiological groups. IMO was significantly more common in MLD than in VH, being detected in 22/81 *vs.* 8/78 evaluable patients (27.2% *vs.* 10.3%, p=0.006; OR 3.26, 95% CI 1.35-7.87). Biochemical comparison between etiological groups demonstrated that patients with MLD had higher ALT, GGT, platelet count, and hemoglobin levels, whereas patients with VH had higher ALP, ESR, and FIB-4 values. These findings suggest that bacterial and IMO may not follow the same distribution across liver disease etiologies and may reflect different metabolic, inflammatory or fibrosis-related phenotypes.
Conclusions: SIBO was numerically more frequent in VH but was not statistically different between metabolic and viral etiologies, whereas IMO was significantly associated with MLD. The higher frequency of IMO in MLD may indicate a distinct gut microbial phenotype linked to metabolic dysfunction, altered motility or obesity-related intestinal changes. These findings support systematic breath-test phenotyping in CLD and provide a basis for larger prospective studies using multivariable models to clarify the independent relationship between SIBO/IMO, liver disease etiology, fibrosis burden and biochemical activity.

Conflicts of Interest
Rashad Hasanov: None, Gulustan Babayeva: None, Esmira Abdullayeva: None.

P11.10.

BIOCHEMICAL CHARACTERISTICS OF SIBO-POSITIVE PATIENTS WITH CHRONIC LIVER DISEASE: A POOLED ANALYSIS OF METABOLIC AND VIRAL ETIOLOGIES

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Objective: SIBO is increasingly recognized as a potential contributor to gut-liver axis dysfunction in chronic liver disease (CLD). Bacterial overgrowth may promote endotoxemia, intestinal inflammation, immune activation and hepatic biochemical abnormalities; however, its relationship with liver enzyme patterns and non-invasive fibrosis markers remains insufficiently characterized.
This study aimed to compare demographic, biochemical, inflammatory and fibrosis-related parameters between SIBO-positive and SIBO-negative patients in a pooled cohort including both metabolic liver disease (MLD) and viral hepatitis (VH).
Patients and Methods: We analyzed a de-identified pooled dataset of 311 patients with CLD (patients with VH and MLD). SIBO status was available in 310 patients. Variables included age, sex, underlying liver disease category, ALT, AST, GGT, ALP, platelet count, hemoglobin, ESR, ultrasonographic findings, FIB-4 index. Continuous variables were summarized as median with interquartile range because most laboratory variables were not assumed to follow normal distribution. Between-group comparisons were performed using the Mann-Whitney U test for continuous variables and chi-square or Fisher's exact test for categorical variables. Clinically relevant biochemical thresholds, including ALT >40 U/L and ALP >120 U/L, were also analyzed.
Results: Among 310 evaluable patients, 109 were SIBO-positive and 201 SIBO-negative, giving an overall SIBO prevalence of 35.2%. SIBO-positive patients were slightly younger than SIBO-negative patients, with a median age of 43.5 (36.0-55.0) *vs.* 46.0 (37.0-60.3) years (p=0.048). SIBO positivity was associated with a more pronounced biochemical activity profile. Median ALT was significantly higher in SIBO-positive patients than in SIBO-negative patients (42.0 [25.0-67.0] *vs.* 31.5 [20.0-51.3] U/L, p=0.003). AST was also higher in the SIBO-positive group (33.5 [23.6-52.0] *vs.* 27.1 [21.0-42.0] U/L, p=0.012). In addition, ALP values were significantly elevated among SIBO-positive patients compared with SIBO-negative patients (95.9 [75.0-157.8] *vs.* 81.0 [64.0-107.0] U/L, p=0.007), suggesting that SIBO may be associated not only with hepatocellular injury markers but also with a cholestatic biochemical component. ALT >40 U/L was more frequent in SIBO-positive patients than in SIBO-negative patients (52.3% *vs.* 38.5%, p=0.020; OR 1.75, 95% CI 1.09-2.82). Similarly, ALP >120 U/L was more common among SIBO-positive patients (30.7% *vs.* 18.8%, p=0.045; OR 1.91, 95% CI 1.01-3.63). In contrast, platelet count, hemoglobin, ESR and FIB-4 index did not differ significantly according to SIBO status, indicating that SIBO was more strongly related to biochemical activity than to non-invasive fibrosis burden in this pooled dataset.
Conclusions: These findings suggest that SIBO may represent a gut-liver axis marker of biochemical activity rather than advanced fibrosis in mixed-etiology CLD. The observed association between SIBO and liver enzyme abnormalities supports further prospective studies evaluating causality, disease-specific effects, symptom correlations and whether SIBO-directed treatment can improve biochemical or clinical outcomes in CLD.

Conflicts of Interest
Rashad Hasanov: None, Gulustan Babayeva: None, Esmira Abdullayeva: None.

P11.11.

IMPACT OF POST-PROCESSING STRATEGIES ON METATRANSCRIPTOMIC FUNCTIONAL PROFILES FROM HUMAN TISSUES WITH LOW MICROBIAL BIOMASS

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Objective: Human tissues with low microbial biomass pose a major challenge in metatranscriptomics because the low ratio of microbial to host RNA limits functional characterization of the microbiome. We previously developed a metatranscriptomics approach enabling accurate functional profiling in low microbial biomass tissues. However, interpretation of microbial functional activity is strongly influenced by post-processing choices, which are often applied implicitly and lack standardization. Our aim was to systematically evaluate and refine downstream functional analysis strategies to improve the interpretability and reproducibility of metatranscriptomic functional profiles in human tissues with low microbial biomass.

Materials and Methods: Building on our high-resolution metatranscriptomics framework, we assessed and compared post-processing strategies applied to HUMAnN-derived functional profiles from cancer tissue specimens. These included normalization approaches, handling unmapped and ungrouped features, species-stratified *vs.* community-level representations, regrouping across multiple functional annotation systems (e.g., EC, KO, GO, Pfam, EggNOG), and recomputation of pathway abundances from normalized gene families.
Results: We demonstrated that functional post-processing strategies, particularly normalization and feature inclusion, led to substantial differences in functional abundance profiles derived from identical metatranscriptomic data. Recomputing pathways from normalized gene families reduced depth-related and pathway overlap artifacts, while functional regrouping enabled broader interpretation of microbial activity beyond established metabolic pathways.
Conclusions: These findings highlight the critical role of functional post-processing in shaping the interpretation of metatranscriptomic outputs and provide a structured framework to improve the consistency, interpretability, and reproducibility of microbiome functional analyses in low microbial biomass human tissues.

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Conflicts of Interest
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POSTER SESSION 12 - CANCER 2

P12.01.

A RARE CASE OF MINEN IN STOMACH DIAGNOSED AFTER ENDOSCOPIC RESECTION

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Background: Mixed neuroendocrine-non-neuroendocrine tumors (MiNEN) are rare tumors with more than 30% of each component. They are known to have a poor prognosis because they generally follow the biological behavior of the more malignant component of the two components. Therefore, even if complete endoscopic resection is performed, additional surgery should be considered.
Case Report: A 78-year-old male presented to our hospital following a screening endoscopy that revealed a 2 cm elevated mucosal lesion with a central depression on the posterior wall of the gastric antrum. Initial biopsy results indicated gastric high-grade dysplasia and suspected early gastric cancer (R/O EGCa IIa+IIc).
Abdominal and chest computed tomography (CT) scans showed no evidence of distant metastasis or other remarkable findings; subsequently, endoscopic submucosal dissection (ESD) was performed. Histopathological examination led to a diagnosis of mixed neuroendocrine-non-neuroendocrine neoplasm (MiNEN), consisting of well-differentiated tubular adenocarcinoma (35%) and well-differentiated neuroendocrine tumor (NET G3, 65%). The lesion exhibited submucosal invasion (pT1b, 2.2 mm) and was positive for lymphatic invasion. As positron emission tomography-computed tomography (PET-CT) revealed no evidence of metastasis, a distal gastrectomy with lymph node dissection was performed. Histopathological examination of the surgical specimen confirmed micrometastasis (0.2 mm) in 1 out of 21 dissected lymph nodes, resulting in a final staging of pT1bN1M0. Immunohistochemical analy-

sis demonstrated positivity for CD56, synaptophysin, and INSM1, along with a Ki-67 labeling index of 50%. Given that both tumor components were of the well-differentiated type, the patient is currently undergoing close follow-up without additional adjuvant chemotherapy. At the 12-month follow-up, no remarkable findings or evidence of recurrence have been observed.
Conclusions: This case report demonstrates that surgical intervention is strongly recommended if any of the following criteria are met:
- Poorly differentiated neuroendocrine carcinoma (NEC) component: This carries a high risk of lymph node metastasis, irrespective of the depth of invasion.
- Submucosal (SM) invasion: Especially in cases of deep submucosal invasion.
- Positive lymphovascular invasion (LVI).
- Positive or indeterminate (uncertain) resection margins.
- High-grade (severe) tumor budding.
Furthermore, given the high recurrence rate associated with MiNEN, more frequent surveillance is recommended compared to conventional gastric cancers, although standardized follow-up guidelines have yet to be established.

Conflicts of Interest
Tae Ho Kim: None.

P12.02.

PROTEOMIC ANALYSIS OF EXTRACELLULAR VESICLES REVEALS VITRONECTIN AND LAMININ SUBUNIT ALPHA-3 AS CANDIDATE BIOMARKERS FOR GASTRIC CANCER

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Objective: Clinically useful noninvasive biomarkers for gastric cancer remain limited. Extracellular vesicles (EVs) carry a molecular cargo reflective of their cells of origin and have emerged as promising candidates for blood-based cancer biomarkers. We aimed to identify EV-associated protein biomarkers for gastric cancer via a proteomic approach.
Materials and Methods: Proteomic profiling of EVs was performed by using one normal gastric cell line (Hs738st/int) and two gastric cancer cell lines (AGS and NCI-N87). Selected proteins were validated in blood-derived EVs isolated from plasma samples of 10 healthy controls and 36 patients with gastric cancer.
Results: Proteomic analysis identified 224 differentially expressed proteins whose expression was consistently altered in gastric cancer cell line-derived EVs. Among these, vitronectin (VTN) and laminin subunit alpha-3 (LAMA3) were selected based on their consistent upregulation. EV-associated LAMA3 levels were significantly higher in patients with gastric cancer than in healthy controls (p=0.003), with significant elevations observed from stage II onward (p=0.041, p=0.017, and p=0.004 for stages II, III, and IV, respectively). EV-associated VTN levels were not significantly different overall (p=0.089); however, stage-specific analysis demonstrated significant increases in VTN levels in patients with stage III (p=0.036) and stage IV (p=0.005) gastric cancer. Both EV-associated VTN and LAMA3 levels showed significant positive correlations with the cancer stage (p=0.564 and p=0.611, respectively; both p<0.001) (Figure 1).
Conclusions: The levels of EV-associated VTN and LAMA3 appear to be more closely associated with disease progression than with early-stage detection of gastric cancer. These findings suggest that EV-based proteomic biomarkers may have clinical utility for monitoring tumor progression in patients with clinically advanced gastric cancer.

Conflicts of Interest
Dong Chan Joo: None, Gwang Ha Kim: None.

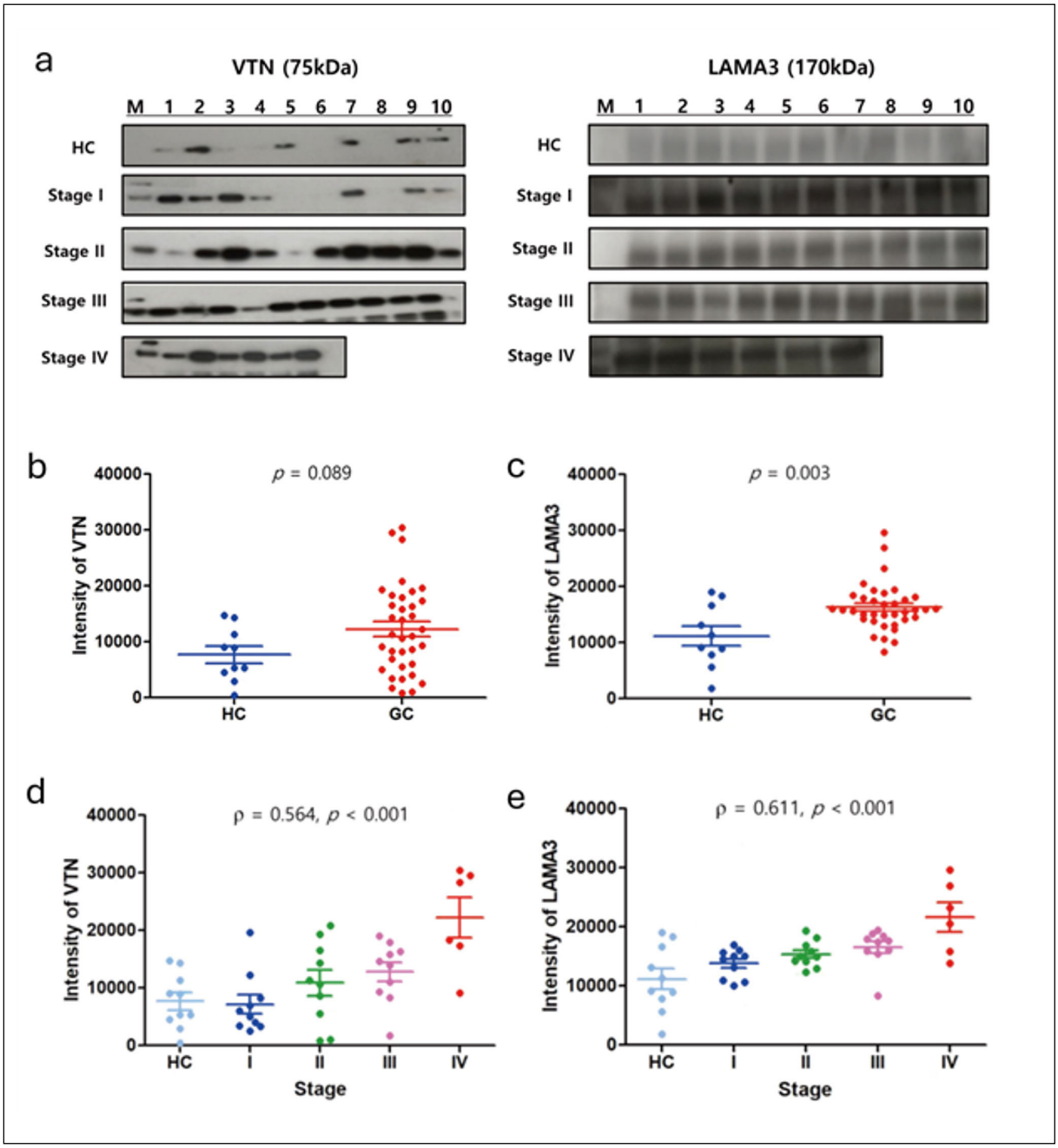

FIGURE 1. VALIDATION OF EXOSOME-ASSOCIATED VTN AND LAMA3 IN HEALTHY CONTROLS (HCS) AND PATIENTS WITH GASTRIC CANCER (GCS). *A*, WESTERN BLOT DETECTION OF VTN AND LAMA3 IN EXOSOME-ASSOCIATED PROTEINS ISOLATED FROM PERIPHERAL BLOOD OF HCS AND GCS AT DIFFERENT CLINICAL STAGES. ALL SAMPLES WERE DERIVED FROM THE SAME EXPERIMENT, AND THE BLOTS WERE PROCESSED IN PARALLEL UNDER IDENTICAL CONDITIONS. THE CORRESPONDING DATA ARE SHOWN IN (B–E). *B*, VTN/TOTAL PROTEIN INTENSITY RATIO BETWEEN HCS AND GCS. *C*, LAMA3/TOTAL PROTEIN INTENSITY RATIO BETWEEN HCS AND GCS. *D*, THE CORRELATION ANALYSIS BETWEEN EXOSOME-ASSOCIATED VTN LEVELS AND GC STAGE. *E*, THE CORRELATION ANALYSIS BETWEEN EXOSOME-ASSOCIATED LAMA3 LEVELS AND GC STAGE.

P12.03.

MULTI-OMICS PROFILING OF OLGIM-STAGED GASTRIC TISSUE IDENTIFIES P1-HNF4A AS A STAGE-ASSOCIATED REGULATORY ISOFORM

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Objective: Gastric cancer remains a leading cause of cancer-related mortality worldwide and typically develops through a stepwise precancerous cascade, in which intestinal metaplasia (IM) represents a critical intermediate stage associated with increased cancer risk. The Operative Link on Gastric Intestinal Metaplasia (OLGIM) staging system stratifies IM severity and correlates with cancer risk; however, the molecular mechanisms driving stage-dependent progression remain poorly defined.
Patients and Methods: We performed integrative multi-omics profiling of 96 human gastric tissues from early-stage gastric cancer patients who underwent endoscopic submucosal dissection. OLGIM stage-associated chromatin accessibility was assessed using Assay for Transposase-Accessible Chromatin with sequencing (ATAC-seq) and integrated with RNA sequencing (RNA-seq) and Circular Chromosome Conformation Capture sequencing (4C-seq) to identify key regulatory factors and isoform-specific activity.
Results: ATAC-seq peak profiles effectively discriminated between low and high OLGIM stages, outperforming RNA-seq. Positive and negative correlation peaks were mutually exclusive, suggesting the presence of a master regulatory mechanism in IM progression. Motif enrichment analysis identified hepatocyte nuclear factor 4 alpha (HNF4a) as a central regulator with progressively increased activity. Isoform-specific analysis showed that the P1-driven HNF4a isoform, but not P2, and was upregulated in a stage-dependent manner. Additionally, 4C-seq revealed distinct enhancer-promoter interactions between low and high OLGIM stages.
Conclusions: Our findings demonstrate isoform-specific activation of HNF4a in gastric IM and identify the P1 isoform as a stage-associated regulatory factor. This study provides mechanistic insight into epigenomic reprogramming across OLGIM stages and highlights P1-HNF4a as a candidate biomarker of disease progression in gastric IM.

Conflicts of Interest
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P12.04.

MUCOSAL INCISION DEEP BIOPSY FOR SUBEPITHELIAL TUMORS: A USEFUL AND SAFE DIAGNOSTIC TECHNIQUE

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Objective: For the definitive diagnosis of subepithelial tumors (SETs), obtaining sufficient tissue is essential. Improved tissue sampling techniques are needed to enhance pathological diagnosis. The aim of this study was to evaluate the usefulness and safety of mucosal incision deep biopsy for SETs.
Patients and Methods: This study included 10 patients (male : female = 4 : 6) who underwent mucosal incision deep biopsy for gastric SETs at Seoul Paik Hospital. Medical records were retrospectively reviewed. Tumor characteristics, including size, location, layer of origin, pathological diagnosis, treatment, and procedure-related complications, were analyzed.

Results: The median size of the SETs was 19.7 mm. Tumor locations were as follows: 4 in the antrum, 3 in the body, 2 in the cardia, and 1 in the fundus. Based on endoscopic ultrasound (EUS) findings, all tumors originated from the proper muscle (PM) layer. The diagnostic yield of mucosal incision deep biopsy was 100%, and pathological diagnoses were obtained in all cases (gastrointestinal stromal tumor [GIST], n = 7; leiomyoma, n = 2; ectopic pancreas, n = 1). However, in two cases, the tissue samples were insufficient to determine the mitotic index of GIST. No major procedure-related complications occurred. One case of micro-perforation was observed following the procedure. Among the 7 patients with GIST, 3 underwent surgical resection due to relatively high malignant potential based on EUS and histological features.
Conclusions: Mucosal incision deep biopsy is a useful and relatively safe diagnostic modality for gastric SETs and may aid in selecting appropriate treatment strategies.

Conflicts of Interest
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P12.05.

MICROBIOME MODULATION PROMOTES INTERFERON-DRIVEN ANTI-TUMOR IMMUNITY IN COLORECTAL CANCER

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Objective: The gut microbiome influences colorectal cancer (CRC) development and anti-tumor immunity. Mismatch repair deficient (MMRd) and mismatch repair proficient (MMRp) CRC represent biologically and clinically different disease subtypes, with MMRd tumors generally displaying higher immunogenicity. However, how the microbiome contributes to these differences remains unclear.
Materials and Methods: The effect of microbiome modulation was evaluated in preclinical models of CRC, including a genetically engineered mouse model and a subcutaneous tumor model. Tumor transcriptomes were analyzed by bulk RNA-sequencing and gene set enrichment analysis. An interferon-associated gene signature derived from mouse tumors was applied to a human CRC cohort. Associations with MMR status and immune composition were assessed.
Results: Microbiome modulation restrained tumor growth in the MMRd mouse model, reducing tumor incidence and size, with similar results observed in the subcutaneous model. Transcriptomic analysis showed enrichment of interferon response signatures in tumors following microbiome manipulation. The interferon signature stratified human CRCs and was enriched in MMRd tumors but also identified a subset of MMRp tumors with higher interferon signaling. The signature correlated positively with multiple immune checkpoint genes, including PD-1 and CTLA-4, as well as markers of antigen presentation and cytotoxicity.
Conclusions: Microbiome modulation restrains CRC growth and promotes an interferon-driven anti-tumor immune phenotype. This interferon signature may help stratify patients beyond MMR status.

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Conflicts of Interest
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P12.06.

ASSESSMENT OF CHANGES IN THE PATTERN OF IMMUNE CELL INFILTRATE SUBPOPULATION IN SYNGENEIC MC38 COLORECTAL CANCER DURING COURSE ADMINISTRATION OF GLUTAMYL-TRYPTOPHAN: AN EXPERIMENTAL STUDY

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Objective: Despite progress in gastric cancer screening and treatment, effective approaches for precancerous conditions like chronic atrophic gastritis remain needed. Cancer prevention *via* modification of local immunity is a promising strategy to reduce malignant neoplasms. The study aimed to assess changes in immune infiltrate in a syngeneic tumor model after alpha-glutamyl-tryptophan administration in mice.
Materials and Methods: Tumor material from syngeneic MC38 colorectal cancer cells transplanted intramammarily in 25 adult female mice. Experimental mice (n=13) received alpha-glutamyl-tryptophan (0.02 mg/kg); controls (n=12) received saline. Administrations began 14 days before transplantation and continued until day 14 or 21 post-transplantation. Tumor growth kinetics and immune infiltrate composition were assessed by flow cytometry.
Results: Alpha-glutamyl-tryptophan did not affect tumor growth but altered immune infiltrate composition: decreased CD45+ cells, increased CD3+ cells, and reduced M2-like macrophages with high MHC expression. DN cells increased in both groups. In controls, DN NK+ cells decreased twofold, unlike in the experimental group. Reduced CD3+CD8+ and NK1.1+ cells in both groups confirmed tumor progression. Unlike the experimental group, controls showed a marked decline in CD3+, MHC II low CD206+, and DN NK1.1+ cells, suggesting a shift toward an immunosuppressive tumor microenvironment.
Conclusions: This is the first evaluation of immune infiltrate changes in a syngeneic tumor model in immunocompetent mice treated with alpha-glutamyl-tryptophan, identifying potential effector populations mediating immunosurveillance of tumor promotion and progression *in vivo*. Further controlled studies are necessary to confirm the potential role of alpha-glutamyl-tryptophan in the immune infiltrate positive changes around the tumor.

Conflicts of Interest
Sergey Savelyev: None, Yaroslav Murazov: None, Petr Beltiukov: None, Natalia Baryshnikova: None, Sergey Petlenko: None.

P12.07.

ABERRANT P53 EXPRESSION IN GASTRIC INTESTINAL METAPLASIA MIRRORS THAT OF ADJACENT NEOPLASTIC LESIONS: A CROSS-SECTIONAL FIELD CANCERIZATION ANALYSIS

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Objective: Gastric cancer is a leading cause of mortality, and most intestinal-type adenocarcinomas arise through stepwise progression in which gastric intestinal metaplasia (IM) is a recognized premalignant lesion. Current guidelines recommend stratified surveillance, but conventional histology imperfectly distinguishes high from low-risk IM. Aberrant p53 immunohistochemistry (strong overexpression or null staining) is a validated surrogate of TP53 mutation and an early event in the Correa cascade. Whether p53 status in IM mirrors that of the adjacent lesion, and how it varies with IM subtype, anatomical site, and *Helicobacter pylori* status, remains incompletely characterized.

Patients and Methods: This was a single-center cross-sectional analysis of 40 consecutive cases with synchronous gastric IM and a neoplastic lesion (high-grade dysplasia or adenocarcinoma). p53 was scored separately in IM and the adjacent lesion (AL) as wild-type, overexpression, or null pattern; overexpression and null were collapsed into "aberrant". Concordance was assessed by Cohen's kappa and McNemar's exact test. Bivariate associations used Fisher's exact test; effect sizes are Haldane-corrected odds ratios with 95% CI. Multivariable logistic regression for aberrant p53 in IM included incomplete IM, cardia, and age. Holm-Bonferroni correction was applied across seven primary tests.
Results: The cohort was predominantly male (32/40, 80.0%); mean age 63.5 ± 9.0 years. The accompanying lesion was adenocarcinoma in 32 (80.0%) and high-grade dysplasia in 8 (20.0%); 32 (80.0%) were invasive. Sites: antrum 14, cardia 13, corpus 10, incisura 3. *H. pylori* was untested in 27/40 (67.5%); of 13 tested, 5 were positive and 8 negative. Aberrant p53 was present in 23/40 (57.5%) IM and 25/40 (62.5%) AL specimens. IM-AL concordance was nearly perfect (kappa = 0.896, 95% CI 0.76-1.00; agreement 95.0%); only two cases were discordant, both wild-type IM with aberrant AL. Incomplete IM was more often associated with aberrant p53 than complete IM (14/19, 73.7% *vs.* 9/21, 42.9%; OR 3.73, 95% CI 0.95-14.66; $p = 0.062$). In multivariable analysis, incomplete IM was independently associated with aberrant p53 (adjusted OR = 4.61, 95% CI 1.09-19.54; $p = 0.038$; model likelihood-ratio $p = 0.041$). All 13 cardia lesions were invasive versus 19/27 (70.4%) non-cardia lesions ($p = 0.037$), and aberrant p53 was numerically highest at the cardia (10/13, 76.9%). Among tested cases, aberrant p53 trended lower in *H. pylori*-positive than negative cases (40% *vs.* 62.5%; $p = 0.59$).
Conclusions: p53 status in gastric IM mirrors that of the adjacent lesion almost without exception, supporting molecular field cancerization and identifying IM-derived p53 immunohistochemistry as a potentially informative surrogate when adjacent-lesion tissue is limited. Incomplete IM independently associates with aberrant p53 after multivariable adjustment, aligning with the elevated cancer risk attributed to incomplete-type IM in current guidelines. Cardia lesions, uniformly invasive at presentation, may represent a biologically distinct subset requiring confirmation in cohorts with complete *H. pylori* testing.

Conflicts of Interest
Emin Mammadov: None, Gulustan Babayeva: None, Camal Musayev: None.

P12.08.

EUGASTSCREEN: A EUROPEAN IMPLEMENTATION STUDY ON SIMULTANEOUS SCREENING FOR GASTRIC AND COLORECTAL CANCERS

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Objective: *Helicobacter pylori* (*H. pylori*) is the primary causative factor for gastric cancer, with an estimated prevalence of 39.6 % in Europe. The EU Council has recommended implementation studies evaluating *H. pylori* screen-and-treat strategies in countries or regions with high gastric cancer incidence and mortality. EUGastScreen aims to evaluate the feasibility and acceptability of simultaneous gastric cancer prevention and colorectal cancer (CRC) screening by combining *H. pylori* stool antigen testing (SAT) with fecal immunochemical testing (FIT). Secondary objectives include assessing participation rates, barriers and facilitators, and adaptability across diverse European public health settings.

Patients and Methods: EUGastScreen is a multinational, prospective, implementation study conducted in Latvia, Italy, Portugal, Estonia, and Lithuania. Individuals entering the target age for CRC screening will be invited to undergo simultaneous SAT and FIT testing within existing or planned FIT-based CRC screening pathways. Participants with positive SAT results will be offered *H. pylori* eradication therapy, with success treatment assessed using ^{13}C-urea breath test. Upper endoscopy will be recommended when clinically indicated. FIT-positive participants will be referred to as colonoscopy according to national screening pathways. Clinical, laboratory, endoscopic, and patient-reported data will be collected through a centralized secure online database.
Results: The study will assess participation rates, prevalence of FIT and SAT positivity, treatment uptake, eradication success, adverse events, endoscopy referral and completion rates, and endoscopic findings. Implementation barriers and facilitators across participating countries will also be evaluated.
Conclusions: EUGastScreen will generate evidence to inform future integration of gastric cancer prevention into organized CRC screening programs in Europe.

Conflicts of Interest
Kateryna Priadko: Research Grant: EUCanScreen project, Yelena Tarasenko: Research Grant: EUCanScreen project, Paula Nalivaiko: Research Grant: EUCanScreen project, Maksims Jakovenko: Research Grant: EUCanScreen project, Rocco Maurizio Zagari: Research Grant: EUCanScreen project, Silvia Taffetani: Research Grant: EUCanScreen project, Giuseppe Feliciangeli: Research Grant: EUCanScreen project, Mário Dinis-Ribeiro: Research Grant: EUCanScreen project, Ana Carina Pereira: Research Grant: EUCanScreen project, Raquel Ramos: Research Grant: EUCanScreen project, Fernando Tavares: Research Grant: EUCanScreen project, Thomas Zimmerer: Research Grant: EUCanScreen project, Kaire Innos: Research Grant: EUCanScreen project, Audrius Dulskas: Research Grant: EUCanScreen project, Ilva Kononova: Research Grant: EUCanScreen project, Dārta Zaķe: Research Grant: EUCanScreen project, Mārcis Leja: Research Grant: EUCanScreen project.

P12.09.

USF1-202 G/A POLYMORPHISM AND CIRCULATING USF1/USF2 LEVELS AS BIOMARKERS OF GASTRIC CANCER SUSCEPTIBILITY

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Objective: Gastric cancer remains one of the most aggressive neoplasms worldwide, often associated with a bad prognosis. Identifying genetic and serological biomarkers is essential for early detection and risk stratification. Upstream Stimulatory Factors USF1 and USF2 are pleiotropic transcription factors implicated in cellular metabolism, immune regulation, and tumor suppression, with altered expression patterns reported in gastric carcinogenesis. Our case-control study aimed to investigate the association between the USF1-202 G/A promoter polymorphism, serum concentrations of USF1 and USF2, and gastric cancer risk in *Helicobacter pylori*-infected individuals with chronic gastritis, precancerous gastric lesions, gastric cancer, and healthy controls.
Materials and Methods: Genotyping was performed using Sanger sequencing, and serum protein levels were measured by ELISA.

Results: The results showed that the A allele was significantly associated with an increased risk of gastric cancer, and individuals carrying GA or AA genotypes exhibited a markedly higher susceptibility compared with GG homozygotes. The G to A transition was associated with substantially reduced circulating USF1 levels, with the lowest concentrations observed in patients with gastric cancer. This reduction was approximately 2.3 and twofold in the AA and GA genotypes, respectively, compared to GG carriers, suggesting functional consequences of the polymorphism on USF1 expression. Changes in serum USF2 levels were also detected across disease stages, indicating a broader dysregulation of the USF transcription factor network. This imbalance may contribute to alterations in metabolic and inflammatory pathways within the tumor microenvironment.
Conclusions: These findings identify USF1-202 G/A polymorphism and serum USF1/USF2 concentrations as promising biomarkers for gastric cancer detection and prevention strategies.

Conflict of Interest
Ghizlane Bounder: None, Imane Essaidi: None, Ilhame Elyounsi: None, Hasna Boura: None, Joumana Elturk: None, Valérie Michel: None, Eliette Touati: None, Fatima MAACHI: None.

POSTER SESSION 13 – MICROBIOTA 3 – PROBIOTICS AND INTERVENTIONS

P13.01.

FROM LABORATORY TO REAL CLINICAL PRACTICE: A MULTIDISCIPLINARY APPROACH TOWARDS THE NEXT PROBIOTICS

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Objective: *Helicobacter pylori* is a major cause of chronic gastritis and peptic ulcer disease. The increasing global spread of antibiotic-resistant strains, particularly against amoxicillin and clarithromycin, poses a significant challenge to eradication therapies. Moreover, treatment-related adverse effects, often linked to antibiotic-induced intestinal dysbiosis, frequently lead to poor patient compliance; this, in turn, promotes the persistence of resistant bacterial populations. Probiotics may mitigate these effects and improve treatment adherence. This study aimed to assess the genomic safety of antibiotic-tolerant probiotics intended for adjuvant use in *H. pylori* eradication regimens.
Materials and Methods: Whole-genome sequencing was performed on three probiotic strains: one of *Lactobacillus acidophilus* tolerant to amoxicillin, and two of *Bifidobacterium animalis* subsp. *lactis*, one tolerant to amoxicillin and one to clarithromycin. Genomes were compared with corresponding wild-type reference strains to identify genetic variations and detect mobile genetic elements.
Results: Comparative genomic analysis revealed differences between selected and wild-type strains. Importantly, no plasmids or transposons were identified, indicating a negligible risk of horizontal gene transfer of antibiotic resistance. Genomic findings were consistent with *in vitro* phenotypic observations.

Conclusions: Whole-genome sequencing provided a robust assessment of the safety profile of these strains. The absence of transferable resistance elements supports their potential use as probiotic candidates to improve tolerability and adherence to *H. pylori* eradication therapies, contributing to more effective treatment outcomes.

Conflicts of Interest
Matteo Pavoni: None, Giulia Fiorini: None, Ilaria Maria Saracino: None, Luigi Gatta: None, Raffaele Manta: None, John Holton: None, Natale Figura: None, Gabriella Massarenti: None, Chiara Leo: None, Beatrice Rosa: None, Cristina Marchesani: None, Stefano De Razza: None, Dino Vaira: None.

P13.02.

NEISSERIA PERFLAVA, AN ORAL MICROBIOME SPECIES ISOLATED FROM THE GASTRIC MUCUS OF GASTRIC CANCER SURGERY PATIENTS, INDUCES INTERLEUKIN-8 PRODUCTION IN GASTRIC EPITHELIAL CELLS *VIA* A NOD1-DEPENDENT MECHANISM

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Objective: The role of non-*Helicobacter pylori* gastric bacteria (NHGB) in gastric carcinogenesis remains unclear. This study examined whether NHGB induce interleukin-8 (IL-8) production in gastric epithelial cells and investigated the underlying signaling pathways.
Patients and Methods: Gastric juice samples were collected intraoperatively from 13 patients with gastric cancer without external contamination, and isolated NHGB were identified by 16S rRNA gene sequencing. Each isolate was co-cultured with AGS cells, and IL-8 levels were measured by enzyme-linked immunosorbent assay. To explore the mechanisms involved, inhibition experiments were performed using inhibitors targeting TLR4, NOD1, ERK, p38, JNK, and NF-κB.
Results: A total of 16 NHGB species were isolated from gastric juice samples. Among them, *Neisseria perflava* significantly increased IL-8 secretion from AGS cells in both time-dependent and dose-dependent manner. This effect was reduced by treatment with a NOD1 inhibitor. To further define the signaling pathway involved, AGS cells were exposed to *N. perflava* in the presence of ERK, p38, or JNK inhibitors. Inhibition of p38 significantly suppressed IL-8 production. In addition, pretreatment with an NF-κB inhibitor significantly reduced IL-8 secretion in *N. perflava*-stimulated cells.
Conclusions: These findings suggest that *N. perflava* induces IL-8 production through a NOD1-dependent pathway involving p38 MAPK and NF-κB activation, suggesting a potential role in gastric mucosal inflammation and gastric carcinogenesis.

Conflicts of Interest
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P13.03.

LACTOBACILLUS RHAMNOSUS K/AR-08 MODULATES GUT IMMUNE HOMEOSTASIS IN EXPERIMENTAL AUTOIMMUNE ENCEPHALOMYELITIS

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Objective: Multiple sclerosis (MS) is a chronic autoimmune disease characterized by demyelination and neurodegeneration, frequently associated with gastrointestinal dysfunction and dysbiosis. This study assessed the impact of *Lactobacillus rhamnosus* K/A^{R}-08 on intestinal immune homeostasis in an experimental autoimmune encephalomyelitis (EAE) model.

Materials and Methods: EAE was induced in female Wistar rats by subcutaneous injection of an encephalitogenic mixture. Animals were divided into three groups: intact (n=9), EAE (n=29), and EAE + *L. rhamnosus* K/A^{R}-08 (n=29). The probiotic (5×10^{8} CFU/ml) was administered orogastrically from days 2 to 15. Clinical severity was scored on a 6-point scale. Eosinophils and mast cells were identified by eosin and methylene green staining, and epithelial proliferation was assessed by phosphorylated form of histone H3 (PHH3) immunohistochemistry.
Results: Probiotic treatment reduced disease severity and improved recovery. Treated animals showed increased PHH3-positive cells in the small intestine, indicating preserved epithelial proliferation; no significant changes were observed in the colon. Untreated animals exhibited a marked decrease in mast cells in mesenteric lymph nodes, whereas this reduction was less pronounced with treatment. *L. rhamnosus* K/A^{R}-08 also decreased eosinophil numbers and prevented their degranulation.
Conclusions: Modulation of intestinal inflammation may represent a therapeutic approach for MS. *L. rhamnosus* K/A^{R}-08 shows promise as a probiotic candidate.

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Conflicts of Interest
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P13.04.

INFLUENCE OF PROBIOTICS ON INBRED MICE WITH VIOLATION OF ENERGY METABOLISM AND GUT MICROBIOTA

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Objective: Inbred mice with polygenic disorders contributing to the symptoms of metabolic syndrome (MetS) can be used for the preclinical studies of probiotics for the treatment of energy metabolism pathology. The aim of our study was to compare the effects of the probiotic strains Hafnia alvei 4597® (H.a.) and Escherichia coli M17 (M17) on gut microbiota and manifestations of MetS in experimental mouse model.
Materials and Methods*:* KK.Cg-Ay/a mice with genetically modified hepatic and renal esterases and a mutant Agouti yellow allele were used. This genetic background leads to hyperphagia, obesity, hyperglycemia, hyperinsulinemia, and insulin resistance. Suspensions of H.a. or M17 were administered via intragastric gavage daily for 21 days. Morphometric and biochemical parameters of mice were analyzed. Microbiota composition was determined using 16S rRNA sequencing and real-time PCR.
Results: Following administration of both probiotics, improved glucose tolerance and reduced insulin resistance were observed. In the H.a. group, a reduction in relative fat mass was detected. The microbiota showed an increased relative abundance of the genera *Oscillibacter, Roseburia, Ruminococcus*, and *Parvibacter.* In the M17 group, an increased relative abundance of *E coli* and a decreased and population of *Lachnoclostridium* were accompanied by enhanced incretin effect and increased hepatic glycogen content.
Conclusions: Administration of both probiotics leads to favorable changes in metabolic syndrome parameters. However, the observed differences in their effects suggest distinct mechanisms of action.

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P13.05.

IMPACT OF ANTIBIOTIC EXPOSURE ON CLINICAL OUTCOMES AND GUT MICROBIOME DYNAMICS IN PATIENTS RECEIVING IMMUNE CHECKPOINT INHIBITORS: PRELIMINARY RESULTS FROM THE IMAGE STUDY

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Objective: Immune checkpoint inhibitors (ICIs) improve outcomes across advanced cancers, but responses remain heterogeneous and reliable predictive biomarkers are lacking. The gut microbiome modulates anti-tumor immunity and may influence ICI efficacy. Antibiotics can disrupt microbiome composition and function, potentially impairing immunotherapy response. However, prospective longitudinal studies integrating clinical and microbiome endpoints remain limited.
Patients and Methods: IMAGE is an ongoing observational longitudinal cohort investigating the impact of antibiotic exposure on clinical outcomes and gut microbiome dynamics in patients initiating ICIs for advanced epithelial cancers. Adult patients are enrolled before treatment initiation and followed for 12 months. Stool samples and clinical metadata, including antibiotic exposure, are collected at baseline and predefined timepoints. The primary endpoint is 12-month progression-free survival (PFS). Secondary endpoints include overall survival, objective response rate, adverse events, and microbiome composition.
Results: As of April 2026, 89 patients were enrolled (median age 62 years; 66.3% female). The most represented cancers were endometrial (27%), cervical (24.7%), and NSCLC (19.1%). Most patients received PD-1 inhibitors (73%). Antibiotic exposure occurred in 43.8%, mainly beta-lactams (63.3%). Preliminary oncological outcomes, available in 44 patients, showed progressive disease was more frequent in antibiotic-exposed patients (8 *vs.* 4), whereas complete responses were more common in non-exposed patients (4 *vs.* 1). Adverse events were more frequent in exposed patients (51.3% *vs.* 28%). Seven deaths occurred, 57.1% in previously exposed patients.

Conclusions: Preliminary IMAGE data suggest antibiotic exposure may be associated with poorer outcomes and increased toxicity in patients receiving ICIs, consistent with previous evidence. Longitudinal microbiome profiling may clarify the biological mechanisms underlying this association and support development of microbiome-based biomarkers for patient stratification and therapeutic optimization.

Conflicts of Interest
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P13.06

MICROBIOTA MODULATION BY *LACTOBACILLUS BREVIS* BGZLS30-24 DRIVES FUNCTIONAL CHANGES DURING KHORASAN WHEAT SOURDOUGH FERMENTATION

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Objective: Sourdough microbiota plays a central role in determining fermentation dynamics and the technological quality of bread. However, spontaneous fermentation often results in variable microbial succession and inconsistent product quality. This study investigated whether inoculation with a novel autochthonous probiotic strain, Lactobacillus brevis BGZLS30-24, could accelerate microbiota establishment and improve the functional characteristics of Khorasan wheat sourdough.
Materials and Methods: The probiotic strain, Lactobacillus brevis BGZLS30-24, was applied as a starter culture during Khorasan sourdough fermentation. Changes in bacterial community composition were monitored by 16S rRNA gene sequencing, while predicted microbial metabolic functions were assessed using PICRUSt2. Dough acidification, leavening, gluten degradation, and bread quality parameters were also evaluated.
Results: *Lactobacillus* brevis BGZLS30-24 rapidly reshaped sourdough microbiota, establishing a *Lactobacillus*-dominated community after only one day of fermentation, whereas spontaneous fermentation showed a slower microbial succession. Inoculated sourdough exhibited reduced alpha diversity, earlier microbiota stabilization, and distinct community structure during the initial fermentation stages. Functional prediction revealed significant enrichment of pathways associated with heterolactic fermentation, carbohydrate metabolism, nucleotide biosynthesis, and cell-wall synthesis during active fermentation, indicating enhanced metabolic activity of the microbial community. Accelerated microbiota maturation was accompanied by faster acidification, improved dough leavening, enhanced degradation of gliadin fractions, and superior bread quality.
Conclusions: Targeted modulation of sourdough microbiota using the novel probiotic strain Lactobacillus brevis BGZLS30-24 promotes rapid establishment of a stable, metabolically active bacterial community that drives both improved fermentation performance and enhanced bread quality. These findings highlight the importance of microbiota engineering as an effective strategy for developing functional sourdough starters and improving ancient wheat bakery products.

Conflicts of Interest
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P13.07

FROM GUT ISOLATE TO COGNITION: *RUMINOCOCCOIDES INTESTINALE* RESCUES TAU-DRIVEN MEMORY LOSS IN *CAENORHABDITIS ELEGANS* AND IS DEPLETED IN MILD COGNITIVE IMPAIRMENT

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Objective: Gut microbiota composition shifts with age and is repeatedly associated with cognitive decline, but this evidence is largely correlative, and few individual human commensals have been tested directly for neuroprotective activity. We screened cultured anaerobic isolates from healthy donors for their capacity to modify tau-driven neurodegeneration in *Caenorhabditis elegans* and asked whether the most protective species tracks cognitive status in humans.
Materials and Methods: Five phylogenetically related isolates (Lachnospiraceae, Oscillospirales) were grown anaerobically and fed to worms, mixed 1:4 with heat-killed *Escherichia coli* OP50. Leads were prioritized by mechanosensory neuron integrity (CB1611 model) and quantitative RT-PCR of 24 neuromodulatory and antioxidant genes in wild-type N2, then assessed for lifespan (log-rank test, n = 100 per group), isoamyl alcohol-based associative learning, and whole-transcriptome RNA sequencing in the BR5270 pan-neuronal pro-aggregant F3ΔK280 tau model. Species-level abundance was quantified in public shotgun metagenomes from a Japanese cognitive decline cohort (n = 41).
Results: *Blautia fusiformis* NBG351 and *Ruminococcoides intestinale* NBG352 preserved touch responsiveness relative to OP50 controls (7.1/10 and 9.3/10 responses; $p < 0.0001$). NBG352 extended median lifespan of wild-type worms from 13 to 23 days (+76.9%, $p = 8.3\times10^{-20}$) and NBG351 to 17 days (+30.8%, $p = 5.1\times10^{-9}$); both gave a 28.6% extension in tau-expressing worms. NBG352 restored associative learning in BR5270 (learning index 0.507 to 0.643; Holm–Bonferroni adjusted $p = 0.027$), while NBG351 improved it non-significantly (adjusted $p = 0.074$); the isogenic BR5271 control line was unaffected ($p = 0.89$). The two transcriptional responses diverged in emphasis despite sharing approximately 70% of upregulated genes (1,669 for NBG352, 1,781 for NBG351): autophagy-lysosome and NAD^+-linked programs for NBG352, ubiquitin-proteasome and DNA repair for NBG351. In the human cohort, *R. intestinale* was depleted in mild cognitive impairment (fold change 0.22, false discovery rate q = 0.007) and correlated positively with the Japanese Montreal Cognitive Assessment score (Spearman ρ = +0.571, q = 0.033); *B. fusiformis* did not.
Conclusions: Two cultured human gut commensals protect against tau-driven neurodegeneration in *C. elegans* through partly distinct proteostasis programs, and the species giving the stronger cognitive rescue is the one depleted in mild cognitive impairment. The human association is observational; causality remains to be established.

Conflicts of Interest
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P13.08

HUMAN GUT-DERIVED *PILOSIBACTER* ISOLATE NGB245 MODULATES NEUROACTIVE HOST RESPONSES AND ATTENUATES ACUTE EXPERIMENTAL AUTOIMMUNE ENCEPHALOMYELITIS

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Objective: The rising global burden of multiple sclerosis and related autoimmune neuroinflammatory diseases, together with evidence implicating the gut microbiome in disease progression, highlights the need for microbiota-directed strategies that modulate disease-relevant immune and neuroactive signaling. We therefore evaluated, for the first time, the neuroactive and neuroimmune-modulatory potential of the recently described butyrate-producing human gut-derived *Pilosibacter* isolate NGB245.
Materials and Methods: The butyrate-producing human fecal isolates *Pilosibacter* sp. NGB245 and *Clostridium symbiosum* NGB244 were assessed in *Caenorhabditis elegans* by qPCR profiling of neuronal, neurotransmitter- and neuropeptide-associated host genes. Culture supernatants were compared by untargeted metabolomics. Clinical progression of experimental autoimmune encephalomyelitis (EAE) in mice treated *ad libitum* with NGB245 culture or control medium was assessed until peak disease, followed by bulk central nervous system (CNS) RNA sequencing.
Results: In *C. elegans*, NGB245 more strongly upregulated synaptic vesicle-associated, neurotransmitter-related, and neuropeptide-associated host genes than NGB244, despite shared butyrate-producing capacity. Culture-supernatant metabolomics revealed clear metabolic differences and identified NGB245-enriched candidate metabolites. NGB245 treatment attenuated acute EAE progression, reducing clinical severity and cumulative disease burden. CNS RNA sequencing revealed reduced type I interferon, antigen presentation, and T-cell activation signatures in NGB245-treated EAE mice, alongside enrichment of synaptic signaling, glutamate receptor signaling, and neuronal development pathways.
Conclusions: These findings present NGB245 as a previously underexplored butyrate-producing gut isolate capable of reshaping CNS transcriptional profiles by suppressing inflammatory pathways while enhancing neuronal signaling and neurodevelopmental processes. The NGB245-enriched culture metabolome provides a focused candidate pool for identifying metabolites that may contribute to host neuroimmune modulation.

Conflicts of Interest
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P13.09

NEUROACTIVE AND ANTI-INFLAMMATORY PROPERTIES OF ANAEROBIC GABA-PRODUCING GUT BACTERIA WITH PSYCHOBIOTIC POTENTIAL

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Objective: The microbiota-gut-brain axis has emerged as an important target for the development of novel psychobiotic intervention. Increasing evidence suggests that gut bacteria and their metabolites can influence neuroinflammation, neurotransmission, and stress related behavior. Among microbiota-derived bioactive molecules, gamma-aminobutyric acid (GABA) has attracted particular attention due to its role in neuronal signaling and emotional regulation. This study aimed to investigate the neuroactive and anti-inflammatory potential of selected GABA-producing anaerobic gut bacteria and their postbiotics as potential psychobiotic candidates.
Materials and Methods: Anaerobic bacterial strains were isolated from fecal samples of healthy donors and screened for GABA production. The biological activity of bacterial postbiotics was evaluated using intestinal epithelial cells, *Caenorhabditis elegans*, and Caco-2/PBMCs–SH-SY5Y transfer model system of intestinal and neuronal cells. Selected strains were further analyzed for their genomic potential related to the biosynthesis of neuroactive metabolites.
Results: Bacterial treatment reduced inflammatory responses and improved epithelial barrier integrity in the intestinal cell model. In *C. elegans*, treatment modulated the expression of genes associated with neurotransmission, synaptic signaling, neuropeptide pathways, and oxidative stress responses. Furthermore, bacterial treatments alleviated neuroinflammation in the Caco-2/PBMCs–SH-SY5Y transfer model system. Selected bacterial postbiotics contained neuroactive metabolites, including GABA, while genomic analyses revealed biosynthetic pathways associated with the production of several neuroactive and beneficial compounds. Altogether, these findings support the role of microbiota-derived postbiotics in gut-brain axis modulation.
Conclusions: Anaerobic GABA-producing gut bacteria and their derived postbiotics exhibit neuroactive and anti-inflammatory potential across complementary experimental models. These findings support their further investigation as next-generation psychobiotic candidates

Conflicts of Interest
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P13.10.

AUTOPROBIOTIC SUPPLEMENTS ATTENUATE OBESITY AND IMPROVE GUT MICROBIOTA, CARBOHYDRATE, AND LIPID METABOLISM IN METABOLIC SYNDROME

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Objective: Metabolic syndrome (MetS) is a global health challenge. A pilot study was conducted to evaluate the effectiveness of treatment with autoprobiotic bacteria from indigenous, non-pathogenic *Enterococcus faecium* and *Enterococcus hirae* strains in patients with MetS.
Patients and Methods: Fifty patients with MetS (sex-matched, aged 42-63 years) were randomized to an experimental group (Ap, n = 26) that received autoprobiotics and a control group (Pl, n = 24) that received a placebo for 20 days. The effects of therapy on anthropometric and biochemical parameters, as well as the gut microbiome, were assessed on days 14 and 28 after the autoprobiotic course.

Results: Autoprobiotic treatment reduced the severity of obesity symptoms and led to a decrease in serum glucose levels and partial normalization of the lipid profile. qPCR showed a reduction in the numbers of *Bacteroides fragilis* group (BFG), *Streptococcus* spp., and *Ruminococcus* spp. The 16S rRNA gene sequencing revealed a decrease in the *Oscillospiraceae UCG-003* relative abundance and an increase in *Prevotellamassilia*. Longitudinal microbiota analysis using the coda4microbiome package demonstrated that the most pronounced microbiome shifts occurred in the Ap group, with genera *Senegalimassilia*, *Prevotellamassilia*, *Streptococcus*, *Paraprevotella*, and *Anaerobutyricum* contributing substantially.
Conclusions: Autoprobiotic *E. faecium* and *E. hirae* may be effective in treating patients with MetS. BFG and *Senegalimassilia* species may serve as potential biomarkers of response to microbiome-modulating therapies, particularly those involving autoprobiotic *Enterococcus* strains.

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P13.11.

PAROMOMYCIN IS AN EFFECTIVE TREATMENT FOR ENTEROBACTERIACEAE OVERGROWTH AND RELATED GASTROINTESTINAL SYMPTOMS: A RETROSPECTIVE ANALYSIS

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Objective: Since its introduction in microbiology, whole-genome sequencing (WGS) has been fueling the urge for tailored modulation of gut microbiota, based upon patient's metagenomic profiling. Nonetheless, data supporting microbiome-based precision medicine remain inconsistent and, at times, unpredictable. Enterobacteriaceae, a family within the Proteobacteria phylum, are known for their immunostimulatory and metabolic properties. However, the overgrowth of different bacteria belonging to this family has been associated with the onset of gastrointestinal symptoms, including abdominal pain, bloating, and changes in bowel habits. Non-adsorbable antibiotics have emerged as established therapeutic options in different dysbiosis-associated conditions, such as small intestinal bacterial overgrowth (SIBO). In this study, we evaluate the microbiological and clinical efficacy of paromomycin, a non-adsorbable oral aminoglycoside, in patients with Enterobacteriaceae overgrowth experiencing gastrointestinal symptoms.
Patients and Methods: We conducted a retrospective observational study involving patients with in-

creased relative abundance of Enterobacteriaceae, documented at microbiome testing, who received paromomycin in our outpatient service from October 2021 to February 2026. Inclusion criteria were: 1) Enterobacteriaceae overgrowth documented at microbiome testing (relative abundance > 0.3%, Gut Test Plus®, Wellmicro); 2) at least one follow-up visit at 12 weeks. Patients receiving additional non-adsorbable antibiotics were excluded. The primary outcome was defined as normalization of Enterobacteriaceae abundance (relative abundance: 0.0-0.3%). Secondary outcomes included improvement in related gastrointestinal symptoms and safety profile of the treatment.
Results: A total of 41 patients (n = 27 females, n = 14 males, mean age: 43, range: 16-81; SD: 16.2) were included. Follow-up microbiome testing at 12 weeks was available in 18 patients (44%), of whom 16 (89%; CI 95%: 64%-98%) achieved normalization of Enterobacteriaceae relative abundance. Gastrointestinal symptoms were distributed as follows: 34 (83%) patients experienced bloating, 31 (76%) abdominal pain, 22 (54%) diarrhea, and 16 (39%) constipation. Most patients experienced improvement in at least one gastrointestinal symptom following treatment: 23 (68%, $p < 0.05$, McNemar test) patients exhibited improvement in bloating, 25 in abdominal pain (81%, $p < 0.05$, McNemar test) 16 (73%, $p < 0.05$, McNemar test) in diarrhea, and 12 (75%, $p < 0.05$, McNemar test) in constipation. Furthermore, 11 (27%) patients reported lower urinary tract infections symptoms. Among them, 8 (73%, $p < 0.05$, McNemar test) experienced an improvement in urinary symptoms. Mild adverse events were infrequent: 5 patients (12%) reported abdominal pain, 2 (5%) patients reported diarrhea, 1 (2%) patient reported nausea. No severe therapy-related adverse events (nephrotoxicity, ototoxicity, allergic reactions) were experienced.
Conclusions: Despite preliminary, our findings hint at paromomycin as a promising therapeutic option in patients with Enterobacteriaceae overgrowth, with a remarkable safety profile and noteworthy impact on gastrointestinal and urinary symptoms.

Conflicts of Interest
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P13.12.

THE EFFECT OF COMPLEX THERAPY WITH THE INCLUSION OF THE PROBIOTIC STRAIN *L. PARACASEI* DG ON THE PARAMETERS OF THE HYDROGEN-METHANE BREATH TEST IN CHILDREN WITH GASTROINTESTINAL DISEASES

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Objective: The small intestinal bacterial overgrowth (SIBO) can have a negative impact on the course of diseases of the digestive system, as well as be one of the reasons for the ineffectiveness of therapy. The aim of the study was to evaluate the effect of complex therapy with probiotic strain *L. paracasei* DG on the parameters of the hydrogen-methane breath test in children with gastrointestinal disorders.
Patients and Methods: 102 patients aged 10.6±3.9 years (55 girls and 47 boys) with digestive diseases (functional dyspepsia, GERD, chronic gastroduodenitis) were examined. A hydrogen breathing test "Lactofan" and a hydrogen-methane test "GastroCheck" with lactulose were performed to determine hydrogen-induced (H_2-SIBO) and methanogenic (CH_4-SIBO). The frequency of dyspeptic symptoms, abdominal pain, and results of a hydrogen-methane breath test in 22 children before treatment and after 1 month of standard therapy with the probiotic *L. paracasei* DG was analyzed.

Results: SIBO was diagnosed in 74 (72.6%) patients, of which 62 (60.8%) had H_2-SIBO, and 12 (11.8%) had CH_4-SIBO. The duration of nausea (r=0.774, *p*=0.041), rapid satiation/ discomfort after eating (r=0.818, *p*=0.047) correlated with the level of CH_4 (60 min) and AUC, CH_4 (0-90 min). In children treated with *L. paracasei* DG, the frequency of flatulence decreased (7/63.6% and 3/27.3%, *p*=0.046). In the presence of CH_4-SIBO in patients, positive clinical dynamics and a decrease in methane levels were observed when α-rifaximin was included in therapy for 7-10 days.
Conclusions: Different approach is required for treatment of H_2/CH_4-SIBO in children with gastrointestinal disorders, which can improve results of therapy and prognosis.

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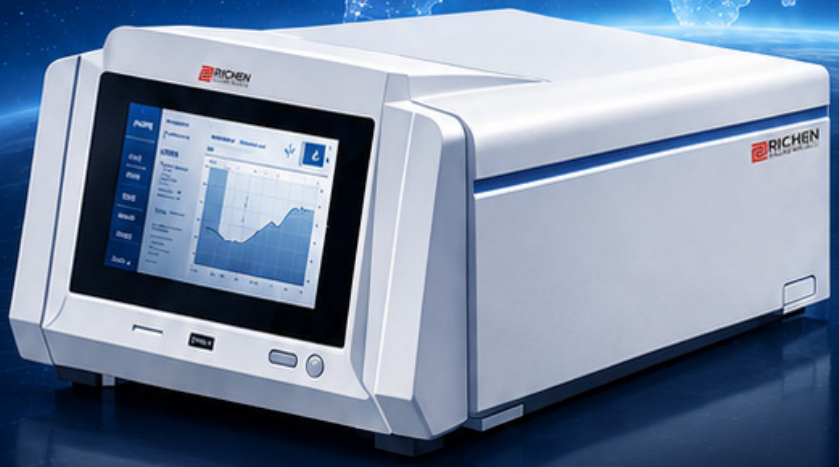

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