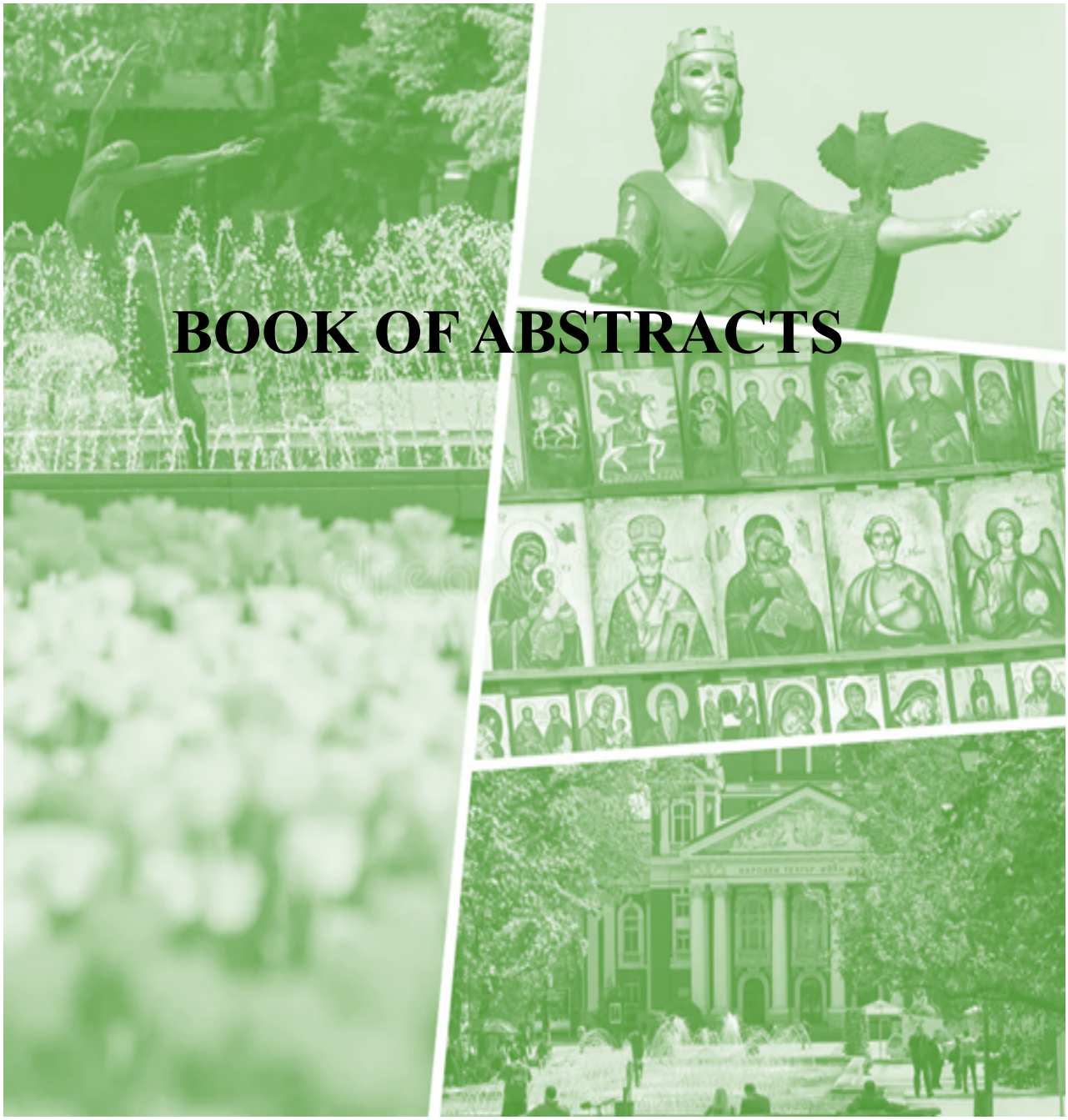
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BOOK OF ABSTRACTS

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Dear Colleagues,

It is our honour and pleasure to welcome you to the 25th session of THE BALKAN MEDICAL DAYS in Sofia, organized by the Bulgarian Section of the Balkan Medical Union, representatives from the Medical Universities of Sofia, Pleven, Plovdiv, and Varna, and the Sofia University and Burgas University.

The theme of the venue this year is **Health and Innovation - Unity and Prosperity.**

This event is a unique opportunity to bring together physicians and medical specialists from the Balkan countries, representatives of the medical science, Balkan professionals in military medicine, researchers and specialists from the pharmaceutical industry, and representatives of the health systems, all united by the aim of discussing the various aspects of health and longevity.

The scientific program will be complemented by an attractive social program that will contribute to the success of this meeting.

Sincerely yours,
Prof. Valentina Petkova, PhD, DSc
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PLENARY SESSION

1. Metabolic dysfunction-associated steatotic liver disease (MASLD) and cardiovascular disease: from liver fat to cardiovascular events

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Metabolic dysfunction-associated steatotic liver disease (MASLD) is considered an important risk factor not only for end-stage liver disease but also for cardiovascular diseases. The risk factors for MASLD are obesity, type 2 diabetes or insulin resistance, arterial hypertension, low high-density lipoprotein (HDL)-cholesterol, high plasma triglycerides, elevated C-reactive protein, elevated alanine aminotranspherase, male sex. The nomenclature of MALSD has been introduced in 2023 by a Delphi consensus process. MASLD is defined as the association of a steatotic liver, with more than 5% fat infiltration, usually identified at ultrasonography, with at least one of five cardiometabolic risk factors. For many years, the focus has been on liver-related complications of MASLD, especially end-stage liver disease. However, the liver-related complications are not the most common etiology of death in patients with MASLD. These patients usually die from cardiovascular disease. Other extrahepatic complications are type 2 diabetes mellitus, extra-hepatic cancers, chronic kidney disease. The risk of cardiovascular events increases progressively with the severity of liver disease. The patients with advanced liver fibrosis or cirrhosis have the highest risk of heart failure, stroke, and cardiovascular death, liver fibrosis being a strong predictor for all-cause mortality. MASLD increases the cardiovascular risk through different mechanisms: insulin resistance, chronic low-grade inflammation, oxidative stress, endothelial dysfunction, liver fibrosis and dyslipidemia. There is a synergy of cardiovascular risk in patients with MASLD and type 2 diabetes: the association of MALSD and type 2 diabetes quadruples the risk of cardiovascular events. The pillar of MALSD treatment is the lifestyle change. Weight loss is the most effective strategy to decrease the liver fat and cardiovascular risk. Studies have shown that a weight loss of at least 10% can lead to metabolic dysfunction-associated steatohepatitis (MASH) resolution and fibrosis improvement. An intensive treatment of dyslipidemia and high blood pressure is mandatory. In MALSD patients. Statins are recommended, to reduce the cardiovascular risk, being safe end efficient. For the overall metabolic management, anti-hyperglycemic agents are preferred. The current cardiovascular risk scores, such as SCORE-2, have limitations, because they do not include MASLD as a risk factor, leading to an underestimation of the real cardiovascular risk. Therefore, considering MASLD as a risk magnifier may be extremely important for prevention guidelines. Screening for MASLD should be performed in all patients with metabolic risk factors, using simple noninvasive tests, such as FIB-4. The diagnosis of MASLD must be viewed as a window of opportunity for cardiovascular prevention.

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2. Key breakthroughs in diabetes management

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Since the discovery of insulin, there have been numerous advances in insulin therapy aiming to reproduce physiological insulin secretion as closely as possible to maintain near-normal blood glucose levels, thereby preventing long-term complications. Multiple insulin formulations have been marketed. However, research into new formulations and ways of administration of insulin continues, with once-weekly basal insulin analogues, glucose-sensitive (smart) insulins, and non-injectable insulins to come. After the advances in the development of new insulins, the efforts focus on administration methods (insulin pumps) and devices (continuous glucose monitoring systems – CGMs) to measure blood glucose levels in a rapid, precise, non-invasive way. The latest advances in insulin therapy are the automated insulin delivery (AID) systems, integrating three components: a real-time CGM, which measures interstitial glucose at regular intervals, a control algorithm, and an insulin pump to automate subcutaneous insulin delivery. AID therapy has been shown to improve HbA1c in adults, children and adolescents, increase time in range (TIR) with either no increase or a reduction in hypoglycemia compared with other therapies, and to be associated with significant improvements in quality of life and reduced burden of diabetes management for people with diabetes and their families. AID therapy should be offered to youth and adults with type 1 diabetes as it increases the likelihood of reaching glycemic targets. The currently available hybrid closed-loop systems still require carbohydrate counting and manual initiation of the bolus to be delivered before the meal. Working towards a fully closed-loop system and addressing barriers to adoption is the focus of current research. The first bionic pancreas, consisting of two pumps (for insulin and glucagon) and connected to a CGM via a smartphone app has been licensed for people with type 1 diabetes. There are a lot of advances in type 2 diabetes management. The current innovative glucose-lowering medications (SGLT2 inhibitors and GLP-1 based therapies) are recommended in the guidelines as first-line therapy in different subgroups of patients with type 2 diabetes because they have demonstrated cardio-renal protective effect, even in people without diabetes. Thus, we have moved from the glucocentric to the cardio-renal-metabolic approach in type 2 diabetes.

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3. Key factors for success in guided bone regeneration in oral surgery and implantology

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Introduction: Guided Bone Regeneration (GBR) is an established method for reconstructing alveolar bone defects and providing sufficient bone volume for successful implant treatment. The predictability of the result depends on numerous biological and surgical factors. Knowledge and correct application of these principles are essential for the long-term success of the procedure.
Materials and Methods: Based on an analysis of various literature sources and our own clinical experience, clinical approaches related to successful guided bone regeneration in oral surgery and implantology are described. The main factors influencing successful regeneration are reviewed, including the choice of bone substitute materials, barrier membranes, surgical technique, primary implant stability, soft tissue management, and subsequent care and monitoring.
Results: The analysis shows that a successful GBR procedure requires precise preoperative planning, knowledge of tissue biology, adequate vascularization of the augmentation area, immobilization and stability of the graft and membrane, as well as achieving primary soft tissue coverage without tension. Infection control, individual approach to the patient and the correct selection of biomaterials are of essential importance. Long-term results are achieved by observing the biological principles of regeneration and minimally traumatic surgical technique.
Conclusion: The performed bone regeneration is an effective and predictable method in modern oral surgery and implantology. The success of the procedure is the result of the complex interaction between biological principles, surgical experience and technique and the correct choice of materials. The integration of these factors to achieve stable functional and aesthetic results.

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ORAL PRESENTATIONS

O1. The role of serum amyloid a as a modulator of coagulation in patients with coronary artery disease

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Introduction: Coronary artery disease (CAD) is characterized by a close interplay between inflammation and coagulation, underlying atherothrombotic complications. Serum amyloid A (SAA), a major acute-phase protein, is increasingly recognized as an active mediator linking inflammatory activation with hemostatic imbalance. Fibrinogen, another acute-phase reactant, plays a central role in fibrin formation and clot stability. Emerging evidence suggests that SAA interacts with fibrinogen and modulates fibrin polymerization, leading to the formation of dense and fibrinolysis-resistant fibrin networks.
The aim of this study was to evaluate SAA levels in CAD patients and to explore its role in coagulation in relation to fibrinogen.
Material and methods: A total of 42 patients with clinically established CAD were included and divided into acute coronary syndrome (ACS) and chronic CAD groups, along with healthy controls. SAA levels were measured by ELISA, and fibrinogen levels were determined using standard laboratory methods. Data were expressed as median and interquartile range. Statistical analysis was performed using the Mann–Whitney U test. Results SAA levels were significantly higher in patients with acute CAD (Mdn = 1.244 ng/mL, n = 21) compared to the control group (Mdn = 0.6027 ng/mL, n = 21), U = 121, z = −2.49, p = 0.0115, r = 0.38, as well as in patients with chronic CAD (Mdn = 1.079 ng/mL, n = 21) compared to controls (Mdn = 0.6027 ng/mL, n = 21, U = 90.5, z = −3.26, p = 0.0007, r = 0.50). Fibrinogen concentrations in patients with ACS (Mdn = 5.44 g/L, n = 21) were found to be pathologically elevated relative to the established clinical reference range of 2.0–4.0 g/L. These values were significantly higher than those observed in patients with chronic CAD (Mdn = 3.30 g/L; U = 53.50, z = -4.38, $p < 0.0001$, r = 0.68), underscoring a pronounced prothrombotic state during the acute phase of coronary artery disease.
Conclusions: SAA is significantly elevated in CAD and acts as a key mediator of the inflammatory–coagulatory axis. At the level of the coagulation cascade, SAA promotes endothelial activation and upregulation of tissue factor expression, thereby enhancing thrombin generation. In parallel, SAA interacts directly with fibrinogen, altering fibrin polymerization and leading to the formation of denser, more compact, and fibrinolysis-resistant fibrin networks. In the presence of persistently elevated fibrinogen, this effect is amplified, contributing to increased clot stability and resistance to degradation. Thus, the SAA–fibrinogen interaction represents a central pathogenetic mechanism underlying the prothrombotic state in CAD.

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O2. Incremental diagnostic value of renalase for ischemia detection in chronic heart failure across ejection fraction phenotypes

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Introduction: Renalase has emerged as a potential mediator in chronic heart failure (CHF), but its role in predicting ischemia remains unclear. This study evaluated the discriminative performance of plasma renalase for detecting ischemia in CHF patients across left ventricular ejection fraction (LVEF) categories, compared with established biomarkers of cardiac remodeling, such as sST2, galectin-3, syndecan-1, and BNP, which serve as the gold standard for CHF diagnosis and monitoring.
Material and Methods: Seventy-seven patients with CHF were stratified by LVEF to HF with reduced (HFrEF) and preserved ejection fraction (HFpEF) and underwent exercise stress testing. Discriminatory ability was assessed using receiver operating characteristic (ROC) analysis, with the area under the curve (AUC) calculated. Calibration was evaluated using the Hosmer–Lemeshow test, and differences between AUCs were analyzed with the DeLong test.
Results: In the overall cohort, elevated levels of BNP ($p = 0.008$), renalase ($p = 0.012$), sST2 ($p = 0.020$), galectin-3 ($p = 0.018$), GDF-15 ($p = 0.034$), and syndecan-1 ($p = 0.024$) were associated with ischemia; however, only BNP remained an independent predictor after adjustment ($p = 0.010$). In patients with reduced EF (<45%), all biomarkers, including renalase ($p < 0.001$), independently predicted ischemia. BNP demonstrated the highest discriminatory performance (AUC 0.837), while renalase (AUC 0.753), galectin-3 (0.726), and GDF-15 (0.735) showed comparable and non-inferior predictive ability. However, in the HFrEF group, the AUC of renalase (0.814) was statistically higher than that of galectin-3 (DeLong: $p = 0.014$) and GDF-15 (DeLong: $p = 0.046$), and was similar to that of sST2. In this subgroup, BNP achieved excellent accuracy (AUC 0.980), significantly outperforming other biomarkers ($p < 0.001$).
Conclusion: Renalase provides meaningful, independent discriminative value for ischemia in CHF patients with reduced ejection fraction. Although BNP remains the strongest predictor, renalase offers incremental diagnostic insight and may enhance multimarker risk stratification in clinical practice. This study identifies renalase as a novel biomarker with independent and complementary value in ischemia prediction, particularly in patients with reduced ejection fraction, supporting its role in multimarker risk stratification beyond BNP.

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O3. Modulation of inflammation, angiogenesis and cellular proliferation in experimental purulent wounds treated with silver nanoparticles and a snail extract-based cream

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Objectives: Purulent wound infections are associated with prolonged inflammation and impaired tissue repair. Effective healing requires coordinated regulation of inflammation, angiogenesis and cellular proliferation. Novel approaches combining antimicrobial agents and biologically active natural compounds may influence these key processes. To evaluate the effects of silver nanoparticles (AgNPs), a snail extract-based regenerative cream and their combination on inflammation, angiogenesis and cellular proliferation in an experimental model of infected wounds.
Materials and Methods: A total of 48 female Wistar rats (120 g) were included. Standardized skin wounds (1.0 × 1.5 cm) were created and infected with S. aureus, E. coli and P. aeruginosa. Animals were divided into four groups: AgNPs + cream, AgNPs alone, cream alone and untreated control. The cream used was Cantareus Total Recovery (Kantareus R Ltd., Bulgaria). Treatment was applied for 21 days. Biopsies were obtained on days 3, 7, 14 and 21. Histological and immunohistochemical analyses were performed using CD68, CD34 and Ki-67.
Results: All treated groups showed improved healing compared to control. The combination group demonstrated a more regulated inflammatory response, reflected by a decreased number of macrophages (CD68 positive cells), along with increased number of CD34 positive (mainly endothelial) cells and high Ki-67 activity, indicating stimulated angiogenesis and cellular proliferation. These changes were associated with improved tissue organization. Conclusion: The combined application of AgNPs and a snail extract-based cream modulates key phases of

wound healing, including inflammation, angiogenesis and proliferation. These findings suggest a potential synergistic effect, requiring further validation in clinical settings.

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O4. Hemoglobin-to-creatinine ratio as predictor of frailty and outcomes after tavi in severe aortic stenosis

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Introduction: Anemia and renal dysfunction are common in severe aortic stenosis and indicate advanced systemic and cardiovascular disease in patients undergoing TAVI. The hemoglobin-to-creatinine (Hb/Cr) ratio is a simple integrative biomarker that reflects this combined burden and may offer clinically relevant prognostic value after TAVI. The aim of this study was to evaluate the prognostic value of the Hb/Cr ratio as a predictor of frailty and clinical outcomes in patients with severe aortic stenosis undergoing transcatheter aortic valve implantation.
Methods and materials: The study was an analytical observational cohort with retrospective and prospective components, conducted at the Institute of Cardiology between 2019 and 2026, including 187 consecutive elderly patients with severe aortic stenosis undergoing TAVI according to Heart Team recommendations. Results. Patients were stratified by Hb/Cr ratio into three groups: <10.5 (n = 60), 10.5–15.5 (n = 85), and >15.5 (n = 42). Mean age was 76.4 ± 4.8 years, and 62.0% were women. Most patients were highly symptomatic, with NYHA class III–IV in 78.6%, without relevant differences between groups. Lower Hb/Cr was associated with higher surgical risk, reflected by increased STS (7.66 ± 5.07 vs. 4.50 ± 3.91 vs. 3.85 ± 3.27) and EuroSCORE II (4.42 ± 2.40 vs. 3.19 ± 2.35 vs. 2.35 ± 1.81). Left ventricular ejection fraction and transaortic gradients were similar across groups. Previous PCI was more frequent in patients with Hb/Cr <10.5 (43.3% vs. 29.4% vs. 23.8%). In-hospital adverse events were rare, including stroke (1.6%), myocardial infarction (1.6%), contrast-induced nephropathy (1.6%), and procedure-related mortality (1.1%), with numerically higher rates observed in patients with lower Hb/Cr ratios.
Conclusions: A reduced Hb/Cr ratio was associated with an increased baseline risk burden in patients with severe aortic stenosis undergoing transcatheter aortic valve implantation. The Hb/Cr ratio may provide incremental value as a simple biomarker for preprocedural risk

assessment in this population. Further prospective studies are warranted to validate its role and to define optimal cutoff values in the TAVI setting.

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O5. Sport fever: new cardiovascular risk factor

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Background: Certain sport matches are characterized by intense emotional and psychological stress, often outlined as "sport fever." The sedentary viewing of high-stakes sports is a significant trigger for acute cardiovascular events. Adrenalin and stress hormones rise 2-5 times more during tense moments causing the hypertension, tachycardia and rhythm irregularity.
Methods: This review synthesizes epidemiological data from various global studies, including systematic meta-analyses of sport tournamnets and prospective observational studies of specific events like the 2006 FIFA World Cup, American Football, Ice Hockey, World Series Baseball, Cricket World Cup, Tennis Grand Slam etc. The relative risk (RR) of hospital admission for myocardial infarction, cardiac mortality rates, and stress markers such as heart rate and cortisol levels were analysed.
Results: Stressful football match can more than double the risk of an acute cardiovascular event (*RR*> 2.66) amd hospital admissions for MI increase by 9% to 25% during international tournaments. The risk is most pronounced in males over age 65 with coronary heart disease for 47%. A team's defeat is associated with a 29% increase in fatal events, while a victory provide a 20% protective effect. Fans inside stadiums experience heart rates 23% higher with average of 94/bpm than those watching remotely and 100+bpm during last minute goals. During American Football Super Bowl, hospitalization is increased by 15%. Watching Ice Hockey Games myocardial infarction increse by 20-30%. In Japan, Sudden Cardiac Death increase by 30-40% during baseball. The acute heart events occure up to 20% during cricket match between

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India and Pakistan. During Wimbledon grand slam, hospitals reported increase in admission to 5-10%. Survival rates for in-stadium cardiac arrests are higher (~55%) due to deployment of Defibrillators.
Conclusions: Intense emotional feelings in sport events is a verifiable trigger for acute cardiac events in risky populations. These findings underscore the necessity for including the Sport Fever as additional cardiovascular risk factor in a guidelines. The excessive alcohol consumption during games, smoking and heavy meals should be avoided.

O6. Diagnostic work-up of axillary lumps

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While the exact incidence of all axillary lumps in the general population is not clearly known, they are considered extremely common in clinical practice. Most are benign although some may indicate serious underlying conditions. Work-up is generally directed to identify whether it is nodal or non-nodal, and exclude malignancy and identify the cause. Soft, mobile lumps in the axillary region have less than 5% chance of being malignant. The diagnostic management of axillary lumps has shifted toward a more personalized, de-escalated approach, prioritizing oncologic safety while minimizing surgical morbidity. This abstract outlines the current clinical paradigm for evaluating axillary masses. Etiologies The differential diagnosis is broad, categorized by anatomical origin. Nodal etiologies include benign reactive hyperplasia (often due to infection or collagen vascular diseases like rheumatoid arthritis), granulomatous diseases (sarcoidosis, tuberculosis), and malignancies such as metastatic breast cancer or lymphoma. Non-nodal lesions encompass accessory breast tissue, lipomas, sebaceous cysts, and vascular malformations. Recent literature also highlights transient post-vaccination lymphadenopathy (e.g., COVID-19, BCG), rare causes like silikon foreign body lymphadenopathy and others.
Clinical Evaluation and Diagnostic Steps: Evaluation begins with a thorough history and physical exam. For patients over 30, diagnostic mammography with a skin marker over the palpable lump is the initial imaging standard, followed by Targeted Axillary Ultrasound. Ultrasound is the preferred modality for nodal assessment; suspicious features include cortical thickening (>3 mm), loss of the fatty hilum, and rounded morphology. In case of indeterminate evaluation, other diagnostic radiological tests like tomography and or magnetic resonance imaging, etc may be done. Laboratory testing may help to establish the possible diagnosis. If imaging is suspicious, ultrasound -guided fine needle aspiration (FNA) or Core Needle Biopsy (CNB) is performed, with core biopsy offering superior sensitivity (90%) for malignancy.
Conclusions: Every patient is unique and a thorough clinical knowledge and evaluation is a must for the differential diagnosis of a patient with axillary mass. Knowledge of the normal axillary anatomy aids in determining the etiology of an axillary lump. Many pathologies like skin lesions, infections, hematoma, lymphadenopathy (hyperplastic, inflammatory, neoplastic, metastatic), accessory breast tissue, soft tissue neoplasm may be the associated condition. In many cases, imaging techniques such as targeted ultrasonography and mammography evolves with the diagnosis although more advanced techniques may be needed. Fine needle aspiration, core needle or excisional biopsies may be needed.

O7. Prevalence of hepatitis b surface antigen among hemodialysis patients in bulgaria and neighboring countries: a comparative review

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Objectives: Chronic kidney disease (CKD) is a major global health problem, and patients on maintenance hemodialysis are particularly vulnerable to hepatitis B virus (HBV) infection [1]. This review aimed to compare the prevalence of hepatitis B surface antigen (HBsAg) among hemodialysis patients in Bulgaria and neighboring countries based on published data. Materials and Methods: A comparative review of published studies was conducted to identify data on the prevalence of HBsAg among maintenance hemodialysis patients in Bulgaria and its neighboring countries: Romania, Serbia, North Macedonia, Greece, and Turkey. Information was extracted from published articles and available national or regional reports, and summarized by country, study period, sample size, study design, and reported prevalence. Results: The reported HBsAg prevalence varied across the region and generally reflected the background HBV endemicity of the respective countries. Recent readily traceable data showed prevalence rates of 5.8%–7.5% in Bulgaria [2], 4.8% in Romania [3], and 2.3% in Turkey [4]. Evidence from Serbia, Greece, and North Macedonia was older or less directly comparable. Overall interpretation was limited by heterogeneity of the available studies, as well as differences in serological monitoring, vaccination coverage, and infection control practices.
Conclusion: Available published data suggest regional differences in HBsAg prevalence among maintenance hemodialysis patients, although the current evidence remains insufficient for robust direct comparison between countries.

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O8. Sex-related differences in heart failure phenotypes: insights from a cohort study

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Introduction: Heart failure (HF) remains a leading cause of morbidity and mortality worldwide. Increasing evidence highlights important sex-related differences across the HF spectrum. Women are more frequently affected by heart failure with preserved ejection fraction (HFpEF), a phenotype associated with aging, metabolic dysfunction, and microvascular alterations. Large prospective data suggest that female sex is independently associated with a higher prevalence

of diastolic dysfunction and worse clinical outcomes in HFpEF, supporting the need for sex-specific approaches in this population.
Material and methods: Observational, analytical cohort study including 160 patients with HF. This study aimed to evaluate the prevalence of HFpEF according to sex in a cohort from the Republic of Moldova and to contextualize these findings in relation to diastolic dysfunction and clinical outcomes reported in contemporary literature. Patients were classified into HFpEF (≥50%) and other HF phenotypes. The population was stratified by sex, and sex-related differences in diastolic dysfunction and post-discharge outcomes were evaluated. Results: Among 160 patients, 83 (51.9%) were women and 77 (48.1%) were men. HFpEF was significantly more prevalent in women than in men (60.2% vs 29.9%, $p = 0.001$). Female sex was associated with a higher likelihood of HFpEF (OR 3.55, 95% CI 1.9–6.6) and a greater prevalence of diastolic dysfunction (52.8% vs 32.0%, $p < 0.001$). Furthermore, female sex remained independently associated with both diastolic dysfunction (adjusted OR ≈ 2.8) and adverse clinical outcomes, including all-cause mortality and heart failure readmission (adjusted HR ≈ 1.5), despite similar crude event rates between sexes.
Conclusions: HFpEF demonstrated a clear female predominance in this cohort, consistent with international data. Female sex is not only associated with HFpEF phenotype but also with a higher burden of diastolic dysfunction and worse prognosis. These findings support the implementation of a sex-specific approach in the evaluation and management of HFpEF.

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O9. Complete and sustained resolution of autoimmune pulmonary alveolar proteinosis after a single unilateral whole lung lavage – a case report

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Introduction: Pulmonary alveolar proteinosis, first described by Rosen et al. in 1958, is a diffuse pulmonary disease characterized by the accumulation of amorphous, lipoprotein-rich material at the alveolar level. The gold standard for diagnosis is the identification of Periodic acid–Schiff (PAS)-positive material within the alveoli, and the treatment of choice is bilateral whole lung lavage.
Material and methods: We discuss the case of a 43-year-old patient, former smoker (15 pack-years), with no significant medical history. He presented to our clinic for dyspnea on mild exertion, with progressive onset over the previous 2 months, associated with persistent cough productive of seromucous sputum.

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Results: The blood tests revealed a mild inflammatory syndrome, without leukocytosis or other clinical signs of active infection. Pulmonary function tests showed normal lung volumes, but with severely reduced alveolar-capillary diffusion. Additionally, the patient presented significant desaturation during the 6-minute walk test, from an initial 93% to 74% at the end of the test. A chest computed tomography (CT) scan was performed, revealing diffuse bilateral ground-glass opacities and interlobular septal thickening. Bronchoalveolar lavage was performed, yielding a milky appearance with PAS-positive material; consequently, anti-granulocyte-macrophage colony-stimulating factor (GM-CSF) antibodies were measured and returned positive. The diagnosis of autoimmune pulmonary alveolar proteinosis was established, and a unilateral whole lung lavage of the right lung was performed, with the patient scheduled to return for lavage of the contralateral lung. The procedure was uneventful, and the patient was discharged. Upon reassessment approximately 3 months later, the patient was asymptomatic, with normalization of the alveolar-capillary diffusion and no residual pulmonary lesions on the chest CT scan; consequently, lavage of the left lung was no longer performed.
Conclusions: We present a patient with autoimmune pulmonary alveolar proteinosis with complete resolution of symptoms and pulmonary lesions following a single unilateral whole lung lavage. Such cases are rarely described in the literature, and what makes this case particularly noteworthy is that four years after the intervention, the patient has experienced no recurrence. Further studies are needed to establish the optimal interval between sequential lavages and, importantly, to elucidate the precise mechanisms underlying this pathology.

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O10. Breast center part of oncological hospital

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The incidence and prevalence of breast cancer on a global scale have been increasing during the last decades mainly due to the increase in average age, urbanization and changes in lifestyle (especially the decrease in fertility and the increase in obesity). The increase has also been influenced by the increasing awareness of society and the earlier diagnosis of this cancer. The worldwide incidence of breast cancer has increased by more than 20% and mortality has increased by 14%, since 2008. Every year in the world, over 2.3 million new cases are diagnosed and around 666,000 deaths from this cancer are recorded. Breast cancer is in the first place in Albania due the incidence. In 2024, 805 women were diagnosed with breast cancer nationwide or 61.4 per 100,000 women with an increase of about 33% compared to 2015 (incidence 46.0 per 100,000 women). It is estimated that there are more than 5000 women living with this disease in our country. From 2015 to 2024, breast cancer has a cumulative increase of about 23%. The absolute number of diagnosed cases has an average increase of 2.1% per year

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throughout the decade. Is already proven that the therapeutic approach to breast cancer patients must be developed within appropriate environments, represented by Breast Centers, or "Breast Units", that is high-volume multidisciplinary units where breast cancer is diagnosed and treated. Breast Unit offers multiple advantages: on the one hand, it offers the patient a team of professionals dedicated to the disease, experts in the field and accustomed to working as a team through professional training. On the other hand, it optimizes the management of services provided by individual professionals, reducing waiting times and achieving better use of available resources. All this translates into an improvement in quality of life and even an increase in survival rates. Indeed, patients treated within the Center achieve an increase in survival rates that, in some cases, can reach up to 18%, as highlighted by some studies in the literature. First requirements for breast care centers in Europe was done by EUSOMA and were published in 2000 (later updated in 2013), while in Italy only in 2014 a document was issued that sanctioned the creation of Breast Care Centers. Conclusion: Presence of these centers in the national oncology structures, gives a qualitative boost to the multidisciplinary treatment of patients with malignant breast pathology.

O11. Socio-ethical marketing in healthcare

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Objectives: The aim is to analyze socio-ethical marketing by identifying the main principles and managerial aspects of this approach and to formulate recommendations for its implementation in the healthcare system.
Materials and Methods: documentary method, literature review, comparative analysis. Results: The concept of socio-ethical marketing originates from the expansion of classical marketing by incorporating ethics and social responsibility. According to Kotler and Zaltman, social marketing is defined as “the planning and implementation of programs designed to influence the voluntary behavior of target audiences in order to improve their personal well-being and that of society.” Socio-ethical marketing in healthcare follows the principles of: voluntariness, integrity, social orientation, transparency and awareness. The main elements of socio-ethical marketing in healthcare are: social engagement, ethical code in communication, internal marketing, sustainable brand positioning, feedback and patient participation. The main problems and challenges facing healthcare marketing in the process of practically implementing the trend toward socio-ethical marketing are:

- analysis and forecasting of the population’s health needs;
- quality of healthcare services;
- awareness of healthcare service consumers;
- public relations.

Conclusion: Socio-ethical marketing in healthcare is not merely a tool for attracting patients, but a management philosophy oriented toward respect, dignity, and responsibility. It contributes to building sustainable relationships between healthcare institutions and society, while ensuring ethics and professionalism in conditions of market competition. The development of this approach will be of key importance for the future of healthcare systems—especially in the context of digitalization, social inequalities, and the need for trust.
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O12. "Karagiozis", the hellenic shadow theatre as a source of data related to health and its role in public health

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Introduction: The "Karagiozis Shadow Theater" (Greek: Θέατρο Σκιών Καραγκιόζης) is related to the Ottoman Karagöz-Hacivat tradition. In Greece, the figure of Karagöz was hellenized into "Karagiozis" mainly after the Ottoman Tanzimat reforms from 1839 onward. Travellers and explorers of the era like François Charles Hugues Laurent Pouqueville (1770-1838) testified that puppeteers of the shadow theater were touring the Ottoman Empire, entertaining common people. Meanwhile various theories for its origin exist. Arabs, Indians, Chinese, Egyptians, ancient Greeks all had similar artistic theaters.
Methods and Materials: A survey was conducted in the Hellenic Parliament Library, The Hellenic National Library and the archival collections of various publishing houses like Agkyra.
Results: Hellenization of the characters established Karagiozis as one of the most important forms of popular entertainment in Greece until the mid-20th century, when performances became increasingly urbanized and adapted to new artistic conditions. Karagiozis is considered as the "father" of humorous art and laughter in theatrical plays. The presentation of practical interventions in the field of health, as seen in plays such as "Karagiozis the Physician" or "Karagiozis the Dentist", forms in the viewer's mind images of actions and medical tools that were associated both with the era and the social conditions and needs that existed. The remedies presented are usually imaginary or derived from folk medicine and are only rarely based on scientific principles. These plays, part of the Hellenic culture, a tributary of folklore, constitute evidence through which we learn about tradition, the history of medicine, and the paradoxes of folk healing, while at the same time they seem to improve individual or collective well-being, possible agents for future therapeutic modalities. International research has highlighted the benefits of puppet theater on mental health and has suggested its potential use in health-related supportive interventions.
Conclusions: Health-related Karagiozis plays offer valuable data for medical practice, encouraging audiences to reflect on the need for better healthcare services. At the same time, caution is required when interpreting the practices depicted in such plays, since they may reflect not only real therapeutic methods of the period but also verbal exaggeration, satire, and the imaginative conventions of the script.

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O13. Six decades of population ageing in the Republic of Moldova: national and regional patterns, 1959-2024

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Introduction: In recent decades, population ageing has increasingly shaped the demographic profile of the Republic of Moldova and has become an important priority in national programmes and policies [1]. The aim of this study was to analyse the evolution of population ageing in the Republic of Moldova at national, subnational and regional levels during 1959–2024.
Material and methods: Population census data by sex, age and area of residence were analysed for the Soviet period — 1959, 1970, 1979 and 1989 — and for the period of independence — 2004, 2014 and 2024. At the regional level, the analysis was conducted for the last three censuses. Changes in population structure by major age groups, median age, old-age dependency ratio, ageing index and other indicators were assessed. Results: Among males, the proportion of persons aged 65 years and over increased from 4.5% in 1959 to 14.5% in 2024, while among females it increased from 5.9% to 21.2%. Between 2014 and 2024, the ageing process accelerated considerably, especially among rural females, where the share of persons aged 65 years and over increased from 13.6% to 21.6%. The proportion of children under 15 declined markedly, particularly in rural areas, from 35.0% in 1959 to 17.0% in 2024. The median age increased from 24.5 years in 1959 to 41.4 years in 2024, ranging from 38.2 years among urban males to 45.3 years among rural females. At the regional level, the median age ranged from 28.5 years among males in Ialoveni district, located in the Centre region, to 50.9 years among females in Ocnita district, located in the North region. District population size was significantly negatively correlated with the old-age dependency ratio (Spearman's rho = -0.42, $p < 0.001$). A statistically significant negative correlation was also observed between total population change and change in the ageing index across districts between 2004 and 2024 (Spearman's rho = -0.39, $p = 0.021$).
Conclusions: The ageing process in the Republic of Moldova is particularly advanced among females, in rural areas and in northern districts. Regional population decline was significantly associated with a stronger increase in the ageing index, indicating that depopulation and demographic ageing are closely interconnected at the territorial level. These findings highlight the need for regionally differentiated policies aimed at promoting active and healthy ageing.
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O14. Biologic activity and safety of cherry blossom extract – a systematic review

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Introduction: Cherry blossoms, or sakura, are the decorative flowers of trees belonging to the Cerasus subgenus of the Prunus genus, prized for their beauty and delicate, vanilla-like fragrance. Widespread throughout the Northern Hemisphere, especially in Japan, they are cultivated in many varieties. Recently, there has been significant interest in their use in products related to public health, particularly in cosmetic products and food supplements. Aim: To analyze the use of cherry blossom extract in products related to public health, their safety, and their potential biological activity.
Materials and methods: We conducted a systematic review in accordance with the PRISMA guidelines, in which we analyzed publications from MEDLINE and PubMed for the period 2000–2025. The inclusion criteria for the analysis were based on matches with predefined keywords.
Results and discussion: Over a 25-year period, we identified 72 scientific publications, only 6 of which fully met the inclusion criteria. Two of the analyzed studies demonstrated that cherry blossom extracts exhibit a pronounced anti-aging effect by reducing UV-induced skin degradation. Another study identified significant anti-photoaging potential, mediated by stimulation of collagen synthesis and cytoprotective effects on skin cells. In addition, it has been identified that cherry blossom leaves contain biomolecules with potential cytostatic activity, achieved through modulation of DNA synthesis and induction of apoptosis. An environmentally sustainable nanoenzyme material based on cherry blossom and honey has been developed, which demonstrates significant antibacterial activity through the generation of reactive oxygen species, with promising applications as an effective antimicrobial agent.
Conclusion: Cherry blossoms have a beneficial protective and nourishing effect on the skin, slow down the aging process, and possess UV-protective properties. Some studies have demonstrated their antimicrobial properties. The inclusion of cherry blossom extract in cosmetic products is safe for consumers' health.
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O15. Carcinogenicity, mutagenicity and genotoxicity of cosmetic products, and skin sensitisation – a scoping review

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Objectives: Toxicological evaluation is a mandatory element for placing cosmetic products on the market. Testing strategies include *in vitro* methods for the detection of mutations, followed by *in vivo* studies to confirm biological significance. Aim: The aim of the present scoping review is to define the main concepts of carcinogenicity, mutagenicity, genotoxicity and skin sensitisation, and to identify the validated methods for their assessment.
Materials and Methods: A systematic review was carried out in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. Publications from MEDLINE and PubMed for the period 2008–2025 were screened. The inclusion criterion was correspondence to a set of predefined keywords.
Results: Over the 17-year period, 28 scientific publications were identified, of which only 3 fully met the inclusion criteria. Genotoxicity is a general term for the manifestation of toxic effects on deoxyribonucleic acid (DNA), including breakages, DNA adducts and inhibition of the mitotic spindle. Mutagenicity represents permanent, transmissible changes in the DNA sequence; all mutagens are genotoxic, but not all genotoxic agents are mutagenic. Carcinogenicity describes the property of substances to directly cause or significantly increase the risk of developing cancer. A skin sensitiser is an agent capable of inducing a specific immunological reactivity after contact with the skin. Several new methodologies for the assessment of skin sensitisation are still being developed and validated; three of them are included in the work plan for the test guidelines of the Organisation for Economic Co-operation and Development (OECD). Nevertheless, *in vivo* methods such as the Buehler test and the local lymph node assay remain primary endpoints for the assessment of skin sensitisation. For mutagenicity and genotoxicity, *in silico* methods are increasingly being applied, but regulatory authorities require the assessment to also be confirmed by an *in vitro* test, such as the Ames test or the Comet assay.
Conclusion: *In vitro* tests demonstrate satisfactory sensitivity, but validated follow-up studies that do not use animals are still lacking. This limits the reliability of the toxicological evaluation of cosmetic products and underscores the need for further development of alternative assessment methods.
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O16. Risk behaviours among adolescents – long-term public health issues

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Introduction: Adolescence is an age marked by numerous challenges, with each generation being exposed to new risk factors that emerge concomitantly with the development of society. The objective of this paper is to examine the ways in which the health status of young people is influenced by stress, alcohol consumption, tobacco use, and the use of illicit drugs, all of which may give rise to pathological conditions that, in most cases, accompany the individual throughout adulthood.
Materials and methods: The present quantitative study included 407 participants (61.7% female and 38.3% male) from both urban and rural areas of Romania, aged between 14 and 33 years. Participation was voluntary, and the ethical standards of scientific research were observed. An "omnibus" questionnaire was administered, and the results were statistically processed using SPSS 21. The items examined in this paper concern stress, alcohol consumption, tobacco use, illicit drug use, and the ways in which these factors influence the health status of young people.
Results and discussion: A proportion of 66.3% of the participants reported that respiratory conditions were the most frequent reason for seeking medical care. Among the study participants, 18.3% considered pulmonary diseases to be the most common illnesses among young people, followed by metabolic disorders (11.2%), digestive diseases (10.4%), and mental disorders (6.2%). Furthermore, 73.8% of the respondents considered young people to be highly exposed to stress. Among the young participants, 22.3% reported having smoked for the first time before the age of 14, while 25.6% reported first smoking at the age of 14. With regard to alcohol consumption, 32.8% of the respondents stated that they had consumed alcohol for the first time before the age of 14, while 21.4% did so at the age of 14. In addition, 12.45% of the study participants reported having tried an illicit drug, while 5% of those who had never used illicit drugs stated that they were considering trying them.
Conclusions: The results of this study demonstrate, once again, that adolescents are among the groups most exposed to risk behaviours, with the associated health effects being reflected over the long term. The respiratory and digestive diseases, metabolic disorders, and mental health conditions increasingly encountered among young people may be regarded as consequences of the stress to which adolescents are exposed, as well as of smoking, alcohol consumption, and illicit drug use at early ages. The development of these chronic conditions among young people

represents a significant public health concern, with long-term consequences that are likely to place an increasing burden on public health systems.

O17. Varicella vaccination – a factor in limiting the spread of chickenpox and the risk of complications

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Introduction: Varicella is a highly contagious disease, with possible severe course, especially in infants, adults and immunosuppressed patients, in whom there is a high risk of serious (sometimes fatal) complications. Globally, there are about 140 million cases annually. Vaccination (mandatory/recommended for different risk groups) is the best prevention against varicella. The aim of the study is a comparative analysis of the incidence of varicella globally and nationally on the background of the presence or absence of specific vaccine prophylaxis. Material and methods: data for the incidence of varicella from the World Health Organization (WHO) website by regions were used; for Bulgaria – from the archives of the National Center for Public Health and Analysis (NCPHA), the National Center of Infectious and Parasitic Diseases (NCIPD) and literary sources.
Results: Data from 2021 indicates a global incidence rate of 1,249%000. In temperate regions (Europe, North America, Western Pacific Region), the incidence is high in children <5 years, ranging from 7,052 to 17,974%000; over 90% of cases by age 15. In tropical/subtropical regions (Southeast Asia, Africa, Eastern Mediterranean region), adults' susceptibility is significantly higher than in temperate regions. Southeast Asia experiences high incidence (1,105%000). Regions with incidence >1,000%000 include East Asia (over one-fourth of global cases), Asia Pacific, Oceania, Southeast Asia, and Western Europe. In Bulgaria, the highest incidence is registered in 1982 (614.29%000). By WHO regions, the relative shares of countries with varicella vaccine prophylaxis are as follows: America – 49% (17/35 countries), Eastern Mediterranean Region – 29% (6/21), European Region – 26% (14/53), Western Pacific Region – 26% (7/27); Africa and Southeast Asia – without varicella vaccine prophylaxis. In Bulgaria, mandatory varicella vaccination will be introduced from July 2026. Conclusion: Varicella vaccines have proven efficacy and a well-known safety profile. With the sustainable implementation of an immunization program with coverage ≥80%, a long-term plan will be ensured.

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O18. Knowledge gaps in HPV vaccination among dentistry students of the medical faculty of the University of Niš: a cross-sectional online survey

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Introduction: Human Papillomavirus (HPV) is considered one of the most common viral infections of the reproductive system, and the most effective method of primary prevention is vaccination against HPV-related diseases (HPV vaccination). In this context, dentistry students, as future healthcare professionals, play an important role as promoters and advocates of HPV vaccination, given their involvement in recognizing and preventing HPV-associated diseases.
Material and methods: The study included 57 dental students, whose knowledge and attitudes regarding HPV infection and vaccination were assessed using a structured online questionnaire.
Results: The results indicated a satisfactory level of knowledge among respondents regarding the modes of transmission and consequences of HPV infection, while the vaccination rate was 22.8% and was more prevalent among female students. Although the vaccination rate was relatively low, the majority of respondents (75.4%) expressed trust in vaccination as a preventive measure. Encouragingly, more than half of the respondents stated that they would vaccinate their future children (52.6%), while a significant proportion (71.9%) expressed willingness to recommend the HPV vaccine to people in their environment. Most information on this topic was obtained by students during primary and secondary education, at university, and through social media, with many emphasizing that additional information and education on HPV and HPV vaccines would be highly beneficial. Regarding population education and HPV vaccine promotion, the majority of respondents agreed that high schools, as well as pupils in grades 5–8 of primary school, represent the most appropriate starting point for educational activities.
Conclusions: An early start in proper education can be a game-changer when it comes to infectious disease prevention and vaccine acceptance among youth. Given the growing influence of the internet and social media, distributing appropriate educational content on these platforms could significantly raise public awareness and increase HPV vaccination rates. Such forms of information dissemination would directly contribute to reducing the incidence of genital warts, precancerous lesions, and cancers associated with HPV infection.

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O19. Epidemiological trends and patterns of electrical burn injuries across Europe

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Introduction: Electrical burns represent a distinct and often severe category of trauma, associated with high morbidity, complex management, and significant socioeconomic impact. This study explores the epidemiology of electrical burn injuries across Europe, focusing on incidence, demographic distribution, causes, and outcomes.
Material and method: The present study integrates two research directions: on one hand, a comprehensive literature review of relevant published data, available on public databases, regarding electrical burns in European countries, and, on the other hand, the analysis of our department experience on pediatric electrical burns over the last seven years. The aim of the study was to highlight variations between regions and the different occurrence patterns related to voltage type, context of exposure and age group population.
Results: There are significant differences of electrical burn incidence between more developed countries and less developed ones, with higher incidence rates observed in industrial and construction-related settings. Adult males constitute the majority of cases, often linked to occupational exposure, while pediatric cases are more frequently associated with domestic accidents, also more prevalent in males. High-voltage injuries, although less common, are associated with more severe complications, including limb amputation and long-term disability. Conversely, low-voltage injuries are more prevalent but generally result in less severe outcomes. However, they can also associate local complications with permanent functional impairment, especially of hands and fingers.
Conclusion: Electrical burns represent a significant clinical challenge, associating long hospitalization time, complex medical care and sometimes permanent disability. Targeted preventive measures, regulatory frameworks, and public awareness campaigns may help reducing the incidence and severity of these cases. Enhanced collaboration between healthcare systems and policymakers is essential to reduce the burden of electrical burn injuries in Europe and improve patient outcomes.

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O20. Role of the pharmacist in the management of anxiety among patients with chronic diseases: a cross-sectional survey

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Background: Anxiety is a significant factor affecting quality of life and treatment adherence among patients with chronic diseases. Pharmacists are increasingly recognized as accessible healthcare professionals who can provide both medication-related guidance and psychosocial support; however, their role in anxiety management remains underexplored. Aim To assess the level of anxiety among patients and to evaluate the perceived role of pharmacists in its management.
Materials and methods: A cross-sectional anonymous online survey was conducted among 192 respondents. A structured questionnaire was used, including demographic characteristics, anxiety-related items measured on a 5-point Likert scale, treatment adherence, and attitudes toward the pharmacist's role. Descriptive statistical analysis was applied.
Results: The study population was predominantly young (59.4% aged 18–25) and female (81.3%). The mean anxiety level was moderate (mean = 3.11 ± 1.16). Anxiety was reported to affect daily activities (mean = 2.91 ± 1.35) and quality of life (mean = 3.16 ± 1.44).
Low levels of medication non-adherence were observed (mean = 1.74 ± 1.10), although some respondents reported uncertainty regarding their treatment. Most participants had not received counseling from a pharmacist (60.4%), yet a substantial proportion expressed willingness to

seek such support (69.8%). The majority believed that pharmacists could contribute to reducing anxiety (72.9%). Regarding communication preferences, 44.8% favoured digital channels, while comfort with discussing anxiety online was moderate to low.
Conclusion: Anxiety is prevalent and significantly impacts patients' quality of life. Although pharmacists are not yet fully utilized in this role, they are perceived as valuable contributors to anxiety management. Expanding pharmacist-led services, including psychosocial support, may improve patient outcomes, particularly among younger populations.

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O21. Complementary and alternative medicine in european pharmacy education – current state and future requirements

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Introduction: The integration of Complementary and Alternative Medicine (CAM) into European pharmacy curricula represents an essential advancement in pharmaceutical education. Driven by the rising prevalence of CAM use, including herbal medicines, homeopathy, and food supplements, there is a clear need for additional training for pharmacists to ensure the provision of evidence-based, safe, and effective pharmaceutical care. This study evaluates the current state of CAM education across Europe to identify integration patterns and pedagogical gaps.
Materials and methods: A documentary and content analysis of pharmacy curricula across European countries was performed alongside a review of scientific publications. The analysis focused on the degree of integration, educational models, curriculum content, teaching methodologies, and the availability of specialized courses in undergraduate programs.
Results: Findings indicate that CAM integration remains fragmented and highly heterogeneous. The absence of a standardized European regulatory framework has resulted in significant cross-country disparities. CAM is typically incorporated through partial integration into established disciplines or elective modules. Notably, most CAM courses are elective and mostly focused on only one CAM therapy, such as homeopathy or phytotherapy. Geographically, the highest integration levels are observed in Portugal, Germany, France, Switzerland, and the United Kingdom, where structured programs cover phytotherapy, homeopathy, and Traditional Chinese Medicine. Conversely, in Northern and Western Europe (e.g., the Netherlands, Spain,

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Italy, Scandinavia), CAM is predominantly offered through elective courses. In Central and Eastern Europe, including Poland, the Czech Republic, Hungary, and Bulgaria, CAM education is limited and occurs primarily through individual topics within established disciplines. In Bulgaria, recent curricula have introduced electives in homeopathy, aromatherapy, functional foods and nutraceuticals.
Conclusions: The integration of CAM into pharmaceutical curriculum in Europe is uneven and underdeveloped, despite its growing importance. The development of a standardized educational framework and comprehensive coverage of CAM in curricula is becoming a necessity. This would contribute to enhancing the professional competence of pharmacists and ensuring the safe and rational use of CAM products.

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O22. The impact of The Ottoman Empire's "Tanzimat Reforms" on the attempts to modernize health-care services in a remote Aegean island a few years before its unification with Greece

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Introduction: The "Tanzimat Reforms" were implemented by the Ottoman State from 1839 to 1876, marking the administration's efforts to modernize and control the Empire's heterogeneous society, by reforming or substituting old institutions with new ones. During the same period Samos island, a hemi autonomous part of the Ottoman State called "Hegemony", was also attempting to modernize its health services. A series of laws concerning medical practice and ethics were introduced, enabling the transit from occult practices to contemporary western medicine. The culmination of these efforts was the foundation of "Samos Holy Hospital Hagios Panteleimon" in 1874. Nevertheless, it was not until May 1912, after the murder of Hegemon Kopasis and just a few months before the island's unification with Greece, that a detailed Regulation of Procedure was published.
Materials and methods: We conducted extensive research in Samos General State Archives and the Internet, accessing several primary, as well as original research and review articles. Results: We retrieved information on Tanzimat Reforms, regarding central government healthcare planning, as well as information on the health-related legislative measures that Samos island Hegemony implemented during the same period, establishing in that way a reliable account of

local health reforms under the light of the newly introduced, during the 19th century, main dogmas regarding medical practice and ethics in the Ottoman Empire. Conclusions: Even though Tanzimat Reforms constituted a positive step towards a modern society their implementation failed to restrain the various revolutionary movements that were constantly erupting throughout the Empire and Samos island was not an exception.

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O23. Knowledge gaps and preventive behaviors related to hepatitis c in the Republic of Moldova

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Introduction: Hepatitis C virus (HCV) infection remains a major public health challenge in the Republic of Moldova, which reports some of the highest HCV prevalence rates in Europe. Despite the availability of effective direct-acting antivirals, late diagnosis, knowledge gaps, and suboptimal preventive behaviors continue to sustain transmission. Identifying specific deficiencies is essential for designing targeted interventions.
Material and methods: A cross-sectional descriptive study was conducted in 2024 across multiple districts of the Republic of Moldova. A structured self-administered questionnaire was applied to 567 participants, covering HCV knowledge (transmission routes, biological fluids, clinical signs, complications), preventive behaviors, and information sources. The study population included physicians (26.6%), nurses (49.4%), auxiliary medical staff (4.2%), and non-medical professionals. Descriptive statistics were used for data analysis.
Results: Of 567 respondents, 86.6% were female, with a mean age of 45.1 ± 13.2 years. Self-assessed knowledge was adequate or very good in 82.9%. Knowledge of HCV complications was generally high: 94.5% recognized the risk of cirrhosis, 90.3% of hepatocellular carcinoma and death, and 75.7% knew HCV is treatable. Parenteral transmission routes were well identified: blood transfusion (94.0%), shared needles (93.8%), injectable drug use (94.4%), dental procedures (95.4%), and tattooing or piercing (90.3%); sexual transmission was recognized by 81.0%. However, notable knowledge gaps emerged: 42.7% incorrectly believed that HCV can be prevented by vaccination — a critical misconception, as no licensed HCV vaccine currently exists [6]. Only 61.4% were aware of mother-to-child transmission during pregnancy, 37.2% identified breast milk as an infectious medium, and 19.8% incorrectly attributed transmission through kissing. Only 71.8% recognized that HCV infection may be asymptomatic. Regarding preventive behaviors, 29.8% reported at least one prior needlestick injury, yet only 7.1% consistently changed gloves between patients. The main source of information was physicians (76.5%), followed by educational brochures (41.1%) and television (38.4%). The most frequently requested topics for additional education were treatment options (57.7%), risk factors (46.9%), and signs and symptoms (45.5%). Conclusions: The study reveals significant HCV-related knowledge gaps and behavioral deficiencies in the Republic of Moldova, consistent with findings reported in the international literature [6]. Misconceptions

about vaccination-based prevention and low adherence to standard precautions highlight the urgent need for targeted educational programs for both healthcare workers and the general population as part of Moldova's national hepatitis elimination strategy.

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O24. Greco-roman era and diabetes: aretaeus of Cappadocia and Galen

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Introduction: The Classical, late Hellenistic, and Greco-Roman periods played a pivotal role in the systematic observation and study of diseases, including diabetes. Surviving medical texts from this era document early attempts to correlate clinical signs and symptoms with systemic diseases and propose therapeutic approaches.
Objective: To investigate the contributions of Aretaeus of Cappadocia and Galen to the understanding of diabetes, with emphasis on their descriptions of the polyuric syndrome and the historical origins of the term “diabetes.”
Material and Methods: A comprehensive literature review was conducted, including analysis of primary historical sources, printed publications, archival material, and electronic databases.
Results: Aretaeus of Cappadocia provided one of the earliest and most detailed clinical descriptions of diabetes, recognizing it as a distinct polyuric syndrome characterized by excessive urination and progressive wasting. Galen further contributed to the conceptualization of the disease, discussing its pathophysiology within the framework of humoral theory. Both physicians proposed therapeutic and dietary interventions and contributed to the establishment and dissemination of the term “diabetes.” Their work significantly influenced medical thought from antiquity through subsequent centuries. Conclusions: The contributions of Aretaeus of Cappadocia and Galen represent a cornerstone in the historical evolution of medical knowledge on diabetes. Their observations and interpretations laid the groundwork for later developments and continue to hold significance in the historiography of medicine.

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O25. Stigma and marital exclusion: a byzantine princess in 13th-century Serbia suffering from scabies-like pruritus

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Introduction This study explores the social and ethical implications of chronic dermatological conditions through the case of a Byzantine princess afflicted with disabling pruritus in the early 13th century.
Material and Methods: Comparative study of a contemporary historical source in Greek (Choniates' Chronicle) with later latin translations and identification of interpretative deviations between the original text and its Latin versions. Retrospective reevaluation of the Princess's illness and investigation of the stigmatising burden of the skin disease through the lens of Medical Ethics. Results Married to Stefan the First-Crowned (c.1165–1228), Grand Prince of Serbia, imperial Princess Eudokia Angelina (c.1173–1211) was repudiated in 1201 under the pretext of her disabling (and potentially contagious) skin condition. This dissolution of marriage illustrates the stigmatisation and familial exclusion associated with chronic dermatoses in medieval Balkan societies. By examining this medico-historical case through the lens of Medical Ethics, we analyse how physical impurity was conflated with moral decay, leading to social ostracism. The case highlights the intersection of medicine, morality, and power in Byzantine and Serbian courts, where dermatological ailments were often interpreted as divine punishment or evidence of infidelity.
Conclusions: The Byzantine text explicitly refers to a *psoric* (*i.e.*, scabietic or scabies-like) disease, a condition that, in its Latin translations, is not described as a purely physical ailment but rather as a state of moral depravity equivalent to adultery. This is a case of identifying scabies—a historically stigmatised and often considered "impure" condition—with a socially condemned moral transgression. This research underscores the historical roots of

dermatological stigma and its enduring impact on marital and social dynamics, offering insights into the cultural perceptions of disease in pre-modern Europe.

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O26. Radial extracorporeal shock wave therapy in the treatment of rotator cuff calcific tendinitis: a case report and review of the literature

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Introduction: Calcific tendinitis of the rotator cuff is a common cause of shoulder pain resulting from the deposition of calcium hydroxyapatite crystals within the rotator cuff tendons, most frequently the supraspinatus tendon. Patients may present with severe pain and restricted shoulder mobility. Conservative treatments include non-steroidal anti-inflammatory drugs, physiotherapy, and corticosteroid injections. Extracorporeal shock wave therapy has emerged as a non-invasive treatment modality that may reduce pain and promote resorption of calcific deposits. This report presents a case of a large rotator cuff calcification successfully treated with radial extracorporeal shock wave therapy and summarizes relevant literature.
Material and Methods: A 57-year-old male teacher presented with severe pain in the left shoulder and restricted range of motion. Anteroposterior shoulder radiography revealed a 26 mm calcific deposit in the rotator cuff region. Due to severe pain, 40 mg intra-articular methylprednisolone acetate was administered. After pain reduction, radial extracorporeal shock wave therapy was initiated using a Storz Medical Masterpuls 200 device. Six weekly treatment sessions were performed. Each session delivered 2600 shock waves. To improve tolerability, treatment pressure was initiated at 1.8 bar and gradually increased during the session up to 5.0 bar.
Results: The patient demonstrated progressive reduction in pain and improvement in shoulder mobility during the treatment course. Follow-up radiography performed eight weeks after the final treatment session showed complete radiological resolution of the calcific deposit. No complications or adverse effects were observed during therapy.
Conclusions: Radial extracorporeal shock wave therapy represents an effective and well-tolerated non-invasive treatment option for symptomatic rotator cuff calcific tendinitis. The therapeutic effect of shock waves is believed to involve mechanical fragmentation of calcium deposits, stimulation of local tissue regeneration, neovascularization, and modulation of pain receptors. Clinical studies have demonstrated significant reductions in pain and improvement in shoulder function following treatment. Reported success rates for extracorporeal shock wave therapy in calcific tendinitis range from approximately 70% to 90%, with many patients demonstrating partial or complete radiological resorption of calcific deposits. Radial shock

wave therapy therefore represents an important therapeutic alternative before considering surgical intervention.

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O27. Cervical cancer treatment: paredigm treatment changing and update approach, clinical case.

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Introduction: Localy advanced cervical cancer requires individualized treatment strategies and differently approach from early disease . Especially stage 3 require CRT tailoring of radiation according to surgical staging or imaging or sometimes NACT followed by surgery or RT.Limitations in resuls with neoadjuvant or induction ChT prior to RT are conflicting,and sometimes patient preferences may significantly influence therapeutic decisions and outcomes. Methods: We present a case of a 55-year-old female that was diagnosed in October 2020 with cervical cancer , and the biopsy was squamous cell carcinoma G2. In the Ct was seen also pelvic and abdominal adenopathy so the case was Staged III C in the FIGO staging of cervix uteri 2018.Our MDT decided for induction Chemotherapy regiment with the treatment schedule paclitaxel 175mg/m2 D1 and cisplatine 50mg/m2 D1 q21 days. In January 2021 was performed a ct scan to see the situation and it was seen a reduction of the paraaortic and pelvic adenopathy. Radiotherapy treatment with SIB –VMAT was performed after induction chemotherapy and concomitant Cht. After that the pacient was in follow up every 3 months.On December 2022 was seen in the scan relaps of the disease. Rechallenge with Paclitaxel 175mg/m2 d1 and Carboplatin AUC 5 D1. Actually disease free and follow up every 3 months since the last follow who was in January 2025. Results:Favorable radiologic response after induction chemotherapy with regression of pelvic and para-aortic adenopathy . Disease relapse at 24 months and positive response to second-line chemotherapy. The role of induction chemiotherapy prior ro CRT is increasingky supported by emerging date (INTERLACE trial). Choice of platinum agent remains clinically relevant, so cisplatine is preferred in patients with preserved renal function and carboplatine as an alternative in selected cases. In recurrent disease, systemic therapy options include chemotherapy + bevacizumab or immunotherapysuch as pembrolizumabe particularyin PD-L1 positive tumors.

Conclusions: Induction chemotherapy prior to chemoradiotherapy may improve outcomes in locally advanced cervical cancer,with a reported benefit of 9% improvement in progression-free survivaland 8% improvement in overall survival at 5 years. Standard CRT remains highly effective, with strong treatment adherence. Also treatment personalization is essential particularly in selection of platinum agents and management of recurrence disease. Access to targeted therapies and immunotherapy remains a key challenge in some settings.

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O28. The biochemical role of microRNAs in the pathogenesis and regulation of bone metastasis

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Introduction: Bone metastasis is a complex process driven by a pathological positive feedback loop of interaction between tumor cells and the bone microenvironment. Recent evidence highlights the critical role of microRNAs (miRNAs), small non-coding ribonucleic acid (RNA) molecules, as key post-transcriptional regulators of this progression. This study explores the biochemical mechanisms by which specific miRNAs modulate osteotropic signaling, focusing on their potential as diagnostic and therapeutic tools within the framework of clinical Biochemistry.
Materials and Methods: A systematic biochemical review was conducted utilizing data from molecular studies on miRNA-mediated regulation in bone colonization, particularly focusing on highly osteotropic malignancies such as breast and prostate cancers. We analyzed the interaction between specific miRNAs and target genes involved in the Receptor Activator of Nuclear Factor Kappa-B Ligand (RANKL) pathway, Transforming Growth Factor-beta (TGF-β) signaling, and the Wingless-related integration site/β-catenin (Wnt/β-catenin) pathway.
Results: The analysis reveals that miRNAs act as molecular switches in the bone niche. For instance, microRNA-21 and microRNA-141 are often upregulated in metastatic cancer, facilitating osteoblast to osteoclast signaling by targeting Osteoprotegerin (OPG) and enhancing RANKL-induced osteoclastogenesis which is the process of forming mature osteoclasts. Conversely, certain miRNAs act as suppressors of bone-derived growth factors, specifically TGF-β and Insulin-like Growth Factors (IGFs). The biochemical hallmark of these molecules is their ability to simultaneously target multiple pathways, specifically the RANKL/OPG axis, TGF-β signaling, and the Wnt/β-catenin cascade, thereby amplifying the metabolic rewiring of

bone cells. Furthermore, the secretion of miRNAs via exosomes represents a primary biochemical communication channel between primary tumors and the distant skeletal site. Furthermore, miRNAs serve as pivotal regulators of the Wnt/β-catenin signaling pathway, a central axis for osteoblastogenesis and skeletal integrity. By targeting key components such as the LRP5/6 (Low-density lipoprotein receptor-related protein) co-receptors or biochemical antagonists like Dickkopf-1 (DKK-1), these microRNAs disrupt the osteoblastic support system. This biochemical imbalance leads to decreased Osteoprotegerin (OPG) production, further fueling the RANKL mediated osteolysis and facilitating the expansion of metastatic lesions within the bone niche.
Conclusions: MicroRNAs are fundamental biochemical regulators of the metastatic pathological positive feedback loop. Their role in modulating enzymatic and signaling pathways at the post-transcriptional level offers a new dimension to clinical Biochemistry. Disrupting miRNA-target interactions could lead to novel biochemical therapies aimed at preserving bone integrity in oncological patients.

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O29. Biomarkers of mitochondrial homeostasis in chronic myeloid leukemia

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Introduction: Chronic myeloid leukemia (CML) stem cells (LSCs) inherent persistence and chemoresistance acquisition in progenitors represent the current research focus. Given that the residual LSCs are independent of the BCR-ABL pathway, novel therapeutic agents that target alternative molecular pathways are being investigated. Significant alterations in CML energy metabolism imply LSCs' dependence on oxidative phosphorylation, with FOXO3 transcription factor as being crucial for maintaining their self-renewal capacity. Sirtuin-3 (SIRT3) is a mitochondrial deacetylase that activates FOXO3 factor to protect cells from oxidative stress and maintain mitochondrial quality. We aimed to assess the relationship between circulating SIRT3 and FOXO3 levels in patients with CML.
Material and methods: We investigated the levels of SIRT3, FOXO3, and their ratio in the blood of CML patients and compared them with those of age-matched healthy individuals. Two groups of CML patients were: treatment-naïve patients (n=40) and those in remission on tyrosine kinase inhibitor treatment (n=40). Results are expressed as median and interquartile range (IQR) due to the distribution. Kruskal-Wallis test with post hoc Dunn’s test is applied.
Results: The average age of study subjects was 56.16 years for the patient group and 53.14 years for controls. Median plasma SIRT3 levels did not show a significant difference between the groups. However, FOXO3 levels and the SIRT3/FOXO3 ratio were significant (p=0.001), with values markedly changed in the treatment-naive patient group compared to others. That is, the median of FOXO3 level was 3.303 (3.51) ng/ml compared to 1.780 (0.84) and 1.622 (0.96) in controls and treated patients, respectively. There was no significant correlation between the biomarkers.

Conclusions: Our results confirm cellular metabolic reprogramming in CML patients and that related biomarkers can reflect these events. Also, standard treatment leads to normalization of biomarker levels, which may be explored in future studies of possible screening. A high oxidative phosphorylation status is characterized by increased mitochondrial fitness, which may be due to increased SIRT3 expression and subsequent activation of the FOXO3 signaling.

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O30. Sequential systemic therapy and long-term disease control in metastatic colon cancer, clinical case

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Introduction: Metastatic colorectal cancer (mCRC) requires individualized treatment strategies based on tumour biology, patient condition, and treatment tolerance. Limitations in molecular testing and patient preferences may significantly influence therapeutic decisions and outcomes. Methods: A 52-year-old female was diagnosed in November 2020 with moderately differentiated colon adenocarcinoma (pT3N0M0) with vascular and perineural invasion. She underwent total colectomy with ileorectal anastomosis. Seventeen lymph nodes were examined, all negative for metastasis. Initial staging CT showed no distant disease. Family history was positive for malignancy. Molecular profiling (KRAS, NRAS, BRAF, MSI) was not performed due to COVID-19-related limitations. Adjuvant chemotherapy with capecitabine was initiated at a reduced dose due to gastrointestinal toxicity and later escalated. After six cycles, imaging in mid-2021 revealed a 26 mm hepatic lesion, confirmed as metastatic disease on MRI. First-line treatment with XELOX (capecitabine and oxaliplatin) was initiated in August 2021. After three cycles, disease progression was observed. Due to elevated bilirubin levels (2.4 mg/dL), irinotecan was initially contraindicated, and treatment was continued with modified oxaliplatin-based therapy. In January 2022, imaging demonstrated stable disease. Second-line therapy with irinotecan and capecitabine was initiated, achieving further disease stabilization. From September 2022 to November 2023, the patient received maintenance therapy with capecitabine. In November 2023, imaging revealed progression of the hepatic metastasis (~60 mm). The patient declined intravenous chemotherapy at that time. Tumor markers were elevated (CEA 12.9 ng/mL, CA 19-9 31.2 U/mL, LDH 243 U/L). Despite dose escalation of capecitabine, further progression was documented, reaching 70 mm by July 2024. Bevacizumab

was subsequently added to capecitabine. After eight cycles, MRI demonstrated stable disease, with moderate increases in tumor markers (CEA 19.7 ng/mL, CA 19-9 33.7 U/mL). The patient continued combination therapy for an additional six cycles, maintaining disease control. In April 2025, CT imaging confirmed stable disease. Treatment was continued until November 2025, when disease progression was observed, accompanied by significant elevation of tumor markers (CEA 99 ng/mL, CA 19-9 180 U/mL). Comprehensive molecular testing performed in December 2025 revealed KRAS, NRAS, and BRAF wild-type status. The patient was started on anti-EGFR therapy with cetuximab in combination with FOLFIRI (irinotecan, leucovorin, and 5-fluorouracil). Four cycles have been completed to date, and treatment is ongoing.
Conclusions: This case highlights the importance of adaptive, patient-centered treatment strategies in mCRC. Despite delayed molecular profiling and periods of suboptimal treatment intensity due to patient preference, prolonged disease stabilization was achieved through sequential chemotherapy and targeted therapy. The introduction of anti-VEGF and later anti-EGFR therapy contributed to sustained disease control, emphasizing the value of personalized treatment even in complex clinical scenarios.

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O31. Surgical treatment of gigantomastia between thorek mammaplasty and breast reduction with superomedial pedicle (case series)

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Introduction: Gigantomastia is a rare benign breast pathology associated with a large breast enlargement with serious physical, aesthetic and psycho-emotional consequences. It can be juvenile, as a result of a genetic hormonal disorder during puberty; gestational, as a result of hormonal changes during pregnancy; or iatrogenic, as a result of hormonal treatment with medications. Its only and inevitable treatment is breast reduction.
Material: In this paper, we undertake to present 4 cases from our clinical practice, where through the exposure of the application of two surgical techniques, we try to give our assessment of the advantages, disadvantages and real risks of pitfalls in their application. The material is illustrated with relevant pre- and post-operative photos of the cases taken in the study, reflecting the efficacy of the surgical treatment technique.
Method: The surgical techniques presented in this paper are Thorek's Reduction Mammoplasty, with breast amputation and nipple areola graft, and Superomedial Pedicle Breast Reduction. The material reflects step by step the phases of reduction surgical techniques, paying attention from preoperative design to the final closure of the intervention, drawing attention to the key stones where attention should be focused at each stage of the operation.
Discussion: In this paper, our attention is focused from the moment of determining the surgical indication in accordance with the anatomical condition to the selection between the techniques to be studied, emphasizing the advantages and disadvantages of the healthy state and age of the

patients; to the postoperative aesthetic result to make the patient aware of the expectations from the surgery. During the discussion, our attention has also focused on follow-up and post-operative care. We also attempt to argue the reasons for choosing superomedial pedicle breast reduction compared to other breast reduction techniques with alternative methods of pedunculating breast tissue, where we pay attention to the comparison with inferior pedunculation, which is the most widely used method in our time.
Conclusion: In conclusion, the authors express their support for two selection techniques and the therapeutic benefits of their implementation, emphasizing their efficacy in the treatment of gigantomastia.

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O32. Multidirectional application of the reverse sural artery flap in the coverage of distal leg and proximal foot defects as a simple and safe technique in oncoplasty and orthopedics (case series)

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Introduction: The reverse sural artery flap remains a preferable surgical alternative in covering tissue defects in the distal third of the cruris and proximal two-thirds of the foot, where the possibility of raising safe solid local flaps is limited. This is more sensitive in countries with small populations, such as Albania, where due to the limited number of clinical cases, the possibility of consolidating surgical teams with professional skills in the application of free musculo- or fasciocutaneous flaps is very difficult, if not impossible.
Material: In this paper, we undertake to present 3 cases of application of the reverse sural artery flap in specific health, systemic and local circumstances of patients who underwent this surgical intervention. These include problems of marked bilateral inferior edema with systemic causes in one of the patients; or local fibrotic damage in both the donor and recipient flap sites, due to severe burns of the lower extremities, in the other patient; and serious exposure of the calcaneal tendon, where flap abortion would be followed by serious consequences for the vitality of the calcaneal tendon, in the latter patient.
Method: In the first two cases, this paper presents the application of the island reverse sural artery flap with a long fascio-adipose pedicle, focusing our attention on postoperative problems due to specific health and systemic circumstances. In the third case, the application of the

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reverse sural artery flap with a short fasciocutaneous pedicle to cover the fully exposed calcaneal tendon is emphasized.
Discussion: During the discussion, we pay attention to the advantages and disadvantages of each variant of applying the reverse sural artery flap. Here, we discuss the anatomical factors that should be kept in mind during the flap application procedure, as well as the care that should be taken during the stages of surgical technique to avoid problems that seriously affect the success of the operation and the long-term restults of the intervention.
Conclusion: The reverse sural artery flap remains one of the safest local flaps in covering tissue defects in the lower third of the cruris and the proximal two-thirds of the foot. It is a flap that is easily lifted and quickly applied, providing comfort to the surgeon during its application and in emergency conditions.
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O33. Erectile dysfunction in the aging population: contemporary management and the role of advanced reconstructive surgery

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Background: Erectile dysfunction (ED) is a common condition with a significant impact on quality of life. Multiple conservative treatment modalities are available, including lifestyle modifications, vacuum erection devices, low-intensity shockwave therapy, radiofrequency therapy, oral phosphodiesterase type-5 inhibitors (PDE5i), botulinum toxin therapy and intracavernosal injections. Surgical management is generally reserved for patients in whom conservative treatments fail or are contraindicated. According to EAU guidlines, two principal surgical approaches are recognized: penile revascularization surgery and penile prosthesis implantation. Among these, penile prosthesis implantation remains the most reliable definitive treatment for refractory ED.
Methods: Over the last six months, 10 patients with severe erectile dysfunction were surgically treated at the University Clinic of Urology with implantation of a three-component inflatable penile prosthesis. All patients received the AMS 700™ LGX prosthesis (Boston Scientific), an antibiotic-coated device designed to allow controlled expansion in both penile girth and length over time. One patient underwent revision surgery due to mechanical failure of a previously implanted prosthesis performed at another institution, and a new device was successfully implanted during the same surgical procedure.
Results: All procedures were completed successfully without major intraoperative complications. Patients were instructed to begin cycling the prosthesis once postoperative pain had resolved. Resumption of sexual activity was recommended no earlier than six weeks after surgery. The inflatable penile prosthesis provided immediate mechanical restoration of erectile

function. Early postoperative outcomes were favorable, and patients reported high satisfaction with the procedure. Revision surgery for prosthesis malfunction was successfully managed with replacement of the device.
Conclusion: Penile prosthesis implantation remains the gold standard surgical treatment for patients with erectile dysfunction refractory to conservative therapy. Modern inflatable prostheses offer excellent functional outcomes and very high satisfaction rates, reported in the literature to range from 92–100% in patients and 91–95% in partners when appropriate counselling is provided. Continuous technological improvements in prosthesis design and infection prevention are expected to further enhance outcomes and expand indications for surgical management of ED.

O34. Digital transformation in pharmaceutical care: enhancing patient outcomes and medication adherence through telepharmacy and mobile health tools

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Introduction: The rapid evolution of digital technologies is transforming healthcare delivery globally. In pharmacy practice, digitalization offers innovative solutions to traditional challenges in patient care. Pharmaceutical care is shifting from product-oriented dispensing to patient-centered clinical services. However, the widespread integration of digital tools in daily pharmacy workflows remains uneven. This study evaluates the impact of digital platforms on the quality of pharmaceutical care and patient-pharmacist communication.
Methods: A multi-center, mixed-methods study was conducted over six months in 2025. We analyzed data from 27 studies on community pharmacies utilizing an integrated digital health platform. A cohort of 450 patients with chronic diseases (hypertension and type 2 diabetes) was included. Medication adherence was measured using the 8-item Morisky Medication Adherence Scale (MMAS-8) before and after implementation. Pharmacist efficiency was assessed via time-motion analysis. Results Patient medication adherence scores improved significantly, with high-adherence rates increasing from 42% to 78% (\(p < 0.01\)). Telepharmacy consultations reduced patient travel time and wait times by an average of 45 minutes per visit. Automated alerts reduced medication dispensing errors by 34%. Time-motion analysis revealed that digital documentation saved pharmacists an average of 1.2 hours per shift. This time was directly redirected toward face-to-face or virtual patient counseling. Furthermore, 88% of patients reported higher satisfaction with their care. Conclusions: Digitalization significantly enhances the quality, safety, and efficiency of pharmaceutical care. Integrating mobile health tools and telepharmacy successfully bridges the gap between patients and pharmacists. It fosters better chronic disease management and reduces administrative burdens on healthcare professionals. Future policies should focus on standardizing digital pharmacy infrastructure and ensuring data privacy to maximize these benefits.
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O35. Perception of artificial intelligence and stress level among medical students

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Introduction: Medicals education is a highly demanding and stressful. Stress among medical students is a complex interaction between individual internal coping capacity and external academic and clinical pressures (1). The rapid implementation of artificial intelligence (AI) into medical education and contemporary medical practice may contribute to psychological burden of medical students. Artificial intelligence makes learning easier, but there is a certain level of fear that artificial intelligence could take over the jobs of general practitioners and medical specialists, especially radiologists. A psychological stress may lead to burnout and poor academic performances as well as to impaired quality of life of medical students. The Aim of this study was to assess stress levels among medical students and examine their perceptions of AI and the impact of the implementation of AI in medical education and medical practice on their stress levels.
Material and Methods: A cross-sectional observational study was conducted among 268 students of the Faculty of Medicine, University of Niš. Data were collected using an anonymous online questionnaire between February 1 and April 20, 2026. Stress levels were assessed using the NSAD Stress Questionnaire (4), while attitudes toward artificial intelligence were evaluated using a modified Likert-scale-based questionnaire (5). Statistical analysis was performed using IBM SPSS Statistics 27.0.
Results: Psychological or physical signs of stress were identified in 48.9% of participants, while a high level of stress was recorded in 24.6%. A statistically significant association was found between year of study and stress level ($p = 0.012$), whereas no significant difference was observed according to sex ($p = 0.069$). Participants showed a predominantly positive perception of AI, with higher scores among male students ($p < 0.001$) and students in earlier years of study ($p < 0.001$). A significant negative correlation was observed between stress and AI perception ($\rho = -0.256$; $p < 0.001$).
Conclusion: Medical students are very prone to stress, and it is more pronounced in senior year of study. The students expressed positive attitude toward the application of AI in medical education and medical practice. These findings support the need for the gradual integration of AI-related content into medical curricula. It is necessary to assess the burden of medical students and work on stress prevention by providing mentoring and professional psychological support.

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O36. Printing the future of healthcare: 3d technologies and patient-centric innovation

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Objectives: Patient-centric healthcare increasingly requires technologies able to translate individual biological, anatomical and behavioral variability into safe, acceptable and clinically meaningful therapeutic solutions. This conceptual study examines three-dimensional printing as an enabling platform for personalized pharmaceutical and medical innovation. Particular emphasis is placed on the potential of 3D technologies to connect individualized dosage forms, patient-specific medical devices, point-of-care manufacturing and digitally supported feedback between physician, pharmacist and patient.
Materials and Methods: A narrative, concept-driven synthesis of selected scientific and regulatory sources was performed. The analysis covered 3D-printed pharmaceutical dosage forms, patient-specific medical applications, point-of-care additive manufacturing, digital health interfaces and quality-related implementation challenges. The topic was interpreted from a translational perspective, with focus on pharmaceutical feasibility, clinical relevance, patient acceptability, regulatory responsibility and the evolving professional role of the pharmacist.
Results Three-dimensional printing provides a flexible technological route for adapting medicines and medical solutions to the needs of individual patients. In pharmaceutical practice, this may include dose individualization, modified release, polypills, tailored geometry, improved swallowability and dosage forms adapted to pediatric, geriatric or chronic-care populations. In medical practice, 3D technologies may support anatomical models, surgical planning, prosthetics, implants, rehabilitation tools and other patient-specific interventions. The synthesis suggests that the most meaningful innovation is not the printed object alone, but the emergence of a connected therapeutic workflow. In such a model, the physician issues an electronic, patient-specific prescription; the pharmacist performs technological and clinical verification; the individualized therapy is prepared or printed under an appropriate quality framework; and the patient receives counselling, dispensing support and pharmaceutical care. Where clinically justified and validated, wearable or patient-facing digital tools may capture selected adherence-related, physiological or therapy-response signals and provide structured feedback to the healthcare team. This information may support earlier dose adjustment, refinement of treatment intensity or reconsideration of the therapeutic strategy.
Thus, 3D printing may become one functional node within a broader physician–pharmacist–patient feedback loop. Its value lies not only in personalization at the point of preparation, but also in enabling more responsive, traceable and patient-informed therapy optimization.
Conclusions: Three-dimensional printing should not be viewed merely as an additive manufacturing technique. Its greater potential lies in its integration into regulated, patient-centric and digitally connected healthcare. Successful implementation will require reproducible processes, validated materials, digital traceability, quality assurance, regulatory clarity and clearly defined professional responsibilities. For pharmacists, 3D printing opens a renewed professional space: as formulation experts, quality gatekeepers, patient counsellors and active

contributors to therapeutic feedback and optimization. The future value of 3D technologies will therefore depend less on technological fascination itself, and more on their ability to deliver safe, explainable and clinically useful solutions for individual patients.

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O37. Digital regulation of pharmaceutical advertising: compliance challenges in the era of ai, social media, and user-generated content

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Introduction: Digital transformation has revolutionized pharmaceutical marketing, shifting promotion from traditional channels to dynamic online ecosystems. This paper analyzes the regulatory challenges of this shift, focusing on social media influencers, targeted "dark ads," user-generated content (UGC), and artificial intelligence (AI).
Methodology: The research utilizes a comparative and qualitative analysis of current healthcare advertising regulations, recent regulatory enforcement actions, and literature on digital pharmacovigilance and AI ethics.
Results: The analysis reveals that influencer marketing often lacks transparent medical disclosures, while algorithmic "dark ads" evade public regulatory scrutiny due to their ephemeral nature. Furthermore, the explosion of UGC creates massive data streams that overwhelm traditional pharmacovigilance systems trying to detect adverse drug reactions. Finally, AI-driven personalized marketing optimizes patient targeting but introduces severe risks regarding data privacy and algorithmic bias.
Conclusion: Traditional regulatory frameworks are insufficient for the digital age. Ensuring patient safety and advertising compliance requires data-driven, proactive monitoring systems, clear legal accountability for digital influencers, and standardized AI governance in healthcare promotion.

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O38. Digital solutions in pharmacy and telepharmacy – patients' opinion

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Digitalization in the pharmaceutical sector has provided an environment for optimizing overall access to healthcare. Teleconsultations in pharmaceutical care were the subject of discussion for years. Objective: The purpose of this study was to present patients' opinions regarding digitalization in the pharmaceutical sector by comparing and analyzing research results obtained between May - July 2025 and April 2026.
Materials and methods: A cross-sectional study design was used to collect data from multiple subjects at one time. The survey was anonymous and voluntary, based on the convenience sampling method. The questionnaire was developed using Google Forms®, distributed online in April 2026 and approved by the Scientific Ethics Committee (Protocol No.3, April 2, 2026). Statistical data analysis was performed using SPSS v23.0 software.
Results: The study sample consisted of 152 patients, compared to 241 participants in 2025. In the current study, women again predominated at 86.2%; *n=131,* while men accounted for 13.8%; *n=21*. A higher percentage of participants in the survey conducted in April 2026 expressed negative opinion (3.9%; *n*=6 responded “no” and 68.4%; *n*=104 “rather no/negative”), whereas those from 2025 were more inclined to accept electronic prescriptions (58.6%; *n*=112). In the 2026 survey, the majority of respondents 80.9%; *n=123* and 12.5%; *n=19* – had not utilized online pharmaceutical consultation and were also reluctant to use mobile applications for medication reminders (59.9%; *n*=91 – “rather no” 17.1%; *n*=26 “no”). Analyzing the results by gender, no statistically significant difference was found in the respondent answers (χ^2=0.106, *p*= 0.053). However, statistically significant differences were established regarding place of residence (χ^2=8.871, *p*=0.031) and educational level (χ^2=44.769, *p*=0.000. Respondents in 2025 had lower educational levels compared to those in 2026, where 74.3%; *n*=113 of the 152 participants held a university degree. Consequently, we believe the 2026 cohort was more demanding regarding the quality of online pharmaceutical consultations provided.
Conclusion: The development of telepharmacy, together with other digital tools, poses new challenges to the pharmaceutical sector related to regulations, cybersecurity, as well as digital literacy of the population.
Acknowledgements: The study was conducted under the internal university project NO-24/2025 of the Medical University – Plovdiv

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O39. Transforming healthcare with artificial intelligence–powered mixed reality: a three-year experience with hololens 2

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Introduction: The integration of artificial intelligence (AI) and mixed reality (MR) technologies represents a significant advancement in modern healthcare and medical education. Microsoft HoloLens 2 (HL-2) enables real-time visualization, remote collaboration, and hands-free interaction, addressing key challenges such as maintaining sterility during procedures and improving access to expert consultation.
Materials and Methods: We conducted a prospective observational analysis over a three-year period at the Clinical Hospital Center “Dr Dragiša Mišović – Dedinje” and the Faculty of Medicine, University of Belgrade. The study included 21 anesthesiologists. HL-2 was implemented in various clinical and educational settings, including intensive care units during the COVID-19 pandemic, endovascular procedures, pain management interventions, and simulation-based medical education. In the ICU study, physician exposure time in the red zone was compared between standard practice and HL-2-assisted workflow. User satisfaction was assessed through structured questionnaires.
Results: The use of HL-2 significantly reduced physician exposure time in COVID-19 ICU settings by an average of 74±52 minutes, corresponding to a 20.5% reduction. A total of 85.7% of participating anesthesiologists reported satisfaction with the device. HL-2 enabled effective remote collaboration by streaming real-time audio, video, and holographic data, allowing multidisciplinary teams to participate in patient management without physical presence. In interventional procedures, MR visualization improved spatial orientation and procedural precision. In medical education, HL-2 facilitated immersive simulation-based learning, enhancing understanding of complex clinical scenarios and improving student engagement. These findings highlight the potential of HoloLens 2 to reduce exposure risk while maintaining effective clinical decision-making.
Conclusions: HoloLens 2 demonstrates substantial potential to improve healthcare delivery by enhancing efficiency, safety, and collaboration. Its ability to integrate AI-driven MR into clinical workflows supports decision-making, reduces exposure risks, and enables advanced medical training. Despite challenges such as technical limitations and the need for further validation, HL-2 represents a promising tool in the future of digital medicine and education.
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O40. Enhancing humanity or rewriting it? Ethical dilemmas of transhumanism

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Introduction: Transhumanism is the philosophical and scientific movement that advocates the use of advanced technologies, enhancing physical, cognitive and psychological capacities aiming to transcend biological limitations and give rise to the posthuman. The always present Damoclean sword of improving human capabilities but on the contrary might lead to coercion, inequality and abuse.
Material and methods: A narrative review of the literature was conducted using PubMed, Scopus, and Google Scholar. Scientific articles, ethical guidelines, and historical sources related to transhumanism, CRISPR-Cas9, neurotechnology, bioethics, and human enhancement were qualitatively analyzed, with emphasis on ethical dilemmas concerning autonomy, identity, inequality, and human rights.
Results: In the present, this long awaited future has started to materialize. CRISPR-Cas9 is a powerful gene-editing technology that allows scientists (and biohackers) to precisely modify DNA within living organisms. It is currently one of the most important tools in modern genetics, biotechnology, and biomedical research. It offers possible future treatments for more than 10.000 single gene diseases and many more. The cost of CRISPR treatment has led to the creation of DIY-bio (Do It Yourself- Biology). DIY-bio is generally defined as a form of citizen biology associated with biohacking, in which mostly amateurs explore biological science experimentally, sometimes in order to treat or enhance themselves. The DIY use of CRISPR imposes multiple obligations as also as the accountability for any unwanted outcomes (e.g. release of unregulated Genetically Modified Organisms - GMOs), unexpected mutations of viruses that may cause epidemics to pandemics. It makes it possible to correct errors in the genome and turn on or off genes in cells and organisms quickly, cheaply and with relative ease. Additional neurotechnologies, including deep brain stimulation (DBS), transcranial magnetic stimulation (TMS), and brain–computer interfaces (BCIs), further blur the line between therapy and enhancement. While they can restore function in neurological and psychiatric conditions, they also introduce profound ethical questions related to autonomy, identity, and free will. The concept of “neurorights” has emerged as a legal and ethical response, emphasizing mental privacy, cognitive liberty, and protection from algorithmic bias. At the same time, technologies such as Neuralink and speculative concepts like mind uploading challenge fundamental notions

of personhood and consciousness. These developments raise critical questions: Is enhancement truly voluntary? Is it reversible? Does it create unfair advantages or deepen social inequalities? Conclusion: Transhumanist technologies may offer significant therapeutic and scientific benefits; however, they simultaneously challenge established ethical, legal, and philosophical boundaries. The transition from therapy to enhancement requires careful regulation in order to protect human autonomy, dignity, equality, and fundamental rights.

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O41. From compliance to continuous safety: the role of post-market surveillance in MDR 2017/745

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Introduction: The implementation of Regulation (EU) 2017/745 (Medical Device Regulation – MDR) marks a transition from pre-market conformity assessment to continuous lifecycle monitoring of medical devices. Post-Market Surveillance (PMS) is a central element of this transformation, enabling proactive monitoring of safety and performance through real-world data. However, PMS implementation remains complex, particularly for small and medium-sized enterprises, and varies significantly across organizational and national contexts. Materials and Methods: This study applies a conceptual and regulatory analysis based on the MDR framework, supported by relevant international standards (ISO 13485, ISO 14971). The analysis focuses on PMS system design, including vigilance, Post-Market Clinical Follow-up (PMCF), and Periodic Safety Update Report (PSUR) data structures. Practical implementation aspects are examined through structured PMS data elements such as device exposure (sales and population), incident rates, and trend monitoring across multiple reporting periods. Results: PMS is identified as a core organizational capability that integrates data collection, analysis, and feedback into the Quality Management System (QMS). PSUR-based data presentation enables systematic evaluation of device safety through metrics such as population exposure and incident rates over time. Stable trends in incident rates relative to increasing device usage indicate effective risk control and system maturity. No increasing safety signal was observed across reporting periods. However, key challenges persist, including data management complexity, integration of PMS within QMS processes, and resource limitations. These challenges are more pronounced in SME-dominated environments, where reliance on external expertise and limited infrastructure impact PMS effectiveness. Conclusions: PMS is not merely a regulatory obligation but a strategic driver of continuous safety under MDR. It represents a key mechanism for ensuring continuous safety and supporting evidence-based regulatory decision-making. Its effectiveness depends on robust data systems, organizational readiness, and integration with risk management and clinical evaluation processes. Strengthening PMS

implementation enhances patient safety, supports regulatory compliance, and contributes to sustainable innovation in the medical device sector.

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O42. Swot analysis of point-of-care testing for acute respiratory infectious diseases in community pharmacies

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Introduction: Point-of-care testing (POCT) for acute respiratory infectious diseases, including influenza, COVID-19, and group A streptococcal infections, has become increasingly important in community pharmacy practice. Community pharmacies are highly accessible healthcare settings that can support early diagnosis, timely referral, and appropriate antimicrobial stewardship. However, the implementation of POCT in pharmacies also presents organizational, regulatory, and clinical challenges. This study aims to evaluate the advantages and disadvantages of POCT in community pharmacies using a SWOT (Strengths, Weaknesses, Opportunities, Threats) framework.

Material and methods: A narrative review was conducted using publications from PubMed, Scopus, Web of Science, and International Pharmaceutical Federation (FIP) report published 2023. Keywords included ‘point-of-care testing’, ‘community pharmacy’, ‘COVID-19’ and ‘influenza’. Relevant studies describing pharmacy-based POCT services, patient outcomes, accessibility, economic aspects, and regulatory considerations were analyzed and categorized according to SWOT methodology.

Results: The main strengths identified were rapid diagnostic results, improved patient access to healthcare services, reduced burden on primary care facilities, and enhanced pharmacist involvement in public health activities. Weaknesses included variability in pharmacist training, limited diagnostic accuracy compared with laboratory methods, insufficient reimbursement systems, and workflow challenges within pharmacies. Opportunities included expansion of clinical pharmacy services, integration with digital health systems, increased patient trust, and improved antimicrobial stewardship through targeted treatment recommendations. Threats involved regulatory restrictions, concerns regarding data privacy, competition with other healthcare providers, and the risk of inappropriate interpretation of test results.

Conclusion: POCT for acute respiratory infectious diseases in community pharmacies offers significant public health and healthcare system benefits by improving accessibility and supporting early disease management. Nevertheless, successful implementation requires standardized pharmacist training, clear regulatory frameworks, quality assurance procedures, and sustainable reimbursement models.

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O43. Influence of acrylic removable partial dentures on periodontal tissues

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Introduction: Partial edentulism is a common condition that affects both oral function and quality of life. Acrylic removable partial dentures (RPDs) remain widely used due to their affordability and clinical accessibility. However, their long-term use may negatively influence periodontal tissues by promoting plaque accumulation, mechanical irritation, and unfavorable distribution of occlusal forces. The aim of this study was to evaluate the influence of acrylic RPDs on periodontal tissues in patients with chronic marginal periodontitis.
Materials and Methods: The study included 12 patients (7 males and 5 females) aged between 41 and 67 years with partial edentulism treated with acrylic removable partial denture. All patients underwent clinical and paraclinical examination, including periodontal probing, assessment of gingival inflammation, plaque and calculus indices (Silness-Loe), evaluation of tooth mobility (Miller classification), gingival recession, and radiographic analysis (orthopantomography). Microbiological analysis of periodontal pockets was also performed. Comparative analysis between abutment and non-abutment teeth was conducted.
Results: A higher prevalence of periodontal pathology was observed in abutment teeth compared to non-abutment teeth. Dental plaque accumulation was detected in 76% of abutment teeth and 46% of non-abutment teeth. Gingival inflammation was present in 63% of patients, while periodontal pockets were identified in 56% of cases. Pathological tooth mobility was observed in 54% of abutment teeth versus 27% of non-abutment teeth.Gingival recession was more frequent in abutment teeth (53%) compared to non-abutment teeth (28%). Microbiological analysis revealed a significant presence of periodontal pathogens, which decreased after professional oral hygiene. Continuous denture wear and inadequate oral hygiene. Continuous denture wear and inadequate oral hygiene were associated with more severe periodontal changes.
Conclusions: Acrylic removable partial dentures have a negative impact on periodontal tissues, especially on abutment teeth. The main contributing factors include increased plaque retention, improper denture design, and insufficient oral hygiene. Proper prosthetic planning, regular professional cleaning, and patient education are essential to reduce periodontal complications and improve long-term treatment outcomes.

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O44. Professional oral hygiene management in an adolescent with duchenne muscular dystrophy: a clinical case report

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Introduction: Adolescents and children with special health care needs frequently have an increased risk of poor oral hygiene, gingivitis, dental caries, and limited access to preventive dental care. Duchenne muscular dystrophy (DMD) is a progressive neuromuscular disorder associated with severe motor impairment, making independent tooth brushing complicated. The purpose of this report was to evaluate professional oral hygiene strategies in a patient with DMD.
Material and methods: A 17-year-old male patient from Chisinau diagnosed with genetically confirmed Duchenne muscular dystrophy was clinically examined at the Institute of Mother and Child. Medical history, intraoral examination, gingival condition, oral hygiene status and caries risk were evaluated. Professional oral hygiene included plaque disclosure, scaling, polishing with prophylactic paste, topical fluoride application, and individualized home-care instructions for the caretaker.
Results: Clinical examination revealed abundant dental plaque, supragingival calculus, generalized marginal gingival inflammation, bleeding on palpation, anterior open bite and tongue coating. Inadequate oral hygiene was associated with inability to perform self-care because of upper limb dysfunction. After professional oral hygiene procedures, significant reduction of visible plaque and improvement of gingival appearance were observed. The caretaker received recommendations concerning assisted brushing technique, use of an electric toothbrush with ergonomic handle, fluoride toothpaste, and regular recall visits every 3-6 months.
Conclusions: Adolescents with Duchenne muscular dystrophy require individualized preventive dental protocols and caretaker-assisted hygiene measures. Professional preventive oral hygiene procedures combined with caretaker education significantly improve oral health status and may reduce future dental complications. Early and regular preventive dental care is necessary for patients with neuromuscular disabilities.

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O45. Supernumerary teeth: clinical features, diagnostic methods and surgical management

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Introduction: Supernumerary teeth are a common dental anomaly with variable clinical manifestations, often detected incidentally during radiological examinations. Their diagnosis

and treatment require accurate evaluation of localization, morphology, eruption status, and anatomical relationships. Modern imaging methods, particularly orthopantomography (OPG) and cone-beam computed tomography (CBCT), play a crucial role in establishing the diagnosis and planning surgical management.
Material and methods: This study represents a retrospective and prospective descriptive analysis conducted between 2025–2026, including 20 patients diagnosed with supernumerary teeth. Two subgroups were analyzed: 18 patients with radiological investigations (OPG and/or CBCT) and 10 patients with both clinical and paraclinical data. The evaluated parameters included localization (maxilla/mandible; frontal/lateral regions), number (single/bilateral), morphology (eumorphic/dysmorphic), eruption status (erupted/impacted), and association with adjacent teeth. A comparative analysis between OPG and CBCT was performed based on diagnostic accuracy, ability to assess anatomical relationships, detection of complications, and usefulness in surgical planning.
Results: The study showed a predominance of male patients (65%) and a higher frequency of supernumerary teeth in the maxilla (75%) compared to the mandible (25%). Localization was slightly more frequent in the frontal region (55%) than in the lateral regions (45%). Most teeth were impacted (80%), while only 20% were erupted. Single supernumerary teeth predominated (90%), with bilateral cases representing 10%. Morphologically, dysmorphic forms were more frequent (66.7%) than eumorphic ones (33.3%), and most cases showed association with adjacent teeth (83.3%). Clinically, 60% of patients were asymptomatic, while 40% presented functional or aesthetic disturbances. OPG proved effective as a screening method, while CBCT provided superior three-dimensional assessment and was essential for accurate localization and surgical planning, especially in complex cases.
Conclusions: Supernumerary teeth are predominantly impacted and frequently asymptomatic, requiring radiological evaluation for diagnosis. OPG remains the method of choice for initial assessment, whereas CBCT is indispensable for detailed analysis and surgical planning. Treatment should be individualized, based on anatomical and clinical characteristics, to minimize complications and optimize outcomes.

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O46. The role of nutrition in sleep quality and sleep duration

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Objectives: Sleep is a fundamental physiological process essential for cognitive, metabolic, immune, and psychological health. Increasing evidence indicates that nutrition is a modifiable factor influencing sleep quality and sleep duration through multiple pathways, including neurotransmitter synthesis, circadian regulation, inflammatory signaling, and gut-brain

communication. This review aimed to synthesize current evidence on the role of macronutrients, micronutrients, dietary patterns, specific foods, and emerging biological mechanisms in sleep regulation.
Materials and Methods: A comprehensive literature review was conducted using articles published between 2015 and 2025 and indexed in PubMed, Scopus, and Web of Science. The review included peer-reviewed studies relevant to the relationship between nutrition and sleep, including randomized controlled trials, observational studies, and mechanistic investigations. The analysis focused on the effects of macronutrients, micronutrients, dietary patterns, meal timing, functional foods, and gut microbiome-related mechanisms on sleep quality and sleep duration.
Results: The reviewed evidence suggests that higher intake of tryptophan-rich foods, magnesium, zinc, omega-3 fatty acids, and melatonin-containing foods is generally associated with better sleep quality, shorter sleep onset latency, and longer sleep duration. Mediterranean-style dietary patterns and appropriately timed food intake also show favorable associations with sleep outcomes. In contrast, high consumption of ultra-processed foods, saturated fats, caffeine, alcohol, and late-night meals is linked to poorer sleep quality, fragmented sleep, and reduced total sleep time. Emerging evidence further supports a potential mediating role of the gut microbiome through effects on serotonin, gamma-aminobutyric acid, inflammation, and circadian rhythm regulation. However, heterogeneity in study design and measurement methods limits the strength of causal conclusions.
Conclusion: Nutrition appears to be a clinically relevant and accessible determinant of sleep health. Current evidence supports integrating dietary assessment and counseling into sleep-related prevention and management strategies. Future research should prioritize well-designed prospective and interventional studies with standardized and objective sleep measures in order to clarify causal pathways and refine evidence-based dietary recommendations for sleep improvement.

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O47. The intersection of immunosuppression and infection: pyogenic liver abscess in a patient with diabetes mellitus and myasthenia gravis

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Introduction: Pyogenic liver abscess in elderly patients with multiple comorbidities, such as myasthenia gravis, chronic kidney disease, and poorly controlled diabetes mellitus, represents a significant therapeutic challenge, particularly due to the restrictions on pharmacological options, imposed by the neurological condition. While the association between diabetes mellitus and pyogenic liver abscess is well established, coexistence with myasthenia gravis remains rarely reported.
Case presentation: We present the case of a 65-year-old male patient with diabetes mellitus, chronic kidney disease, and myasthenia gravis, who was admitted for dyspnea, fever, chills, and marked fatigue. Laboratory investigations revealed a severe inflammatory syndrome (CRP 250 mg/L) with leukocytosis (50,000/μL) and neutrophilia. The chest CT scan excluded a pulmonary infectious source but incidentally identified a hypodense, non-enhancing hepatic lesion measuring approximately 45×44 mm, of uncertain etiology, suggestive of a pyogenic liver abscess. Ultrasound-guided aspiration was performed, yielding *Enterococcus faecalis*. Empirical broad-spectrum antibiotic therapy was initiated, carefully adjusted to account for contraindications related to myasthenia gravis and chronic kidney disease. These comorbidities further complicated subsequent antibiotic de-escalation, which was guided by antibiogram findings and infectious disease specialist recommendations.
Conclusions: The coexistence of myasthenia gravis in a patient with diabetes mellitus and pyogenic liver abscess significantly complicates therapeutic management due to important drug-related restrictions specific to the neurological condition. Although pyogenic liver abscess is a recognized complication of diabetes, its occurrence in elderly patients with multiple comorbidities poses a considerable clinical challenge, requiring an individualized and carefully tailored therapeutic approach.

O48. Somatic comorbidities in children with autism spectrum disorder: clinical correlations and implications for multidisciplinary management

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Introduction: Autism Spectrum Disorder (ASD) is a complex neurodevelopmental condition characterized by impairments in social interaction, communication, and repetitive behaviors, with a multifactorial etiopathogenesis involving genetic and neurobiological mechanisms. Beyond core symptoms, increasing evidence highlights the high prevalence of somatic comorbidities, which significantly influence clinical outcomes and quality of life. Understanding these associations is essential for developing integrated management strategies.
Material and Methods: We conducted a retrospective observational study on a cohort of 297 children diagnosed with ASD according to ICD-10 criteria and standardized psychological assessments (ADOS, ADI-R), aged between 2 and 18 years. Clinical evaluation included detailed assessment of somatic comorbidities and perinatal history. Statistical analysis was performed using R Studio (version 4.2.2), applying Chi-square tests to evaluate associations between ASD severity and somatic conditions.
Results: Out of the total cohort, 138 children (46%) presented at least one somatic comorbidity. The most frequent conditions included allergies (n=62), gastrointestinal disorders (n=50), ophthalmological conditions (n=17), and cardiovascular diseases (n=9). Distribution by ASD severity showed that severe forms (n=163) were associated with a higher prevalence of comorbidities, particularly allergies (n=25) and gastrointestinal disorders (n=21), compared to moderate (n=81) and mild forms (n=53). Statistical analysis revealed a significant association between ASD severity and the presence of somatic comorbidities ($p<0.05$). No statistically significant correlations were identified between comorbidities and pregnancy or birth-related factors.
Conclusions: Somatic comorbidities are highly prevalent among children with ASD and are significantly associated with disease severity. These findings support the need for early, comprehensive, and multidisciplinary evaluation, integrating pediatric, neurological, psychiatric, and somatic care. Addressing comorbid conditions may improve functional outcomes and quality of life, emphasizing the importance of a holistic, patient-centered approach in ASD management.

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O49. Patient-reported outcomes in chronic kidney disease after COVID-19

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Introduction: Beyond its acute systemic effects, coronavirus disease 2019 (COVID-19) has been associated with persistent functional limitations and reduced quality of life [1,2]. In patients with chronic kidney disease (CKD), who already experience significant physical and metabolic burden, the post-COVID state may further alter functional capacity and well-being. This study aimed to evaluate quality of life and its clinical correlates in CKD patients after COVID-19.

Material and methods: A prospective comparative cohort study included 280 patients with CKD (stages G1-G5), divided into post-COVID (n=140) and non-COVID controls (n=140). Quality of life was assessed using the Short Form-36 Health Survey (SF-36). Clinical and biological parameters included estimated glomerular filtration rate (eGFR), hemoglobin, inflammatory markers (C-reactive protein (CRP), erythrocyte sedimentation rate (ESR)), and metabolic variables. Statistical analysis included t-test, Mann-Whitney test, Spearman correlation coefficient (ρ), and multivariate regression.
Results: Global quality of life scores were comparable between groups; however, domain-specific differences revealed a distinct post-COVID functional profile. Patients with prior COVID-19 exhibited significantly reduced vitality (energy/fatigue domain: 44.1±16.9 vs 56.5±19.0; Δ= -12.4; $p<0.001$; g= -0.69), indicating persistent fatigue as a dominant feature. In contrast, social functioning scores were higher in post-COVID patients (59.0±22.0 vs 43.8±25.6; Δ=+15.2; $p<0.001$; g=0.67), suggesting preserved or even enhanced social reintegration. Physical functioning and role limitations did not differ significantly ($p>0.05$), despite similar renal function (eGFR 56.9±33 vs 64.7±62.8 ml/min/1.73m^2; p=0.19). Emotional well-being was also comparable (p=0.99), indicating no sustained psychological impairment. Correlation analysis demonstrated that vitality was weakly associated with inflammatory markers (CRP: ρ= -0.19; p=0.03), but not with eGFR (ρ=0.08; $p>0.1$), suggesting that fatigue is more closely linked to systemic inflammation than renal function per se. Multivariate regression identified CRP (β= -0.24; p=0.01) and hemoglobin (β=0.29; p=0.004) as independent predictors of reduced vitality, explaining 32% of variability (R^2=0.32).
Conclusions: Post-COVID CKD patients demonstrate a distinct dissociation between preserved functional status and reduced vitality. Persistent fatigue appears to be driven by inflammatory and hematologic factors rather than renal dysfunction. These findings highlight the need for integrated management strategies targeting inflammation, anemia, and functional rehabilitation.

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O50. Early loading of dental implants endooseous and advantages of temporary restoration

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Introduction: Implant - supported restorations for partially edentulous patients are a well-accepted and predictable treatment modality. Loading protocols of dental implants have been a central focus of discussion of field since of osseointegration.
Materials and methods: Patients referred to the ”Pavel Godoroja” Department of stomatological propaedeutics. From the years 2021-2025, 30 consecutive patients (15 females and 15 males) ranging in age from 25 to 55 years presented for the placement of 60 implants. We resorted to the early loading of the dental implants, when the Periotest values were negative between - 4 and -7. Another index that gives us the possibility to check the primary stability of the dental

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implant was the measurement of the implant insertion torque, which was between 40-45 Ncm, and the reverse torque of 30-35 Ncm. During the 7 days we manufacturing of temporary restoration, after the 6 month, patients from study meet all the reguirements then change to permanent physiognomic crowns.
Results: The early loading of dental implant in maxillary esthetic zone is a viable clinical concept and lead to favorable treatment outcomes.
Conclusion: Provisional restorations used to evaluate aesthetic and phonetic function prior to delivery of the final implant restorations, stopping dental migrations in the vertical and horizontal plane, while preserving the condition of the peri-implant and gingival tissues.

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O51. From elixir to evidence: pharmaceutical innovation and ethical perceptions through opera librettos (18th–20th century)

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Introduction: Opera librettos constitute a valuable but underexplored cultural archive for the study of pharmaceutical history. Beyond their artistic function, they reflect evolving social perceptions of medicines, pharmacists, and therapeutic practices. This study examines how operatic texts from the eighteenth to the twentieth century represent pharmaceutical substances and how these representations mirror broader transformations from empirical and symbolic remedies to scientifically grounded pharmacological concepts.
Material and methods: The research is based on a qualitative historical analysis of selected opera librettos from the eighteenth to the twentieth century in which pharmacists, apothecaries, or medicinal substances play a narrative role. Primary sources include librettos from the Italian, German, and French operatic traditions, with particular attention to works such as Lo speziale and Il campanello. The study applies an interdisciplinary methodology combining history of pharmacy, medical humanities, and cultural analysis. Textual interpretation is supported by secondary literature in history of medicine and opera studies.
Results: The analysis reveals that pharmaceutical substances in opera are consistently portrayed in three main symbolic categories: (a) love potions and emotional modifiers, (b) narcotics and

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sleep inducing agents, and (c) poisons and antidotes. Across the studied repertoire, these substances function not only as dramatic devices but also as cultural representations of therapeutic uncertainty and medical authority. Furthermore, the figure of the pharmacist evolves from a comedic or marginal character into a more structured representation of professional identity, reflecting the gradual scientific institutionalization of pharmacy. These findings highlight opera as a medium through which public perceptions of pharmaceutical innovation and ethical boundaries are constructed and disseminated.

Conclusions: Opera librettos provide significant insight into the historical evolution of pharmaceutical thought and its ethical implications. They demonstrate a progressive transition from symbolic and magical interpretations of medicine toward scientific rationalization and professional legitimacy. This cultural perspective enriches contemporary understanding of pharmaceutical innovation and contributes to interdisciplinary discussions in medical ethics and history of science.

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POSTERS

P1. Negative effects of energy drink consumption on human homeostasis

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Objectives: Energy drinks are widely consumed, especially among adolescents, students, and young adults, despite increasing concern regarding their adverse physiological effects. The aim of this comprehensive review is to summarize the negative impact of energy drink consumption on human homeostasis, with particular focus on cardiovascular regulation, metabolic balance, neuroendocrine responses, sleep quality, and mental well-being.
Materials and Methods: A comprehensive literature search was conducted in PubMed, Scopus, and Web of Science for articles published between 2015 and 2025. Eligible publications were screened using keywords related to energy drinks, caffeine, cardiovascular effects, metabolic disturbances, sleep impairment, psychological distress, and homeostasis. Review articles, systematic reviews, meta-analyses, clinical studies, and observational studies published in English were considered if they addressed adverse effects associated with energy drink intake.
Results: The reviewed literature indicates that energy drink consumption may disrupt several core components of human homeostasis. Acute and repeated intake has been associated with increased blood pressure, elevated heart rate, electrocardiographic changes, and greater arrhythmogenic risk. In addition, energy drinks have been linked to sleep disturbance, shorter sleep duration, anxiety, psychological distress, and other adverse neurobehavioral outcomes. Their high caffeine and sugar content may further contribute to metabolic dysregulation and increased physiological stress, especially when consumption is frequent, excessive, or combined with alcohol or physical exertion. Vulnerable groups, particularly adolescents and young adults, appear to be at greater risk of these negative effects.
Conclusion: Energy drinks should not be regarded as harmless stimulatory beverages, as current evidence suggests that their consumption may adversely affect cardiovascular, metabolic, neuroendocrine, and sleep-related regulation. However, the available literature remains fragmented, with most studies focusing on isolated physiological or behavioral outcomes rather than examining the broader disruption of human homeostasis as an integrated system. This gap emphasizes the scientific relevance of the present comprehensive review, which aims to synthesize existing evidence across multiple regulatory domains and highlight the need for a more unified understanding of the systemic effects of energy drink consumption.

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P2. Influence of pharmaceutical care intervention on adherence in women with acute coronary syndrome

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Introduction: The 2021 ESC Guidelines for cardiovascular disease prevention emphasize the importance of long-term adherence to guideline-recommended therapy as a fundamental element of secondary prevention.[1] However, medication adherence after hospital discharge is often suboptimal,[2] and sex-specific differences in adherence patterns have been reported.[3] Pharmacist-led interventions have shown promise in improving adherence;[4] however, evidence focused specifically on women with acute coronary syndrome (ACS) remains limited.
Material and Methods: This subgroup analysis included female patients from a prospective randomized controlled study conducted at the Cardiology Clinic, University Clinical Center Niš, Serbia. Women hospitalized with ACS were followed for six months after discharge. The intervention group received a pharmacist-led pharmaceutical care intervention including

medication review, identification of drug-related problems, individualized counseling, written and verbal education, and structured telephone follow-up at 1, 3, and 6 months after discharge, while the control group received standard care. Medication adherence was assessed at each follow-up using the validated Hill-Bone adherence scale (range 9–36, higher scores indicating better adherence). Differences between groups were analyzed using the Mann–Whitney U test, with effect sizes calculated as rank-biserial correlation (r).
Results: A total of 31 women were evaluated at the 1-month follow-up, while 28 women completed the 3- and 6-month follow-ups. At 1 month, no statistically significant difference in adherence was observed between the intervention and control groups ($p=0.139$). However, significantly higher adherence was observed in the intervention group at 3 months ($p=0.003$, $r=0.570$) and 6 months ($p<0.001$, $r=0.884$). The intervention group demonstrated consistently higher mean adherence ranks compared with controls, with the greatest difference observed at 6 months, representing a large effect size.
Conclusion: Pharmaceutical care intervention significantly improved long-term medication adherence in women following acute coronary syndrome, with increasing effect over time. These findings support the integration of clinical pharmacists into secondary prevention care following ACS.

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P3. Quality of life in patients with ankylosing spondylitis and the need for multidisciplinary disease management – a pilot study

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Introduction: Ankylosing spondylitis (AS) is a chronic inflammatory disease that primarily affects the axial skeleton, causing pain, stiffness, reduced mobility, and impaired quality of life. Assessment of health-related quality of life is a crucial component of comprehensive patient monitoring, as it captures both physical disability and the broader impact of the disease on daily functioning and psychological well-being. This pilot study aimed to evaluate the quality of life among patients with ankylosing spondylitis and to highlight the need for a multidisciplinary approach in disease management.
Material and methods: The study included 66 patients diagnosed with ankylosing spondylitis (ICD-10: M45). Quality of life was assessed using the validated EQ-5D-5L questionnaire, covering five domains: mobility, self-care, usual activities, pain/discomfort, and anxiety/depression. The impact of physical activity on EQ-5D-5L index scores was also analyzed, and statistical methods were applied to compare patient groups.

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Results: The EQ-5D-5L assessment demonstrated that 60.61% of patients reported good health status, 34.85% had moderate impairment, and 4.55% presented severely impaired quality of life. The quality of life of the studied cohort was approximately one standard deviation lower than the reference population values, indicating both statistically and clinically significant impairment. The most affected domains were pain/discomfort, followed by limitations in usual activities and anxiety/depression, whereas lower impairment was observed in self-care and mobility. Patients performing physical activity more than once weekly demonstrated a tendency toward better EQ-5D-5L scores, although statistical significance was not reached.
Conclusions: Ankylosing spondylitis significantly reduces quality of life due to chronic pain, limited mobility, and psychosocial burden. These findings support the importance of a multidisciplinary therapeutic approach that integrates pharmacological therapy with structured non-pharmacological interventions. Physiotherapists, pharmacists, and other healthcare professionals may contribute substantially to improving functional status, adherence, and overall patient well-being. The tendency toward better quality of life in physically active patients supports integrating individualized rehabilitation and lifestyle interventions into routine AS management.

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P4. Mothers' attitude and behaviour towards infantile colic

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Introduction: Infantile colic is a common condition in early infancy, characterized by prolonged and inconsolable crying. It creates significant stress for the child and the parents, especially for mothers, who are usually the primary caregivers. The causes of infantile colic are not fully understood but are believed to be multifactorial: immaturity of the digestive system, disturbed intestinal microbiome, cow's milk protein allergy, and lactose intolerance. Symptoms usually appear after birth and subside by 3–4 months of age. The present study aimed to investigate mothers' attitudes and behaviours regarding infantile colic, as well as the coping strategies they used.
Materials and methods: A survey was conducted among 87 mothers of infants aged 0 to 12 months in February–March 2026. Data were collected using a standardized questionnaire, including questions about the frequency and duration of colic, soothing methods used, and sources of information.
Results: About 80% of mothers reported colic in their babies. Cow's milk allergy and bottle feeding were risk factors, while burping and breastfeeding were preventive measures. The most common strategies used included rocking and carrying (n=12), more frequent burping during

meals (n=31), abdominal massage (n=7) and using probiotics and medications such as simethicone (n=37). The most reliable source of information was healthcare professionals, and the most accessible were the internet and relatives.
Conclusion: Support from healthcare professionals and raising awareness about safe and effective methods for managing infantile colic are key to improving the well-being of mothers and infants.

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P5. Economic evaluation of orthodontic care in Bulgaria: reimbursement policies, out-of-pocket expenditures, and patient access

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Introduction: Malocclusions represent a significant public health issue affecting patients' problems with oral function, problems with mastication, swallowing or speech, greater susceptibility to trauma, periodontal disease and social discrimination because of facial appearance [1]. While general dental care is partially covered by the National Health Insurance Fund (NHIF) [2], orthodontic treatment stays outside of the public reimbursement model for adults and has limited coverage for children. Publicly funded dental systems are characterized by lower socio-economic inequalities in access to care. In contrast, models based on direct patient payments lead to unmet health needs and delayed treatment. In Bulgaria, orthodontic treatment is influenced by the lack of public reimbursement. This study aims to analyze the 2025 financial framework of orthodontic care and its impact on patient financial accessibility.
Material and methods: A retrospective structural and economic analysis for the year 2025 was performed. Data were collected from the National Health Insurance Fund (NHIF) regulations and a survey of private dental clinics' price lists in Sofia and other big Bulgarian cities [3]. A cost model was applied to estimate total treatment expenses, including diagnostics, active treatment, and retention. The study also has a focus on the average cost of fixed appliances (braces), aligners, and maintenance fees compared to the average household income.
Results: As of January 2026, the NHIF does not cover orthodontic appliances for adults. For children, it provides basic dental activities such as fillings, extraction, etc., but orthodontic consultations, diagnostics and appliances are paid out-of-pocket, except in rare cases of severe congenital malformations. Research indicates that the share of dental costs within total NHIF payments has increased from ~4.05% in 2019 to ~4.69% in 2025 [4]. This means that less than 5% of all NHIF funds are allocated to dental services, despite broader population needs. There

is a significant "affordability gap," as the treatment fees often exceed 4 to 6 average monthly salaries in Bulgaria. The cost for metal braces ranges between 1,500 EUR and 5,000 EUR, while aesthetic braces can reach up to 6,000 EUR. Aligner systems have costs from 1,500 EUR (Mild case) to over 5,000 EUR (Severe case). There is an additional charge for analysis (100–250 EUR), monthly activation fees (25– 75 EUR), and retainers (150–300 EUR). To reduce this burden, clinics offer internal installment plans for the treatment duration. Conclusions: Orthodontic care in Bulgaria represents a major financial commitment for households. The current model, where direct patient payments cover nearly 100% of the costs, magnify oral health inequalities. While private insurance and installment plans offer some relief for starting a treatment, policy reforms are necessary to integrate orthodontic care into the public health package for children and adults to ensure fair access.

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P6. Effectiveness of therapeutic exercise in low back pain -assessment of improvement and cost considerations

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Introduction: Low back pain (LBP) remains a leading driver of global disability and imposes a significant economic burden on healthcare systems. While pharmacological therapy is often the first choice in outpatient practice, therapeutic exercise has established itself as a critical non-pharmacological component with high cost-effectiveness. However, in Bulgaria, there is a lack of a systematized approach to tracking real-world improvement through objective research methods. Objective To analyze the role of specialized exercise programs in the treatment of LBP and to synthesize contemporary methods for investigating functional improvement (quality of life questionnaires, kinesiological tests, etc.) within the 2016–2026 period.
Materials and Methods: A systematic review of scientific literature was conducted using the PubMed, Scopus, and Google Scholar databases. The analysis focused on clinical trials investigating the effectiveness of active rehabilitation and Outcome Measurement Instruments (Patient-Reported Outcome Measures - PROMs), such as the Oswestry Disability Index (ODI) and the Visual Analogue Scale (VAS) for pain.
Results. The study identified that targeted exercises (stabilizing, aerobic, and strength training) significantly reduce long-term direct medical costs and indirect losses due to absenteeism. The use of standardized assessment methods allows for the precise calibration of therapy, leading to faster recovery and limiting the excessive use of analgesics.
Direct Medical Costs

- USA: Total costs exceed $100 billion annually. Precise assessment via PROMIS more accurately predicts postoperative length of stay and complications (1, 2), reducing the risk of expensive and unnecessary hospital days.
- Diagnostics: Objective functional assessment (ODI) prevents redundant imaging (MRI), which generates over 17% of total LBP costs in the US (3, 4).

Indirect Costs and Productivity (Indirect Savings)

- UK and Europe: Indirect losses from work absence reach £10-12 billion per year. Systematic reviews demonstrate that early intervention shortens the time for Return to Work (RTW), minimizing sick leave losses (5).
- Function vs. Pain: Since pain intensity does not always correlate with work disability, the use of self-assessment tools allows for an earlier return to professional activity, even in the presence of residual discomfort (6).

Conclusion: The Bulgarian treatment model is still heavily dominated by conservative pharmacological regimens. Integrating structured exercise programs, supported by objective progress monitoring methods, is essential to overcoming barriers to high-quality and accessible treatment. An update of the financial framework is necessary to allow for broader reimbursement of active rehabilitation methods.

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P7. Perioperative outcomes and long-term functional differences between laparoscopic and open retropubic radical prostatectomy

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Background: Radical prostatectomy (RP) is a treatment option with high curative potential in patients with prostate cancer of moderate-risk. The aim of the study is to assess perioperative results of laparoscopic RP (LRP) and open retropubic RP (ORRP).
Methods: From 2016 to 2026, a total of 344 patients undergone RP, as follow: 195 patients LRP and 149 patients ORRP. Demographic data, preoperative parameters, perioperative and pathological outcomes were analyzed and compared among LRP and ORRP groups.
Results: In regard to demographic data and preoperative parameters (BMI, mean age, median pretreatment prostate-specific antigen, clinical stage and Gleason score from biopsy), there are no differences between the observed groups. Patients from ORRP group had significantly shorter operative time ($p < 0.05$). Patients from LRP group had major advantages in regard to estimated blood loss (EBL) (550 ml for LRP vs. 1450 ml for ORRP), hospitalization time (six days for LRP vs. nine days for ORRP), catheter removal (6.5 days for LRP vs. 12 days for ORRP), overall complication rates (29% for LRP vs. 48.4% for ORRP) and blood transfusion rates (22.7% for LRP and 37.4% for ORRP).
Conclusion: Both LRP and ORRP provide favorable operative results in terms of efficacy, safety and oncologic outcome. However, patients undergoing LRP were more likely to have less EBL, shorter length of hospital stay, earlier catheter removal and lower rates of overall perioperative complications. Functional outcomes are currently subject of investigation at our clinic and will be discussed.

P8. Preliminary testing and validation of a low back pain assessment and cost-analysis questionnaire

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Introduction: Low back pain has an alarmingly increasing costs and causes a significant disease burden. Alternative approaches are promising, since they have similar output but lower costs. The aim of this study is to validate questionnaires assessing the costs of low back pain treatment, as well as the adherence to a complex of treatment exercises as a treatment procedure.
Material and methods: The questionnaires were developed to be applied during the first visit, and 4 weeks later. Both assessed the level of experienced pain by using Numeric Rating Scale with 11-points ranging from 0 = “no pain” to 10 = “worst possible pain”. The questionnaires also included a measure of self-perceived general health status of the patients. It consisted of 5-point scale ranging from 1 = “very good” to 5 = “very bad” and was derived from the European Health Interview Survey. The first questionnaire also collected information about the treatment costs related to low back pain for 12 months period of time, whilst the second assessed the compliance to the treatment exercises (4-point scale). Treatments costs’ questions combined both quantitative, and qualitative approach and covered all types of costs including medicines and dietary supplements, in-patient and out-patient visits, surgical procedures, and imaging or other diagnostic tests. The question regarding the compliance to the treatment exercises was developed by the research team and was ranging from 1 = “I performed the exercises every day” to 4 = “I haven’t done the exercises”.
Results: A total of 23 patients were pre-tested with the developed questionnaire. A skilled neurologist performed a physical examination as well as the interview. The patients were educated on a complex of exercises, and re-interviewed 4 weeks later by the same medical doctor. All 23 respondents understood the questions, and responded promptly. Mixed

quantitative- and qualitative approach for assessing treatment costs helped to collect a comprehensive picture of the costs. However, the qualitative component required very strict and thorough data processing before the analysis. Four-items compliance assessment question was proven as very useful for splitting the sample when comparing pre-and post-treatment changes in the pain levels, as well as in the self-perceived health status.
Numeric Rating Scale and self-perceived general health status are already proven to be reliable, and their accuracy was not the primary concern of the current analysis.
Conclusions: The questionnaire is applicable for low back pain assessment, and the costs related to its treatment.
Acknowledgments: This work is supported by GRANT N 150/01.06.2026 from the Medical University of Sofia (Council of Medical Science, project "Economic assessment of non-pharmacological interventions in low back pain", funded in 2026).
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P9. From philosophy to experimental medicine: the evolution of brain knowledge during the enlightenment

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Introduction: The aim of this paper is to study the fundamental shift that occurred during the 18th century regarding the understanding of the human brain - a period when medicine began to decouple from metaphysics and to increasingly rely upon experimental observation.
Material and Methods: Relevant data were selected following a thorough literature review.
Results: Initially, the paper analyzes the dominance of early 18th century philosophical systems, where theories of "animal spirits" and Cartesian mechanistic views were still exerting influence on medical thought. However, the need for a rational explanation of physical phenomena led physicians of the era to seek tangible evidence through autopsy and clinical observation. Albrecht von Haller, through his experiments on tissue "irritability" and "sensibility," laid the foundations for modern physiology by distinguishing muscle reactions from those of nerves. Furthermore, the study of neuroanatomical evolution reveals that the 18th century was marked by efforts towards detailed brain mapping and far from generalizations. These were focused on gray and white matter, as well as on the connection between the brain and the peripheral nervous

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system. Concurrently, the emergence of "nerve medicine" is analyzed, where conditions previously considered spiritual or moral, such as melancholy and hysteria, began to be interpreted as dysfunctions of the nervous system. Special reference is made to the influence of these ideas in the Greek world via the Modern Greek Enlightenment. The translation of key works introduced new concepts of mental hygiene and the importance of protecting the nervous system from the excesses of civilized life.
Conclusions: In conclusion, the paper highlights that the 18th century served as the precursor to neuroscience. The transition from philosophical inquiry to experimental medicine not only changed how diseases were treated but also redefined human nature itself, placing the brain at the center of personality and cognition. Within the context of the Enlightenment, the brain ceased to be viewed merely as the theological "seat of the soul" and began to be studied as a biological organ with specific anatomical and functional properties.

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P10. The sanitary status in Cyprus during the late ottoman period

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Introduction: This paper examines the sanitary status in Cyprus during the final phase (19th century) of the long Ottoman rule (14th – 20th century).
Materials and Methods: Following a review of the relevant bibliography, the most key and pertinent data were selected.
Results: During the Ottoman period, both in the pre-Tanzimat (1299-1839) and post-Tanzimat periods (1839-1924), state care for Public Health was completely inadequate. The only exception in the pre-Tanzimat period is the reference to a military hospital near the Paphos Gate in Nicosia. During the 19th century, the enactment of legislative provisions defined the regulations regarding the medical profession. This was deemed necessary to address the catastrophic environmental and sanitary conditions that prevailed and threatened public health. Particularly in Larnaca, the situation was unbearable, with widespread pollutants from food scraps, deceased animals, human waste, and other impurities; malaria plagued the population, while health officials highlighted the risk of a cholera outbreak. Thus, over time, the need for the creation of health structures became evident. Consequently, in 1835, following an agreement between the two religious communities, the institution of quarantine was implemented for the first time, and the establishment of the first Lazarettos began in all ports of the Ottoman Empire. This was followed by the founding of the Hospital of the Sisters of Charity (Saint Joseph) in Larnaca between 1844-1846. The Order of the Franciscan Sisters contributed to its establishment, with funding from the French Government and Emperor Napoleon III. Records indicate that the hospital provided its services pro bono and remained in operation until the early 1920s. Notable is also the interest shown by officials and private individuals in establishing health structures in other sectors, such as mental health (albeit in a rudimentary form), as well as for addressing leprosy, one of the scourges of the era.
Conclusions: In conclusion, for the period under review, a striking lack of logistical health

infrastructure and medical/nursing staff is observed. Health professionals were replaced by folk medicine practitioners, a practice that was subsequently prohibited by the British Administration.

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P11. Therapeutic earths. terra lemnaia and terra creta in ancient greek mineral medicine

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Introduction: In ancient Hellenic pharmacology oryctology (Greek: ορυκτολογία, mineralogy) played an essential role in therapeutics. Various minerals and mineral compounds are described in the medical and scientific literature of the Greco-Roman world. Medicinal earths and clays originating from various regions of the Hellenic peninsula were considered therapeutic agents, offering treatment options to the physicians of the era. These substances are mentioned in the works of the Hippocratic corpus, Pedanius Dioscorides, and Galen, among others.
Materials and Methods: A survey of ancient Greek Literature on Lemnian and Cretan earths (Greek: Λημναία γαία, Κρητική γαία). The study was conducted using TLG, Google Books and PubMed. Results. According to ancient Greek writers Lemnaia earth, excavated from the area where Hephaistos was believed to have fallen on the island, had hemostatic action. It was used to treat dysentery, relieve stomach ulcers, neutralize snake venom, and was applied either as an ointment for local inflammations, or as a cutaneous cataplasm. Used as a commodity both by the Greeks, during the Middle Ages as Terra Sigillata, and the Ottomans, with the last recorded excavation taking place in 1916. The Turks regarded it as a remedy against plague. Galen also referred to Cretan earth in his works, suggesting its use for similar pathological conditions. Moreover, geophagy-the consumption of earth substances-as a means of treatment or purification appears to be a primordial practice in human behaviour. Pharmacopoeia Londinensis in 1685 suggests that Cretan earth is a noble, hard, white, dry, adhesive, emplastic, and anodyne substance, effective against heartburn,, skin wounds and ulcers. It could kill worms in children and used as an alexipharmick (panacea antidote). Nevertheless, the assertion that those earths possessed genuine medicinal properties remains difficult to substantiate, and further investigation is required, ideally through the study of materials corresponding to their original geological sources.
Conclusions: Earths in ancient Greece were incorporated into the pharmacology of the era and remained in use until the early 20th century. Further research is necessary to evaluate their actual therapeutic properties.

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P12. AI Hippocrates

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Introduction: Hippocrates, one of the most iconic figures of the history of medicine, the Greek avant-garde of the 5th century BC, is nowadays globally recognized. Surprisingly only limited references to his person exist in sources from Classical Greece. Hippocrates' biography was recorded centuries after his death, raising questions that place his life and work between legend and myth.
Materials and Methods: The attempt to engage artificial intelligence, specifically the conversational chatbot ChatGPT+, to resolve various inquires related to Hippocrates, was at least challenging and stimulating. The conversational AI platform had to deal with 5 questions, i) How was Hippocrates educated in medicine?, ii) Who wrote the Corpus Hippocraticum (Hippocratic Collection)?, iii) Did the Hippocratics know about heart's anatomy?, iv) Where is Hippocrates' tomb located? and v) Who were the scholars of the ancient literature to narrate Hippocrates life?
Results: For the first issue, AI gave a satisfactory report, highlighting elements such as family tradition, Heraclides expertise, studies at the Asclepieion of Cos, exposure to Philosophy and Science, practical experience. For the Hippocratic collection, chatbot correctly indicated that it was not the work of a single individual, but rather a collection produced by Hippocrates, his students, and later followers. For heart anatomy AI pointed out that Hippocratics were aware of the heart's position within the chest cavity, its basic chambers, the connection to the lungs and its role to circulate pneuma. For Hippocrates' burial place, the AI identified Larissa, while also acknowledging that the monument traditionally identified as his tomb is debated and may represent a cenotaph rather than an actual burial site. Finally, concerning ancient biographical sources, ChatGPT+ referred to authors such as Aristotle, Soranus, Galen, Celsus, Tzetes and pseudo-Hippocratic Letters from inside Corpus Hippocraticum.
Conclusions: The responses created by AI staged Hippocrates saga, failing though in small details, which are significant to narrate the Hippocratic chronicle. Hippocrates is also reported to have studied at the School of Cnidus and travelled to Macedonia, Thrace, Asia Minor, India, Egypt, Thessaly in order to to interact with other medico-philosophers and gather remedies from the known world. Allegedly had 2 sons, Draco and Thessalus, who are associated with works within the Hippocratic Collection. For the writers who engaged into the cartography of his annals, although AI overemphasized in figures like Plato, Aristotle, Celsus who just mentioned him, it had omitted Souidas as a major source of biographical information. ChatGPT+ in medical humanities, may help in dossier surveys, documentary research, literature reviews, debate solving, feedback incorporation and brainstorming, remain though still unable to replace the captious human mind in data blending, tale construction and critical analysis. Meanwhile AI (Canva, Piscart) was able to create exceptional images, contributing to the illustration of Hippocrates' life, work and legacy. We may highlight the challenges and opportunities of the synergy between medical historians and AI, for a balanced and critical integration of AI tools into historical research.

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P13. Digestive non-hodgkin lymphomas: clinical features, topographic distribution and the role of surgery in multimodal management

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Introduction: Digestive non-Hodgkin lymphomas (NHL) are heterogeneous extranodal malignancies, predominantly gastric, but may involve any gastrointestinal segment. Although systemic therapy remains central, recent data support a selective positive role of surgery, especially in intestinal localization, resectable disease, and acute complications such as bleeding, obstruction or perforation.
Material and methods: A retrospective-prospective descriptive study included 122 patients with digestive NHL: 67 cases diagnosed in 2017–2021 and 55 cases diagnosed in 2022–2025. Age, sex, anatomical site, clinical stage and treatment modality were analyzed using absolute and relative frequencies.
Results: Overall, 70 patients were men (57.4%) and 52 women (42.6%), with a male-to-female ratio of 1.35:1. Patients older than 50 years represented 83.6% of the cohort. In 2017–2021, the dominant age groups were 61–70 years (24 cases; 35.8%) and 51–60 years (21 cases; 31.3%); in 2022–2025, 51–60 years predominated (19 cases; 34.5%), followed by 61–70 years (14 cases; 25.5%). Gastric localization was predominant in both periods: 55 cases (82.1%) in 2017–2021 and 42 cases (76.4%) in 2022–2025. Overall, the stomach was involved in 97 patients (79.5%), followed by the small intestine in 14 (11.5%), colorectal region in 9 (7.4%) and esophagus in 2 (1.6%). Advanced stages III–IV were diagnosed in 47 patients (70.1%) and 36 patients (65.5%), respectively; globally, stage IV predominated (71 cases; 58.2%). Surgery-containing treatment was applied in 42 patients (62.7%) and 28 patients (50.9%), respectively, being included overall in 70 cases (57.4%), most frequently combined with chemotherapy.
Conclusions: Digestive NHL predominated in men, patients over 50 years and gastric localization. The high rate of advanced stages (68.0%) supports early diagnosis and accurate staging. Surgery is not universal treatment, but has therapeutic value in selected patients, especially intestinal localization, resectable disease, acute complications and multimodal strategies.

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P14. Injection molding and bioclear technique for the restoration of posterior teeth proximal surfaces

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Introduction: Restoration of proximal surfaces in posterior teeth remains a clinical challenge due to the complexity of recreating natural interdental anatomy, including contact areas and embrasures, while preserving periodontal health and functional occlusion. Improper reconstruction may lead to plaque retention, gingival inflammation, food impaction, and occlusal disturbances. The injection-molding and Bioclear technique is a restorative approach that allows predictable reproduction of anatomical contours by using heated bulk-fill composites and sectional matrices.
Material and methods: A total of 15 patients presenting Class II carious lesions in posterior teeth were included in the study. Patients with severe periodontal disease, advanced tooth wear, or decompensated systemic conditions were excluded. Diagnosis and treatment planning were established through medical history, clinical examination, and radiographic evaluation. Standardized restorative treatment followed a clinical protocol of the injection-molding and Bioclear technique. Restorations were evaluated after three months using World Dental Federation (FDI) criteria.
Results: The study demonstrated a predominance of medium dental caries, confirming the importance of early diagnosis and minimally invasive intervention. Periodontal parameters showed improvement following restoration, attributed to the re-establishment of proper contact areas and support of interdental papillae. Functional outcomes were highly favorable, with all restorations maintaining integrity and marginal adaptation. Esthetic evaluation revealed 100% of restorations with excellent marginal staining resistance, while 86.7% showed optimal color stability and translucency; the remaining 13.3% were rated clinically good. Biological assessment indicated no recurrent caries in any case, while 93.3% of patients reported no postoperative sensitivity and only one patient experienced mild transient sensitivity.
Conclusions: These findings support the injection-molding technique as an effective and predictable method for restoring interdental anatomy in posterior teeth. The technique offers favorable short-term outcomes in terms of function, esthetics, and biological compatibility.
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P15. Potential of medicinal plants with neuroprotective properties in Alzheimer's disease: a review

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Objectives: This review aims to analyse and synthesise the potential of medicinal plants containing biologically active compounds with neuroprotective properties as a possible complementary or alternative approach in Alzheimer's Disease. Particular emphasis is placed on their multi-target activity against key pathogenetic mechanisms, including oxidative stress, neuroinflammation, and amyloid neurotoxicity.
Materials and Methods: A systematic analysis of scientific publications indexed in the PubMed and Google Scholar databases for the period 2003 – 2025 was conducted. The selected sources encompass six medicinal plants with demonstrated or potential neuroprotective effects: *Withania somnifera*, *Bacopa monnieri*, *Ginkgo biloba*, *Sideritis scardica* Griseb., *Origanum majorana*, and *Salvia officinalis*. Both preclinical and clinical studies were included in the analysis.
Results: The analysed plants exhibit complex neuroprotective activity associated with the suppression of oxidative stress, modulation of neuroinflammatory processes and amyloid plaques associated with Alzheimer's disease. These effects are attributable to their constituent biologically active compounds, including flavonoids, terpenes, alkaloids, and phenolic compounds. The most extensively studied species are *Withania somnifera*, *Bacopa monnieri*, and *Ginkgo biloba*, for which evidence of improvement in cognitive function and behavioural disturbances is available. Several of the identified mechanisms include enhanced peripheral clearance of β-amyloid, antioxidant defence, inhibition of inflammatory mediators, and modulation of cholinergic neurotransmission. The plants *Sideritis scardica* Griseb., *Origanum majorana*, and *Salvia officinalis*, characteristic of the Balkan region, remain less thoroughly investigated; however, the available data indicate a promising effect on neurodegenerative processes.
Conclusion: Medicinal plants represent a promising, yet insufficiently substantiated approach in the management of Alzheimer's Disease. Large-scale clinical trials are warranted to evaluate their efficacy, safety, and pharmacokinetic and pharmacodynamic profiles. In the long term, medicinal plants hold the potential to find a place in the prevention and adjunctive treatment of this condition.

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P16. Apitherapy as a powerful tool for protecting the gastric mucosa against damage induced by various aggressive factors: a literature review

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Introduction: Gastric ulcers and gastric mucosal injury are common conditions caused by factors such as nonsteroidal anti-inflammatory drugs, aspirin, ethanol, stress, Helicobacter pylori, and corrosive agents. Their pathogenesis involves disruption of cellular function and tissue homeostasis through mechanisms like oxidative stress, inflammation, and different types of cell death such as necrosis, apoptosis, and necroptosis. Although several drug classes are available for gastric mucosal protection, important clinical challenges remain, particularly in relation to prolonged treatment and associated adverse effects. Therefore, alternative or adjunctive agents that can counteract mucosal injury and enhance endogenous protective mechanisms are of growing scientific and clinical interest. Apitherapy, the therapeutic use of honeybee-derived products, has been recognized since ancient times. Bee venom, bee pollen, bee propolis/bee bread, royal jelly, and beeswax contain a wide range of bioactive compounds with antioxidant, anti-inflammatory, immunomodulatory, and anti-apoptotic properties, as well as beneficial effects on tissue repair. These features suggest that bee products may have

considerable gastroprotective potential. This review aims to evaluate the evidence supporting the protective effects of bee products against gastric mucosal injury induced by various damaging agents.
Materials and Methods: A targeted literature search was conducted in the Medline/PubMed and Google Scholar databases. Keywords and search terms related to gastric pathology and various bee products were used. Studies addressing precancerous lesions of the gastric mucosa and gastric cancer were excluded, along with websites intended primarily for informational, promotional, or commercial purposes. The analysis included publications from the past 10 years.
Results: The gastroprotective effects of bee products were demonstrated through the assessment of macroscopic parameters, such as ulcer index; histopathological and histochemical findings, including H&E and PAS staining; investigation of functional indicators, such as gastric mucus secretion, gastric volume, gastric acidity, and protein content; tissue or plasma levels of mucosal protective factors, such as prostaglandins and enzymatic activity; and examination of biomarkers of oxidative stress, inflammation, and apoptosis.
Conclusions: All included studies provide compelling evidence for the beneficial effects of bee products in gastric mucosal injury. Their multitargeted activity, as reflected by improvements across the assessed parameters, together with their broad availability and the absence of significant toxic or adverse effects, underscores their considerable potential as gastroprotective agents for the prevention and treatment of gastric mucosal damage.

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P17. Comparative analysis of policies for cancer control in the EU, USA and Bulgaria

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Objectives: The aim of the present comparative analysis is to assess the development of global, European, and national cancer control policies.
Materials and Methods: A comparative analysis of strategic documents at global and national level in the field of cancer control was conducted. Data were obtained from established epidemiological sources and registries, including ECIS, SEER, and GLOBOCAN. The analysis also covers WHO policies and regulatory documents (WHA70.12), as well as the European regulatory framework-Regulation (EU) 2017/746 and MDCG 2020-16 rev.3. Key indicators related to screening, vaccination coverage, access to innovation, cancer registries, and palliative care in the USA, EU, and Bulgaria were evaluated.
Results: Global and European policies emphasize early detection, access to high-quality healthcare services, and the integration of palliative care. The EU applies a coordinated model with common strategic objectives, while the USA utilizes a centralized cancer control structure through NCCCP and NCI, ensuring standards for molecular and genomic diagnostics (2,11). In

the EU, comprehensive genomic profiling (CGP) is recommended as a standard in comprehensive cancer centers through initiatives such as the European Cancer Imaging Initiative and the EU Cancer Data Space. The SEER system in the USA is considered the gold standard for oncology data (~50% population coverage), while ECIS aims to achieve comparable reliability through standardization. Bulgaria demonstrates strategic alignment but lags behind in key indicators: screening coverage below 30% (compared to 65 – 70% in the USA), HPV vaccination below 20% (compared to 70 – 80% in the EU and ~76% in the USA), limited functionality of the cancer registry, and delayed access to innovative therapies (>24 months vs. 12 – 18 months in the EU and 4 – 6 months in the USA). CGP is not integrated into the national reimbursement system, and there is a lack of a national genomic registry, a standardized evaluation algorithm, and systematic training in genomic medicine.

Conclusion: The comparative analysis shows that the EU and USA implement integrated models with clear standards for molecular diagnostics, reliable registries, and faster access to innovation. Bulgaria achieves strategic alignment with European policies but lags behind across all analyzed indicators. The identified structural gaps in genomic diagnostics require the development of a reimbursement framework for CGP, establishment of a national genomic registry, implementation of a standardized evaluation algorithm for diagnostic devices, and introduction of multidisciplinary training in genomic medicine in line with Europe's Beating Cancer Plan.

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P18. Impact of exclusive cow's milk feeding on hematological parameters and iron metabolism markers in children with iron deficiency anemia

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Objectives: Iron-deficiency anaemia (IDA) is a significant public health problem, with infants and young children between 6 and 24 months of age being among the most affected population groups. The susceptibility to IDA in this age group results from the rapid rate of growth, depletion of the prenatally acquired iron stores, and limited intake of iron by the diet. Recent data indicate that exclusive cow's milk feeding is strongly associated with the development of IDA in infants.
The objective of the study was to explore the impact of exclusive cow's milk feeding on the hematological parameters and iron metabolism markers among children with IDA up to the age of two.
Materials and Methods: We performed a 3-year study of 172 children investigated at University Multiprofile Hospital for Active Treatment – Pleven (Bulgaria), Pediatrics Clinic. Included were patients up to two years of age with IDA. The subjects fell into two age categories: group 1 (G1) – 1.8-11 months (n=86); group 2 (G2) – 12-23 months (n=86). We investigated the following laboratory parameters: haemoglobin concentration, haematocrit, red blood cell count, mean cell volume, mean cell haemoglobin, mean cell haemoglobin concentration, serum iron concentration, total iron-binding capacity, and transferrin saturation.
Results: Among the total number of subjects with IDA in each age group, we identified a relatively high proportion of children who had been exclusively fed unmodified cow's milk. In G1, their relative share was 30.23% (n=26) and, in G2, it was 19.77% (n=17). We observed statistically significant lower values of the most tested laboratory parameters in the exclusively

cow's milk-fed children in G1 compared to their age-matched counterparts having had other types of feeding ($p<0.05$).
Conclusion: Exclusive cow's milk feeding has a significant effect on the deterioration of hematological parameters and iron metabolism markers in children with IDA aged between 12 and 23 months.

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P19. Infective endocarditis of the right heart chambers: a clinical case and literature review

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Introduction: Right-sided infective endocarditis (IE) accounts for 5–10% of all IE cases and is more frequently associated with intravenous drug use, intracardiac devices, and central venous catheters (CVCs). Diagnosis is challenging when blood cultures are negative — occurring in up to 31% of cases — as this may reflect prior antibiotic use, fastidious organisms, or fungal etiology. The modified Duke criteria remain the diagnostic cornerstone, with transesophageal echocardiography (TEE) playing a critical role in vegetation detection.
Objectives: To describe the diagnostic challenges and management of right-sided IE with negative blood cultures following CVC placement, with reference to ESC 2023 guidelines.
Materials and Methods: A 47-year-old woman was hospitalized at the PMSI Institute of Cardiology. Investigations included 12-lead ECG, transthoracic and transesophageal echocardiography, serial blood cultures from three peripheral veins (prior to antibiotic initiation), chest X-ray, complete blood count, biochemical and immunological panels, and cardiac surgery consultation. Diagnosis was established using the modified Duke criteria.
Results: The patient presented with a three-week history of fever, chills, fatigue, retrosternal pain radiating to the left shoulder, dyspnea, and productive cough. Examination revealed muffled heart sounds, firm lower-limb edema, and a right subclavian CVC scar — identified as the probable portal of entry. HR 62 bpm; BP 170/80 mmHg. TEE identified a mobile vegetation of 21 × 9 mm on the septal leaflet of the tricuspid valve, moderate dilation of the left atrium, right ventricle and right atrium, moderate pericardial effusion, mitral regurgitation grade II, tricuspid regurgitation grade II, and aortic regurgitation grade I. The vegetation exceeded 20 mm and, combined with persistent tricuspid regurgitation grade II and septic pulmonary embolism risk, met a class IIa surgical indication per ESC 2023. Laboratory results showed anemia, leukocytosis, elevated ESR, CRP, creatinine, urea, and rheumatoid factor 2.1. Three sets of blood cultures were negative, prompting empirical addition of itraconazole 100 mg/day for suspected fungal etiology. Treatment comprised vancomycin 1000 mg IV twice daily, cefepime 1.0 g IV three times daily, itraconazole 100 mg/day, valsartan 160 mg, bisoprolol 10 mg, spironolactone 50 mg, and acetylsalicylic acid 75 mg/day. Clinical improvement and vegetation size reduction were observed on follow-up echocardiography.

Conclusions: This case underscores the diagnostic complexity of culture-negative right-sided IE following CVC placement. Negative blood cultures do not exclude IE; TEE and consideration of fungal etiology are essential. Despite clinical improvement, the large vegetation (>20 mm) and persistent tricuspid regurgitation grade II fulfill ESC 2023 surgical criteria (class IIa), and elective valve surgery remains indicated. A multidisciplinary Endocarditis Team approach is strongly recommended.

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P20. Medicinal plants used for cardiovascular diseases: ethnopharmacological insights from the Timok region, Serbia

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Introduction: Medicinal plants have played a crucial role in healthcare since ancient times. Around 80% of the population in developing regions still relies primarily on traditional medical systems, where plant-based remedies are the main form of treatment. As interest in these therapies increases, there is a growing need to assess their safety and effectiveness through scientific research, particularly for wider medical use. Meanwhile, the pharmaceutical industry has renewed its interest in natural sources, recognising medicinal plants as a rich and largely untapped reservoir for discovering new therapeutic agents.
Material and methods: This study aimed to collect and preserve the ethnopharmacological knowledge of local people regarding cardiovascular diseases in ten villages in the Timok region (South Eastern Serbia). Anonymous, semi-structured ethnobotanical interviews were conducted with 61 women and 33 men aged between 48 and 79 years, with a median age of 64.
Results: A total of 1,320 medicinal use reports were recorded, of which 155 (11.74%) concerned cardiovascular diseases. These uses involved 18 plant species from 12 families, with Rosaceae being the most represented (48.12%, 64 use reports), followed by Urticaceae (25.56%, 34 use reports) and Fagaceae (7.52%, 10 use reports). Among the conditions investigated, cardiac insufficiency was the most commonly treated (57.42%, 89 use reports), followed by anaemia (22%, 33 use reports) and vascular disorders (12.90%, 20 use reports). The species most frequently reported for the treatment of anaemia was *Urtica dioica* (21.94%, 34 use reports). Overall, *Crataegus monogyna* was one of the most commonly used plants (15.48%, 24 out of 155 use reports), followed by *Rosa canina* (8.39%, 13 use reports). According to European Union herbal monographs, *Urtica dioica radix* is classified as a traditional herbal medicinal product used for urinary tract and genital disorders, while *Crataegus monogyna* is recognised for the treatment of circulatory disorders. *Rosa canina* has not yet been included in a monograph

by the European Medicines Agency (EMA). *R.canina* and *U. dioica* are known sources of vitamin C and iron, respectively.
Conclusions: This study highlights the extensive ethnopharmacological knowledge maintained by local communities in the Timok region concerning the use of medicinal plants for cardiovascular diseases. However, the limited representation of some traditionally used plants in official monographs emphasises the need for further pharmacological and clinical research. Overall, these findings contribute to the preservation of traditional knowledge and support its potential integration into evidence-based healthcare.
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P21. Rationale for implementing a standardized algorithm for the diagnosis and management of acute coronary syndrome in the prehospital setting in the Republic of Moldova

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Introduction: Acute coronary syndrome (ACS) remains one of the leading causes of mortality and disability worldwide. The timeliness of diagnosis and initiation of treatment directly influences patient outcomes. In the prehospital setting, the standardization of diagnostic and management algorithms may contribute to reducing time to reperfusion and improving the efficiency of emergency medical care.
Material and methods: A retrospective analysis of data from the Emergency Medical Service of the Republic of Moldova for the period 2023-2025 was conducted. The findings were compared with international literature and the recommendations of the European Society of Cardiology. Descriptive analysis methods were applied, including the evaluation of call dynamics, the structure of cardiovascular emergencies, and characteristics of prehospital management, including the use of telemedicine.
Results: The analysis highlighted the need to optimize the assessment of patients with suspected ACS in the prehospital setting. The implementation of a standardized algorithm would enable a systematic approach based on clinical examination, 12-lead electrocardiogram (ECG), the HEART score and where available high-sensitivity biomarkers. Such an algorithm could facilitate earlier identification of high-risk patients, reduce time to treatment initiation, and improve the accuracy of triage and referral to specialized centers. The data demonstrated an increase in cardiovascular-related calls from 24.8% in 2023 to 26.2% in 2025, as well as the

persistence of delays in care delivery, mainly associated with late emergency calls and system overload.
Conclusions: The study findings support the need for implementing a standardized algorithm for the diagnosis and management of ACS in the prehospital setting. Its adoption could contribute to reducing time to reperfusion, optimizing patient pathways, and improving clinical outcomes. In this context, further development of logistics and integration of modern technologies, such as telemedicine and rapid biomarker testing, are essential to enhance the efficiency of prehospital care.

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P22. Adolescent pregnancy in the context of modern society

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Introduction: Adolescent pregnancy remains an important public health issue with significant medical, psychological, social, and economic implications. Although the adolescent birth rate has declined in most European countries, Romania continues to rank among the highest in the European Union. This phenomenon is influenced by inadequate sexual education, limited access to family planning services, socioeconomic vulnerability, and school dropout. This paper aims to analyze the characteristics of adolescent pregnancy in Romania in relation to current European trends.
Materials and Methods: A narrative and comparative analysis was conducted using data from international reports, European statistics, and recent scientific literature on adolescent pregnancy. The analysis evaluated the incidence of adolescent pregnancy, risk factors, obstetrical and neonatal complications, and socioeconomic impact. To provide national context, clinical and statistical data from the National Institute for Mother and Child Health (INSMC) collected over a 5-year period were also included.
Results: Data analysis shows that Romania continues to rank first in the European Union for adolescent birth rates, particularly among girls under 15, with rates significantly above the European average. In contrast, countries such as the Netherlands, Denmark, and Sweden report some of the lowest adolescent pregnancy rates, a difference associated with broader access to sexual education and reproductive health services. Adolescent pregnancy is frequently associated with disadvantaged socioeconomic backgrounds, low educational levels, and insufficient prenatal care. From a medical perspective, adolescents face an increased risk of anemia, preterm birth, and low-birth-weight newborns.
Conclusions: Adolescent pregnancy remains a major public health issue in Romania and other Eastern European countries. Reducing its incidence requires multidisciplinary strategies focused on health education, access to family planning services, psychological counseling, and socio-educational support. Collaboration among the healthcare, educational, and social systems is essential for the effective prevention and management of adolescent pregnancy.

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P23. A pragmatic echocardiographic and biomarker-based triage model after pulmomnary embolism

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Introduction: Follow-up after acute pulmonary embolism (PE) remains clinically challenging. While only a minority of patients develop chronic thromboembolic pulmonary hypertension, many survivors continue to report dyspnea, reduced exercise tolerance, and functional limitations. In this setting, the key clinical question is not only whether chronic thromboembolic disease is present, but also how to identify patients who require extended evaluation versus those who may benefit mainly from rehabilitation-oriented follow-up. Material and methods: We conducted an observational follow-up study including 110 adult PE survivors undergoing structured reassessment after objectively confirmed acute PE. Evaluation included persistent symptoms, NYHA functional class, NT-proBNP, and transthoracic echocardiography with conventional and advanced right ventricular (RV) parameters. Patients were stratified according two study-defined phenotypes: a composite A/B/C phenotype suggestive of persistent RV–pulmonary circulation involvement and a VD+ phenotype indicating concordant RV systolic dysfunction.
Results: Persistent post-PE limitation was common: dyspnea was present in 83.7% of patients, and only 14.4% were in NYHA class I at follow-up. Echocardiographic PH probability was low in 33.6%, intermediate in 45.5%, and high in 20.9% of patients. Increasing PH probability was associated with progressively higher pulmonary pressures, shorter pulmonary acceleration time, lower fractional area change, larger right atrial area, higher NT-proBNP levels, and worse NYHA class. NT-proBNP showed significant relationships with key markers of RV afterload and dysfunction, including sPAP (rho = 0.483, $p < 0.001$), FAC (rho = −0.347, $p < 0.001$), right atrial area (rho = 0.357, $p < 0.001$), and TAPSE/sPAP ratio (rho = −0.450, $p < 0.001$). The A/B/C phenotype was present in 79.1% of patients and identified a broad subgroup with higher NT-proBNP, worse hemodynamic profile, and greater functional limitation. VD+ was present

in 26.4% and identified a smaller subgroup with more overt RV systolic impairment, including lower TAPSE, S', FAC, and 3D RVEF.
Conclusions: Our findings support a pragmatic post-PE triage model based on symptoms, NYHA class, NT-proBNP, echocardiographic PH probability, and RV phenotyping. This approach may help distinguish patients suitable for rehabilitation-oriented monitoring from those who should undergo extended evaluation for chronic thromboembolic pulmonary vascular sequelae.

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P24. Renal and pulmonary involvement as major determinants of disease evolution in granulomatosis with polyangiitis

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Introduction: Granulomatosis with polyangiitis (GPA) frequently affects vital organs, particularly the kidneys and lungs, significantly influencing disease course, therapeutic response, and long-term prognosis. Identifying the prognostic impact of organ involvement is essential for early stratification of high-risk patients.
This study aimed to evaluate the contribution of renal and pulmonary involvement to disease evolution in GPA.
Material and methods: A prospective observational study included 11 patients with active GPA, followed for 18 months. Clinical parameters included organ involvement, disease activity (BVAS), and treatment response. Renal function was assessed by estimated glomerular filtration rate (eGFR) and proteinuria, while pulmonary involvement was evaluated through imaging findings. Statistical analysis included comparative tests, correlation analysis, effect size calculation, and multivariate regression.
Results: Renal involvement was identified in 72.7% of patients, with rapid progressive glomerulonephritis present in 36.4%. Patients with eGFR <45 ml/min/1.73 m^2 had a significantly higher risk of unfavorable evolution (OR=3.6; 95% CI 1.2-10.8; p=0.01) and reduced remission rates (p=0.02). Pulmonary involvement was present in 54.5% of patients, with cavitary lesions associated with higher disease activity (BVAS 19.2±3.1 vs 14.1±2.7; Δ=5.1; p=0.003; Hedges g=1.71) and elevated CRP levels (24.1±6.2 vs 14.3±5.1 mg/L; Δ=9.8; p=0.004; g=1.68). Patients with combined renal and pulmonary involvement had significantly

higher progression rates (OR=4.2; 95% CI 1.3-13.1; p=0.01) and lower probability of remission. Correlation analysis revealed strong associations between BVAS and CRP (ρ=0.51; p=0.008), as well as between renal function decline and disease activity (ρ= -0.44; p=0.02). Multivariate regression identified renal impairment (β=0.38; p=0.01) and pulmonary involvement (β=0.34; p=0.02) as independent predictors of disease progression (R^2=0.48). Conclusions: Renal and pulmonary involvement represent major determinants of disease evolution in GPA. Early identification of high-risk patients enables optimization of therapeutic strategies and improved clinical outcomes.

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P25. Clinico-biological predictors of prognosis in granulomatosis with polyangiitis: a cohort analysis

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Introduction: Granulomatosis with polyangiitis (GPA) is a rare systemic necrotizing vasculitis characterized by heterogeneous clinical expression, multi-organ involvement, and a relapsing-remitting course. Despite advances in immunosuppressive and biological therapies, disease progression and recurrence remain frequent. Early identification of prognostic factors is essential for optimizing risk stratification and therapeutic decision-making. This study aimed to evaluate clinico-biological predictors associated with unfavorable outcomes in GPA.
Material and methods: A retrospective-prospective cohort study included 11 patients diagnosed with GPA according to ACR/EULAR 2022 criteria. Clinical evaluation included demographic characteristics, organ involvement, and Birmingham Vasculitis Activity Score (BVAS). Laboratory parameters included anti-neutrophil cytoplasmic antibodies (ANCA), C-reactive protein (CRP), and renal function markers. Patients were followed for a median period of 24 months. Statistical analysis included Student's t-test, chi-square test, Spearman correlation (ρ), odds ratios (OR), and multivariate regression modeling.
Results: The cohort included 54.5% males, with a mean age of 48.3±11.6 years. ANCA-PR3 positivity was identified in 81.8% of patients and was associated with increased relapse risk (OR=2.9; 95% confidence interval (CI) 1.1-7.6; p=0.02), confirming its prognostic significance. Patients with high disease activity at diagnosis (BVAS ≥18) showed significantly higher progression rates (72.7% vs 28.6%; p=0.02), indicating the importance of initial inflammatory burden. CRP values >20 mg/L were strongly associated with unfavorable outcomes (OR=3.4; 95% CI 1.3-8.9; p=0.01) and correlated with BVAS (ρ=0.48; p=0.01), suggesting a persistent inflammatory phenotype. Renal involvement was present in 63.6% of patients and significantly increased the risk of disease progression (OR=3.1; p=0.02). Patients with renal impairment also exhibited reduced remission rates and higher inflammatory markers. Multivariate analysis identified BVAS (β=0.39; p=0.01), CRP (β=0.33; p=0.02), and renal

involvement (β=0.31; p=0.02) as independent predictors of unfavorable evolution (model R^2=0.46), indicating a multifactorial prognostic model.
Conclusions: Initial disease activity, persistent inflammation, and renal involvement are key determinants of prognosis in GPA. Integration of clinical and biological parameters may support early risk stratification and individualized management strategies.

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P26. Beyond joints: neurovisceral impact of chronic pain in rheumatoid arthritis

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Introduction: Rheumatoid arthritis (RA) is a systemic inflammatory disease in which persistent pain often exceeds measurable inflammatory activity. Increasing evidence supports the role of neuroimmune interactions, including central sensitization and autonomic nervous system (ANS) dysfunction, in sustaining chronic pain. This study investigates the neurovisceral dimension of pain in RA, focusing on the relationship between pain intensity, inflammatory activity, and autonomic dysfunction.
Material and Methods: A cross-sectional observational study included 54 adult RA patients fulfilling ACR/EULAR 2010 criteria. Pain was assessed using the Visual Analog Scale (VAS), disease activity by DAS28-CRP, and autonomic dysfunction using the COMPASS-31 questionnaire (range 0-100). Patients were stratified into mild/moderate pain (VAS <50 mm) and severe pain (VAS ≥50 mm). Statistical analyses included parametric and non-parametric tests, Pearson correlations, and multivariate linear regression (ENTER method). Significance threshold was set at $p < 0.05$.
Results: The cohort had a mean age of 56.8 ± 11.2 years, with 79.6% females and a median disease duration of 7 years. Severe pain was observed in 61.1% of patients (mean VAS 58.7 ± 18.4 mm), despite ongoing immunomodulatory therapy. Patients with severe pain exhibited markedly higher autonomic dysfunction scores compared to those with mild/moderate pain (COMPASS-31: 41.8 ± 9.4 vs 22.9 ± 7.6; $p<0.001$), with a very large effect size (Cohen's d=2.17). Pearson analysis demonstrated a strong correlation between pain intensity and autonomic dysfunction ($r = 0.63$; $p<0.001$), indicating that approximately 40% of COMPASS-31 variability is explained by pain. Disease activity correlated moderately with both pain ($r = 0.52$; $p<0.001$) and autonomic dysfunction ($r=0.48$; $p=0.001$). In multivariate regression (adjusted $R^2 = 0.46$), pain remained the strongest independent predictor of autonomic dysfunction (β=0.51; $p<0.001$), followed by DAS28-CRP (β=0.29; $p=0.02$), while age and disease duration were not statistically significant.
Conclusions: Chronic pain in RA is a major independent determinant of neurovisceral dysfunction, exceeding the impact of inflammation alone. These findings support a distinct neurovisceral phenotype characterized by severe pain and pronounced autonomic imbalance, emphasizing the need for integrated therapeutic strategies beyond immunosuppression.

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P27. Impact of pharmacist-led interventions in the management of postmenopausal osteoporosis

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Objectives: Postmenopausal osteoporosis is a prevalent metabolic bone disorder characterized by reduced bone strength and an increased risk of fractures. It substantially impairs quality of life and contributes to increased healthcare expenditures. This study aimed to evaluate the role of pharmacists in the comprehensive management of postmenopausal osteoporosis, with particular emphasis on early identification of at-risk individuals, optimization of pharmacotherapy, and enhancement of patient adherence to prescribed treatment regimens.
Materials and Methods: A narrative review of scientific literature and analysis of clinical practice frameworks were undertaken. Relevant studies evaluating pharmacist-led interventions in osteoporosis screening, prevention, and treatment were examined. Emphasis was placed on community pharmacy settings, use of validated risk assessment tools, patient education strategies, and multidisciplinary collaboration models.
Results: Pharmacists play a significant role in the early identification of postmenopausal osteoporosis by recognizing at-risk individuals through the use of clinical risk assessment instruments and systematic evaluation of patient histories. Screening initiatives conducted within community pharmacies improve accessibility to risk stratification and facilitate increased referral rates for diagnostic evaluation. Furthermore, pharmacist-delivered patient-centered counseling enhances adherence to long-term therapy and promotes preventive measures, such as adequate calcium and vitamin D intake, regular physical activity, and fall prevention strategies. Findings suggest that pharmacist-led interventions are associated with increased screening uptake, improved patient awareness, and more timely initiation of therapy. Interprofessional collaboration further reinforces continuity of care and improves clinical outcomes.
Conclusion:The pharmacist plays a pivotal role in the multidisciplinary management of postmenopausal osteoporosis. Through accessible healthcare services, targeted screening, and ongoing patient support, pharmacists help bridge existing gaps in diagnosis and treatment. Strengthening the integration of pharmacists into osteoporosis care pathways has the potential to reduce fracture risk and improve long-term patient outcomes.
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P28. Axial involvement in juvenile idiopathic arthritis: clinical, immunologic and radiologic associations

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Introduction: Juvenile idiopathic arthritis with axial involvement represents a heterogeneous clinical entity in which identifying severity and progression markers is essential for early diagnosis and appropriate therapeutic management. The HLA-B27 antigen is considered an important genetic factor associated with more severe disease forms characterized by persistent inflammation and early axial involvement.
Objective: To perform a comprehensive clinical, biological, and imaging evaluation of patients with juvenile idiopathic arthritis with axial involvement and to analyze correlations between HLA-B27 status, disease activity, and imaging findings.
Materials and Methods: This prospective cohort study included patients diagnosed with juvenile arthritis and axial involvement. Clinical evaluation comprised symptoms, functional limitation, and disease activity assessed using the JSpADA score. Biological assessment included inflammatory markers, HLA-B27 status. Magnetic resonance imaging (MRI) was used to identify and monitor axial involvement.
Results: HLA-B27 positive patients presented significantly more frequent combined axial and peripheral involvement compared to HLA-B27 negative patients (OR = 5.25; $p = 0.018$). Prolonged morning stiffness was observed in 90.1% of HLA-B27 positive patients versus 45.8% in the negative group, with a strong association between HLA-B27 positivity and this clinical feature (OR = 11.8; $p = 0.02$). Disease activity measured by JSpADA was significantly higher in HLA-B27 positive patients (4.81 ± 1.48 vs. 2.63 ± 1.28; $p < 0.001$). These patients also required DMARDs and glucocorticoids more frequently (OR = 13.2; $p = 0.004$), reflecting more severe disease and more difficult therapeutic control. MRI findings demonstrated more pronounced axial involvement in the HLA-B27 positive group. Conclusions: HLA-B27 is strongly associated with a severe inflammatory phenotype in juvenile idiopathic arthritis with axial involvement. Significant correlations between clinical biomarkers, biological parameters, and imaging findings support the role of HLA-B27 as a marker of disease severity and progression. MRI represents an indispensable tool for early detection of axial involvement, contributing to optimized therapeutic management and individualized treatment strategies.
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P29. A multimodal approach to hepatic steatosis: integrating advanced ultrasound, gut microbiota and metabolomics

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Introduction: Non-alcoholic fatty liver disease (NAFLD), recently redefined in many contexts as metabolic dysfunction-associated steatotic liver disease (MASLD), represents the hepatic manifestation of metabolic syndrome and has reached epidemic proportions worldwide. Over the past two decades, growing evidence has highlighted the central role of the gut–liver axis, particularly the intestinal microbiota and metabolomic profile, in the pathophysiology of hepatic steatosis. Dysbiosis contributes to altered production of short-chain fatty acids, increased intestinal permeability, and enhanced translocation of bacterial endotoxins such as lipopolysaccharides. These changes promote systemic inflammation, insulin resistance, and hepatic fibrogenesis. In parallel, metabolomic studies have identified significant alterations in lipid, carbohydrate, and amino acid metabolism, offering promising avenues for the identification of novel diagnostic biomarkers and therapeutic targets. Aim of the Study This study aims to evaluate the diagnostic performance of advanced ultrasonographic techniques in the early detection of hepatic steatosis and to explore their integration with emerging data on gut microbiota and metabolomics in order to better understand disease pathogenesis and progression.
Materials and Methods: A total of 164 patients with suspected hepatic steatosis, aged between 22 and 78 years (mean age 56±3 years), were included in the study. The diagnostic protocol comprised conventional B-mode ultrasonography, shear wave elastography (SWE), serological testing, stool analysis, and ELISA assays for hepatitis B and C viruses. All imaging assessments were performed using a Philips Affiniti 70 ultrasound system, employing both convex (1–6 MHz) and linear (2–10 MHz) probes, allowing detailed evaluation in grayscale and elastographic modes. Results According to SteatoTest results, hepatic steatosis was identified in 91% of patients. B-mode ultrasonography detected steatosis-related changes in 85% of cases, while elastography revealed increased liver stiffness in 90% of patients, with a mean value of 7.5 kPa. The sensitivity of B-mode ultrasound was 93.3%, whereas shear wave elastography demonstrated a higher sensitivity of 98.6%. Both imaging modalities showed a specificity of 100%, confirming their reliability in clinical practice.
Discussion: The integration of imaging findings with metabolomic profiling and gut microbiota characterization offers a more comprehensive understanding of MASLD pathogenesis. The intestinal microbiome modulates hepatic lipid accumulation through mechanisms involving bile acid metabolism, microbial metabolite production, and inflammatory signaling pathways. Meanwhile, metabolomic signatures - such as elevated saturated fatty acids, branched-chain amino acids, and microbial fermentation products - serve as crucial intermediaries linking clinical, imaging, and molecular alterations. This multidimensional approach supports the development of precision medicine strategies, enabling earlier diagnosis and individualized therapeutic interventions.
Conclusion: Advanced ultrasonographic evaluation, particularly shear wave elastography, represents a highly sensitive and non-invasive tool for the early diagnosis of hepatic steatosis. When combined with insights from microbiota and metabolomic analyses, it provides a robust, integrative framework for disease assessment. This approach not only enhances diagnostic accuracy but also facilitates the identification of early biomarkers and the development of innovative, targeted therapies in MASLD management.

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P30. Marketing research of glucose-lowering medicinal products for the treatment of type 2 diabetes mellitus in Bulgaria

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Objectives: The health, social and economic burden associated with type 2 diabetes mellitus (T2DM) represents a major challenge for health systems worldwide. Globally, approximately 589 million adults are living with diabetes mellitus. According to current guidelines eight pharmacological classes are approved for the treatment of T2DM. The aim of this study is to conduct a marketing research of the market of non-insulin glucose-lowering medicinal products in Bulgaria, with a focus on identifying and evaluating trends in expenditures. Materials and methods: We performed a documentary and marketing analysis by evaluating IMS data for the period 2020-2023 to estimate the overall antidiabetic medicinal products market in Bulgaria. We presented the results in value [MNF sales] and in number of packages. Results: There is a significant growth in the sales of glucose-lowering products over the 4-year period from 23,994,578 EUR in 2020 to 50,431,715 EUR in 2023. The total number of packages of

monoproducts in 2023 reached 6,857,551. The highest relative share in terms of number of packages is held by Metformin (66%). Sulphonylureas take the second place with percentage share of 24%, while Acarbose occupies the third place with 4%. The leading class in terms of sales for the entire period are GLP-1 receptor agonists (RA) with a relative share of 40%. In 2023 we documented a significant growth in the sales of Dapagliflozin and Empagliflozin. A decrease in the use of Acarbose, meglitinides and thiazolidinediones is estimated.
Conclusion: Metformin ranks first in terms of drug usage in Bulgaria, while sulphonylureas take the second place. GLP-1 RA and SGLT2 inhibitors occupy a low relative share (4%) despite their proven cardiovascular and renal benefits.

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P31. Patterns of cardiometabolic multimorbidity: insights from the Republic of Moldova

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Introduction: Cardiometabolic multimorbidity (CMM) - defined as the co-occurrence of two or more cardiometabolic conditions in an individual—has become a significant global public health issue. While awareness of CMM is on the rise, there remain notable gaps in comprehending its prevalence, distribution, and effects among varied populations. In the Republic of Moldova, where cardiovascular disease is especially burdensome, establishing solid evidence on the frequency and patterns of CMM is crucial for formulating prevention strategies, healthcare planning, and policymaking.
The aim of this study is to evaluate the profile of cardiometabolic multimorbidity among patients in primary healthcare settings in the Republic of Moldova.

Material and methods: This retrospective cohort study included 5,183 patients aged ≥18 years who consulted a family physician between July 2018 and June 2019. Participants were randomly selected from 20 primary healthcare facilities distributed across the Republic of Moldova. Medical histories were sourced from patient records. CMM was defined as the co-occurrence of two or more of the following conditions: hypertension, diabetes, coronary heart disease, stroke, obesity, and hypercholesterolemia. Multimorbidity rates were calculated based on comorbid diagnoses identified through ICD-10 codes documented in the patients' medical histories. The study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki. Results. The sample includes 5,183 patients, 59.4% females (n=3079) and 40.6% males (n=2104), with an average age of 55.8 ± 15.4 years and a median age of 59. Correlation analysis revealed a pronounced cardio-metabolic core, with strong associations among hypertension, dyslipidaemia, diabetes and obesity ($r \approx 0.41$ for each pair). A secondary metabolic – endocrine domains ($r \approx 0.31$), indicating frequent co-occurrence of metabolic and endocrine disorders. Prevalence rates within the cardiometabolic cluster were cardiovascular diseases – 49.8%, metabolic disorders – 21.2%, endocrine disease – 17.8%, peripheral vascular disease – 5.2%. Peripheral vascular and renal/urinary domains showed positive correlation with cardiovascular pathology ($r \approx 0.20$), suggesting shared risks pathways. Additionally, a secondary, lower-intensity multimorbidity cluster was observed, encompassing neurologic, musculoskeletal, and psychiatric conditions ($r = 0.10–0.17$). Conclusions: CMM is prevalent among primary care patients in Moldova, dominated by a dense cardiometabolic-endocrine cluster characterized by the frequent co-occurrence of hypertension, dyslipidaemia, diabetes, obesity, and cardiovascular disease. These findings underscore the necessity for integrated, multi-risk screening and management strategies in primary care, alongside targeted prevention efforts focusing on shared modifiable risk factors. Enhancing health system planning is essential to combat the growing burden of cardiometabolic disease in the population.

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P32. Multivariate analysis of gut microbiome and inflammatory burden in spondyloarthritis

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Introduction: Spondyloarthritis (SpA) is a group of immune-mediated inflammatory diseases characterized by systemic inflammation and heterogeneous clinical expression. Increasing

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evidence implicates gut microbiome dysbiosis in modulating inflammatory pathways through the gut-immune axis. This study aimed to evaluate the relationship between microbiome composition and inflammatory burden in SpA.
Material and methods: A cross-sectional study included 82 subjects (56 patients with SpA and 26 controls). Microbiota profiling was performed using polymerase chain reaction (PCR)-based bacterial quantification. Clinical assessment included C-reactive protein (CRP), erythrocyte sedimentation rate (ESR), and Ankylosing Spondylitis Disease Activity Score (ASDAS). Statistical analysis included Mann-Whitney test, Spearman correlation coefficient (ρ), multivariate regression, clustering, and receiver operating characteristic (ROC) analysis.
Results: A total of 61 bacterial taxa were identified, with *Firmicutes*, *Bacteroidetes*, and *Proteobacteria* accounting for >95% of total microbiome composition. Alpha diversity did not differ significantly between groups ($p=0.18$), indicating preserved species richness, whereas beta diversity analysis demonstrated a significant compositional shift in SpA ($p<0.001$), suggesting disease-specific microbial restructuring rather than loss of diversity. At genus level, SpA patients exhibited a pro-inflammatory microbiome signature, characterized by increased *Prevotella* spp. (0.21 vs 0.04; $\Delta=+0.17$; 95% CI 0.09-0.25; $p<0.001$; $g=0.89$) and *Collinsella* spp. ($p=0.002$), alongside decreased *Bacteroides* (0.29 vs 0.41; $\Delta= -0.12$; 95% CI -0.20 to -0.04; $p=0.004$; $g= -0.68$). Correlation analysis revealed biologically coherent associations: *Prevotella* correlated with CRP ($\rho=0.41$; $p=0.006$) and ASDAS ($\rho=0.38$; $p=0.01$), while *Collinsella* correlated with ESR ($\rho=0.35$; $p=0.02$). In contrast, *Bacteroides* demonstrated inverse correlations with CRP ($\rho= -0.33$; $p=0.03$), suggesting a potential protective role. Multivariate regression confirmed *Prevotella* as an independent predictor of CRP ($\beta=0.36$; $p=0.008$), explaining 28% of inflammatory variability ($R^2=0.28$), indicating a moderate but clinically relevant contribution of microbiome composition to systemic inflammation.
Conclusions: SpA is associated with a distinct microbiome signature characterized by a shift toward pro-inflammatory taxa. Microbial composition correlates with inflammatory activity and may act as an independent determinant of disease severity. These findings support the role of the gut microbiome as both a biomarker and a potential therapeutic target in SpA.

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P33. Microbiome-based classification of ankylosing spondylitis: a multivariate analysis

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Introduction: Ankylosing spondylitis (AS) is a chronic inflammatory disease strongly associated with genetic and environmental factors, including gut microbiome dysbiosis. Increasing evidence suggests that microbial alterations may contribute to disease onset and progression. This study aimed to characterize gut microbiome patterns in AS and evaluate their association with clinical phenotypes.

Material and methods: A cross-sectional study included 60 subjects (41 AS patients and 19 controls), recruited between 2019-2025. Patients were stratified into axial AS (axAS; n=20) and peripheral AS (pAS; n=21). Gut microbiota was analyzed using targeted PCR-based profiling. Statistical analysis included Mann-Whitney test, χ^2, Kruskal-Wallis, and multivariate analyses. Machine-learning classification (random forest) was applied to identify microbial biomarkers.
Results: A total of 52 bacterial taxa were identified, with *Bacteroidetes*, *Firmicutes*, and *Proteobacteria* accounting for >97% of the microbiome in both groups. Despite similar alpha diversity ($p>0.05$), beta diversity analysis revealed a significant separation between AS and controls (PERMANOVA $p<0.001$), indicating distinct microbial composition. At genus level, AS patients showed a significant reduction in *Bacteroides* (0.33 vs 0.43; Δ= -0.10; p=0.003; g= -0.72) and a marked increase in *Prevotella* (0.168 vs 0.031; Δ=+0.137; p=0.001; g=0.81), suggesting a shift toward a pro-inflammatory microbiome profile. Additional taxa enriched in AS included *Dialister* (0.018 vs 0.001; p=0.004), *Collinsella* (0.015 vs <0.001; p=0.006), and *Comamonas* (0.015 vs <0.001; p=0.008), while beneficial taxa such as *Lachnospira* and *Eubacterium ruminantium* were relatively depleted ($p<0.05$).
Phenotype-specific analysis showed:

- axAS enriched in *Prevotella-2* and *Dialister*
- pAS enriched in *Collinsella*, *Streptococcus*, and *Comamonas*

Multivariate discrimination identified 8 key genera (including *Prevotella*, *Dialister*, *Collinsella*) as microbial signatures of AS. A random forest model demonstrated high classification accuracy (AUC=0.95), sensitivity 91%, and specificity 89% for differentiating AS from controls.
Conclusions: AS is associated with a distinct gut microbiome signature characterized by depletion of *Bacteroides* and enrichment of pro-inflammatory taxa such as *Prevotella* and *Collinsella*. These alterations are phenotype-dependent and demonstrate high diagnostic potential. Microbiome-based models may represent a novel tool for early diagnosis and personalized management in AS.

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P34. The post-COVID renal syndrome: evolution and risk stratification in chronic kidney disease

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Introduction: Coronavirus disease 2019 (COVID-19) is a multisystem disorder with significant renal involvement, particularly in patients with pre-existing chronic kidney disease (CKD). The interaction between CKD and severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) may accelerate renal decline through inflammatory, hemodynamic, and metabolic mechanisms. This study aimed to evaluate the impact of COVID-19 on CKD progression and to identify prognostic determinants of unfavorable renal outcomes.

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Material and methods: A prospective observational cohort study included 280 patients with CKD (stages G1-G5), divided into post-COVID (n=140) and non-COVID controls (n=140). Clinical, biochemical, and inflammatory parameters were assessed, including estimated glomerular filtration rate (eGFR), proteinuria, hemoglobin, C-reactive protein (CRP), erythrocyte sedimentation rate (ESR), phosphate, and metabolic markers. Statistical analysis included Student's t-test, chi-square test, Spearman correlation (ρ), multivariate regression, and receiver operating characteristic (ROC) analysis.
Results: Overall renal function parameters were comparable between groups (eGFR: 56.9±33 vs 64.7±62.8 ml/min/1.73m^2; p=0.19), indicating no uniform post-COVID deterioration. However, subgroup analysis revealed heterogeneous trajectories, with accelerated decline in patients with severe COVID-19 or acute kidney injury (AKI).
Multivariate regression identified three independent predictors of advanced CKD (stages G4-G5):

- proteinuria (odds ratio (OR)=5.0; 95% confidence interval (CI) 2.0-12.5; p<0.001)
- serum phosphate (OR=1.8 per +1 mg/dL; p<0.001)
- hemoglobin (OR=1.4 per -1 g/dL; p=0.005)

Inflammatory markers demonstrated significant associations with systemic complications:

- ESR inversely correlated with hemoglobin (ρ= -0.45; p<0.001) and eGFR (ρ= -0.21; p=0.01)
- CRP correlated with leukocyte count (ρ=0.50; p<0.001) and pain-related symptoms (ρ=0.22; p=0.007)

Patients with severe COVID-19 exhibited a higher prevalence of advanced CKD (45% vs 20%) and greater eGFR decline (>10 ml/min within 6 months).
Quality of life analysis showed significantly reduced vitality in post-COVID patients (44.1±16.9 vs 56.5±19.0; p<0.001), but improved social functioning (59.0±22.0 vs 43.8±25.6; p<0.001), indicating persistent fatigue but preserved psychosocial adaptation.
Conclusions: COVID-19 does not uniformly worsen CKD progression but acts as a disease accelerator in vulnerable subgroups, particularly those with severe infection or AKI. Proteinuria, hyperphosphatemia, and anemia are the strongest prognostic markers, while persistent inflammation contributes to systemic complications. Risk-stratified monitoring and early nephroprotective intervention are essential in post-COVID CKD management.

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P35. Ocular involvement in rheumatoid arthritis: clinical patterns, systemic inflammation and predictive factors

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Introduction: Ocular involvement in rheumatoid arthritis (RA) represents a clinically relevant extra-articular manifestation reflecting systemic inflammatory burden and disease severity. These manifestations range from mild ocular surface dysfunction to severe inflammatory conditions associated with vasculitis and structural ocular damage. Despite its clinical importance, the determinants of ocular involvement remain insufficiently quantified. This study aimed to evaluate the prevalence, clinical spectrum, and predictive factors associated with ocular involvement in RA.

Material and methods: A cross-sectional study included 54 patients diagnosed with RA according to ACR/EULAR 2010 criteria. All patients underwent comprehensive ophthalmologic evaluation, including slit-lamp examination, Schirmer test, and fluorescein staining. Ocular involvement was classified into keratoconjunctivitis sicca, episcleritis, and scleritis. Clinical parameters included disease duration and Disease Activity Score in 28 joints (DAS28). Laboratory markers included C-reactive protein (CRP), rheumatoid factor (RF), and anti-cyclic citrullinated peptide antibodies (ACPA). Statistical analysis included Student's t-test, chi-square test, Spearman correlation (ρ), effect size (Hedges g), and multivariate logistic regression.

Results: Ocular involvement was identified in 35.2% of patients, demonstrating a heterogeneous distribution dominated by keratoconjunctivitis sicca (22.2%), followed by scleritis (9.3%) and peripheral keratitis (3.7%). Patients with ocular involvement exhibited significantly longer disease duration (10.4±4.1 vs 6.2±3.5 years; Δ=4.2 years; 95% confidence interval (CI) 2.1-6.3; p=0.002; g=1.11), suggesting cumulative inflammatory damage. Disease activity was markedly higher in this subgroup (DAS28: 5.4±0.8 vs 4.2±0.9; Δ=1.2; p<0.001; g=1.38), indicating clustering within a high-activity phenotype.

CRP levels were significantly elevated (11.8±5.1 vs 7.2±4.4 mg/L; Δ=4.6; 95% CI 1.6-7.5; p=0.004; g=0.94) and correlated with DAS28 (ρ=0.46; p<0.001) and ocular severity (ρ=0.39; p=0.006). Patients with CRP >10 mg/L had a higher likelihood of ocular involvement (odds ratio (OR)=2.84; 95% CI 1.1-7.2).

Seropositivity (RF/ACPA) was more frequent in patients with ocular involvement (78% vs 52%; OR=3.12; 95% CI 1.2-8.1; p=0.01), suggesting association with a more aggressive immunologic phenotype. Multivariate regression identified DAS28 (β=0.41; p=0.001), CRP (β=0.29; p=0.004), and disease duration (β=0.27; p=0.01) as independent predictors of ocular involvement (model R^2=0.42).

Conclusions: Ocular involvement in RA is strongly associated with systemic inflammation, disease duration, and seropositivity. These findings support its role as a marker of severe disease and justify systematic interdisciplinary screening.

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P36. Ocular surface disease in rheumatoid arthritis: a quantitative and clinico-biological analysis

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Introduction: Ocular surface disease (OSD) is the most frequent ophthalmologic manifestation in rheumatoid arthritis (RA), resulting from immune-mediated dysfunction of lacrimal glands and ocular surface structures. Despite its high prevalence, early identification remains suboptimal due to heterogeneous clinical expression. This study aimed to develop and validate a clinico-biological predictive model for OSD in RA.
Material and methods: A cross-sectional study included 54 patients with RA diagnosed according to ACR/EULAR 2010 criteria. Ocular surface evaluation included Schirmer test, tear break-up time (TBUT), fluorescein staining, and Ocular Surface Disease Index (OSDI). OSD was defined by the presence of at least two abnormal parameters (Schirmer <10 mm/5 min, TBUT <10 sec, OSDI ≥33). Clinical variables included disease duration and Disease Activity Score in 28 joints using C-reactive protein (DAS28-CRP). Biological parameters included C-reactive protein (CRP), rheumatoid factor, and anti-cyclic citrullinated peptide antibodies. Multivariate logistic regression was used to identify independent predictors. A composite predictive score was constructed and validated using receiver operating characteristic (ROC) analysis.
Results: OSD was identified in 61.1% of patients. Patients with OSD had significantly higher disease activity (DAS28: 5.3±0.9 vs 4.1±0.8; Δ=1.2; p<0.001; g=1.34), elevated CRP (12.2±5.4 vs 6.9±4.2 mg/L; Δ=5.3; p=0.003; g=1.08), and longer disease duration (9.8±3.9 vs 6.1±3.4 years; p=0.004; g=1.02). Multivariate analysis identified DAS28 (β=0.41; p=0.002), CRP (β=0.33; p=0.006), and disease duration (β=0.28; p=0.01) as independent predictors (model R^2=0.48). Based on regression coefficients, a composite score (RA-OSD score) was constructed: RA-OSD = 0.5 × DAS28 + 0.3 × CRP (mg/L) + 0.2 × disease duration (years). The model demonstrated excellent discriminative ability (area under the curve (AUC)=0.87; 95% confidence interval 0.78-0.96), with sensitivity 85% and specificity 80% at an optimal cutoff. Calibration analysis showed good agreement between predicted and observed outcomes (Hosmer-Lemeshow p=0.42).
Conclusions: OSD in RA is strongly associated with systemic inflammation and disease chronicity. The proposed RA-OSD score demonstrates high diagnostic accuracy and may represent a practical tool for early identification of high-risk patients. Integration of clinical and biological parameters into predictive models may facilitate personalized screening strategies and improve multidisciplinary management.

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P37. Unmasking early psoriatic arthritis: the role of dactylitis as a key clinical marker

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Introduction: Early diagnosis of psoriatic arthritis (PsA) is challenging due to its heterogeneous clinical presentation and overlap with other inflammatory arthritides. Dactylitis, defined as

diffuse swelling of an entire digit, reflects inflammation of the synovio-entheseal complex and may represent an early diagnostic marker. This study aimed to quantify its diagnostic value and temporal behavior in early PsA.
Material and methods: A cross-sectional analytical study included 709 patients with psoriatic arthritis (mean age 35.96±8.44 years), stratified into early (n=357) and established disease (n=336). Early cases were identified prospectively and retrospectively from a continuous cohort (2002-present). Dactylitis was quantified as the number of affected digits. Statistical analysis included t-test, variance ratio, Spearman correlation with Benjamini-Hochberg adjustment, and ROC analysis using CASPAR criteria as reference.
Results: Dactylitis was significantly higher in early PsA compared to established disease (0.66±1.15 vs 0.48±0.89; mean difference ΔM=0.18; 95% confidence interval [95%CI 0.03-0.33]; p=0.017), although the standardized effect size was small (g=0.17). Importantly, variability was significantly greater in early PsA (VR=1.66; p<0.001), indicating increased heterogeneity. Within the early disease window, the prevalence of dactylitis increased from 23.4% at 0-6 months to 38.9% at 19-24 months (p=0.014), demonstrating a significant temporal trend. Across clinical phenotypes, dactylitis showed distinct behavior: it was higher in early disease in distal interphalangeal (IFD) involvement (ΔM=0.60; p=0.032) and polyarticular forms (ΔM=0.17; p=0.034), whereas in non-radiographic PsA it was higher in established disease (ΔM= -0.97; p=0.0001). In oligoarticular and axial forms, mean differences were not significant, but variance differences persisted (p<0.01). Correlation analysis showed a significant inverse association between dactylitis and Maastricht Ankylosing Spondylitis Enthesitis Score (MASES) (ρ= -0.279; q<0.001), while associations with Leeds Enthesitis Index (LEI), Spondyloarthritis Research Consortium of Canada Enthesitis Index (SPARCC), and disease duration were not significant after adjustment. Receiver operating characteristic analysis showed moderate diagnostic accuracy for dactylitis (area under the curve, AUC=0.68), improving when combined with enthesitis indices (AUC=0.74).
Conclusions: Dactylitis is more frequent, more variable, and progressively increasing in early psoriatic arthritis. Its phenotype-dependent expression and association with enthesitis support its role as an early diagnostic marker. Combined assessment improves diagnostic performance and may facilitate earlier detection.

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P38. From limited to extensive: early articular transformation in psoriatic arthritis

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Introduction: Early psoriatic arthritis (PsA) presents with heterogeneous joint involvement, often delaying diagnosis. Defining early articular patterns and their evolution is essential for improving early detection. This study aimed to characterize and quantify early articular clinical presentations in PsA.

Material and methods: A cross-sectional study included 709 PsA patients (mean age 35.96±8.44 years), stratified into early PsA (≤24 months; n=357) and established PsA (>24 months; n=352). Early cases were identified both prospectively and retrospectively from a continuous cohort (2002–present). Clinical assessment included tender joint count (TJC), swollen joint count (SJC), pain (visual analog scale – VAS), and phenotypic classification. Statistical analysis included t-test, χ^2 test, effect size (Hedges g), and temporal trend analysis. Results: Early PsA was predominantly oligoarticular and asymmetric, but showed a rapid transition toward polyarticular disease. Oligoarthritis was most frequent in the first 6 months (38.3%), while polyarthritis was rare (2.1%); however, by 24 months, polyarthritis increased to 52.2% ($p<0.001$), indicating significant expansion of joint involvement. Pain was already substantial at disease onset (TJC 12.14±1.43; VAS 6.16±1.38) and did not differ from established PsA ($p>0.4$), suggesting that symptom burden appears early, independent of disease duration. In contrast, SJC was significantly higher in early PsA (7.35±3.81 vs 5.23±2.62; $\Delta M=2.12$; $p=0.0001$; $g=0.64$), indicating that objective inflammatory activity is prominent from early stages. A distinct topographic progression of joint involvement was observed. Early disease predominantly affected lower limb joints (metatarsophalangeal: 42.6%), whereas hand involvement increased over time. Metacarpophalangeal involvement rose from 10.6% to 52.8% ($p<0.001$), proximal interphalangeal from 25.5% to 51.7% ($p=0.0019$), and distal interphalangeal joints from 17.0% to 38.3% ($p=0.003$). Phenotypically, early PsA showed higher frequencies of oligoarticular (19.0% vs 16.5%; $p=0.022$) and non-radiographic forms (16.5% vs 5.1%; $p=0.0047$), while polyarticular disease predominated in later stages.
Conclusions: Early PsA is characterized by an asymmetric oligoarticular onset with high early pain and inflammatory burden, followed by rapid progression toward polyarticular involvement and increased small joint participation. Recognition of this temporal and topographic evolution is essential for early diagnosis.

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P39. Model project for a national invasive cardiology registry

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Objectives: To develop a scientifically grounded conceptual framework and methodological toolkit for the establishment of a National Invasive Cardiology Registry for monitoring, evaluating, and improving the treatment of cardiovascular diseases in Bulgaria.
Materials and Methods: Based on an analysis of best European practices, the existing regulatory framework, and the results of a survey conducted among four key stakeholder groups—clinical specialists, healthcare managers, industry representatives, and patients—core requirements and practical recommendations for the development of the registry are formulated.

Results: Conceptual framework: The present model proposes a conceptual and functional framework for the establishment of a National Invasive Cardiology Registry in Bulgaria, based on the principles of clinical applicability, institutional sustainability, and integration with other electronic health systems. The project is built on modular architecture and is grounded in a multidisciplinary approach, reflecting the needs of the stakeholders: clinical specialists, hospital managers, the medical industry, and patients. Principles for building the registry: Professional self-regulation; Flexible architecture; Scope of the registry (clinical pathways No. 17, 20, 25, 26, and 28); Minimal administrative burden; Security and interoperability; Accessibility; Configurability; Financial sustainability.
Conclusion: The proposed model for a National Invasive Cardiology Registry defines the main requirements for its development and implementation. It combines conceptual clarity, empirical grounding, and alignment with international best practices, while being adapted to the specific conditions of the Bulgarian healthcare system. The novelty of the development lies in the fact that, for the first time in Bulgaria, a model of a clinical registry is proposed based on a multidisciplinary and empirically grounded approach that integrates professional, institutional, and industrial perspectives.

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P40. Duodenal diverticulum - innocent bystander or piece of a polymorphic puzzle - series of clinical cases

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Introduction: Duodenal diverticula are usually an incidental finding. Their clinical relevance appears when associated with biliopancreatic pathology or when they complicate imaging interpretation. Their impact must be established individually, by correlating clinical, biological and imaging data. Case 1: A 78-year-old patient with multiple comorbidities presented to the emergency room in a post-traumatic accidental context. Biologically, severe normocytic normochromic anemia and moderate inflammatory syndrome were revealed. Upper digestive endoscopy revealed antral gastric ulcer and a bleeding infiltrative duodenal mass. Computed tomography examination revealed possible duodenal diverticulum and pancreatic pseudocyst. Abdominal magnetic resonance imaging showed the presence of potentially malignant mural nodules in the wall of the pancreatic pseudocyst, and the patient was scheduled for endoscopy with biopsy. Case 2: A 50-year-old patient presented with pain in the right hypochondrium. Clinically, severe hypochromic microcytic anemia, severe thrombocytosis were revealed, and imaging revealed lithiasis cholecystopathy and a collection with interduodeno-biliary air

inclusions. The most likely mechanism of the collection was a duodenal bilio-diverticular fistula, and the patient was referred to the surgical department. Case 3: An 89-year-old patient with a history of chronic cholangitis and a recent episode of enterocolitis presented with dehydration syndrome with severe dyselectrolytemia. Ultrasound and magnetic resonance cholangiopancreatography showed biliary dilatation without obstructive lithiasis and decalibration of the distal segment of the common bile duct in the vicinity of a duodenal diverticulum, with a probable compressive effect on the distal common bile duct. In the absence of complete acute biliary obstruction, monitoring was chosen, without indication for ERCP.
Conclusions: The 3 cases illustrate different clinical expressions of bilio-pancreatic pathology, in which the common element is the presence of duodenal diverticulum. In this context, the duodenal diverticulum becomes an indirect indicator of a more complex pathology with important therapeutic implications.

P41. Impact of cancer-related pain on quality of life in advanced cervical cancer: a one-year single-center study

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Introduction: Cancer-related pain represents a complex, multidimensional challenge in oncology that undermines quality of life, psychological well-being, and treatment adherence. This study aimed to evaluate the prevalence and characteristics of pain in patients with inoperable cervical cancer and to assess its impact on quality of life (QoL) parameters.
Material and methods: A total of 102 patients with histopathologically confirmed inoperable cervical cancer were included in this one-year study at the Clinic for Oncology, Clinical Center Nis. Pain intensity was assessed using the Numeric Rating Scale (NRS). Quality of life was evaluated across five domains: appetite, sleep, mood, social interaction, and general activity. Each domain was scored from 0 to 10, with a cumulative score (0–50) representing overall QoL impairment. Assessments were conducted before oncological treatment and three months after the therapy.
Results: Before treatment, patients with severe or extreme pain showed significantly greater impairment across all QoL domains compared to those with mild ($p < 0.001$) or moderate pain ($p < 0.01$). After the therapy, QoL impairment remained highest in patients reporting the most severe pain (48.57 ± 1.81), compared with those with mild (4.50 ± 10.79; $p < 0.001$), moderate (15.56 ± 17.34; $p < 0.001$), and severe pain (17.61 ± 21.88; $p < 0.01$).
Conclusion: Cancer-related pain has a profound negative impact on multiple aspects of quality of life, including physical, emotional, and social functioning. This effect persists even after treatment, underscoring the importance of timely and effective pain management strategies to improve patient outcomes and functional status.

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P42. Disseminated cryptococcosis with cerebral and pulmonary determination in patients with hiv infection: case report

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Introduction: Cryptococcosis (caused by Cryptococcus neoformans) remains one of the most important opportunistic fungal infections in HIV-infected individuals with advanced immunosuppression, responsible for meningoencephalic involvement and disseminated forms. Clinical manifestations are frequently nonspecific, requiring confirmation by laboratory methods: determination of cryptococcal antigen (CrAg) in cerebrospinal fluid (CSF), a method with high sensitivity and specificity. In this context, the presentation of a case of disseminated cryptococcosis with cerebral and pulmonary involvement in an HIV-infected patient is relevant for the diagnostic complexity, the need to correlate clinical and laboratory data and the importance of early treatment to improve prognosis.
Material and methods: A clinical case is presented, based on clinical and laboratory data of a patient hospitalized in the Infectious Diseases Clinic. The data included: history, clinical examination, laboratory and imaging investigations, as well as the evolution under treatment. The diagnosis of cryptococcosis was established by correlating the clinical signes with the results of microbiological investigations, in particular the detection of cryptococcal antigen (CrAg) in cerebrospinal fluid (CSF) and blood and pulmonary computed tomography (CT).
Results: A 53-year-old female patient presented with severe headache, insomnia, vertigo, nausea, vomiting, photophobia, loss of appetite, pain on swallowing, abdominal pain, rare cough, with insidious onset during the last 30 days, weight loss - 8 kg for 2 months. Laboratory investigations: viremia - HIV RNA: 3,200,000 copies/ml and CD4: 78 cells/µL. Screening for opportunistic infections was performed: as a result of which esophageal candidiasis was detected (fibrogastroduodenoscopy), including the determination of serum cryptococcal antigen (CrAg), with a titer of 1:10240. Lumbar puncture revealed a clear CSF, 16-cell cytosis with a predominance of lymphocytes, in which CrAg was detected - 1:20480, pulmonary CT - diffuse bilateral changes. Treatment with amphotericin B and fluconazole was effective with a decrease of clinical signs and decrease of the CrAg titer with a titer of 1:2560 after 2 weeks of treatment. The patient was discharged in satisfactory condition with indications for continued treatment.
Conclusions: Cryptococcal meningoencephalitis is a condition with high mortality. Early confirmation of the diagnosis and initiation of intensive etiotropic treatment determine the patient's prognosis. Determination of cryptococcal antigen in CSF is an essential method for rapid confirmation of the etiological diagnosis, facilitating prompt initiation of antifungal therapy. The management of patients with HIV and suspected cryptococcosis requires an

integrated clinical-paraclinical approach, with an emphasis on early diagnosis and adequate treatment.

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P43. Acupressure in the prevention of ocular fatigue (asthenopia)

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Introduction: Ocular fatigue, or asthenopia, has become a significant public health concern amid accelerating digitalization. Between 50% and 90% of daily screen users report associated symptoms — blurred vision, burning sensation, dry eyes, and headache — affecting academic performance and professional efficiency. Non-pharmacological and complementary interventions, including acupressure, are increasingly explored as safe, non-invasive strategies for prevention. Acupressure, derived from Traditional Chinese Medicine (TCM), stimulates specific periocular acupoints to modulate neurovascular and autonomic responses. Despite growing interest, its systematic evidence base for digital eye fatigue remains limited in the Moldovan context.

Material and methods: A systematic narrative review of the scientific literature was conducted using PubMed, ScienceDirect, SpringerLink, BioMed Central, and PMC databases (2010–2025). Search terms included: "asthenopia", "acupressure", "acupuncture", "ocular fatigue", "digital eye strain", "VDT users", "Chinese eye exercises", and "TBUT". Inclusion criteria: randomized controlled trials (RCTs), meta-analyses, and observational studies evaluating periocular or auricular acupressure in adults or adolescents with screen-related ocular fatigue, reporting validated subjective (Ocular Surface Disease Index – OSDI, Visual Analog Scale) or objective outcomes (Tear Break-Up Time – TBUT, Schirmer test). Studies lacking peer-review or control groups were excluded. Quality assessment followed PRISMA and CONSORT guidelines.

Results: Eight primary periocular acupoints were identified for asthenopia management: Jingming (UB-1), Zanzhu (UB-2), Yuyao (EX-HN4), Sizhukong (TE23), Tongziliao (VB1), Taiyang (EX-HN5), Chengqi (ST-1), and Hegu (LI-4). Acupressure acts through three main mechanisms: neuromuscular (relaxation of extraocular muscles, reduction of accommodative spasm), vascular (increased periocular microcirculation), and autonomic (restoration of sympatho-parasympathetic balance, stimulation of lacrimal secretion). The majority of reviewed RCTs reported statistically significant improvements in subjective symptom scores after periocular acupressure versus sham or control. Some meta-analyses indicated modest improvements in TBUT and Schirmer test values, particularly for auricular acupressure and acupuncture at the Jingming point. Asian countries (China, Japan, South Korea) demonstrated

that simple daily periocular stimulation exercises integrated into school programs reduced asthenopia prevalence and slowed myopia progression. However, evidence quality was moderate, with heterogeneous protocols, small sample sizes, blinding difficulties, and limited multicentric replication. Based on evidence-based medicine (EBM) criteria, acupressure carries a Level C conditional recommendation as an adjunctive intervention.
Conclusions: Acupressure is a safe, non-invasive, and accessible complementary method with demonstrated adjunctive potential in preventing digital asthenopia. It is most appropriate as a supplement to conventional strategies (20-20-20 rule, optical correction, artificial tears) rather than a replacement. Integration into school and occupational health programs in the Republic of Moldova is recommended, alongside standardized clinical protocols, ophthalmological screening, and further locally-adapted randomized controlled trials to validate its effectiveness in the national context.

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P44. Basis for humans and pets health care systems integration

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Introduction: The health of people, animals, and their environments are undeniable interconnected. Humans and animals share exposures to biological, chemical, physical and psychosocial etiologic factors in the environment. The One Health is an approach that aims to integrate and optimize the health of humans, animals, plants and ecosystems.
Material and methods: A detailed literature research, covering The One Health concept was conducted using PubMed, Google Scholar and MDPI without language limitation Results: TGM (technology-driven, global market) Research agency reported as of 2024–2025, approximately 66% to 71% of U.S. households and approximately 59.9% to 67% of households in Serbia have pets. During the 2020 due to COVID-19 pandemia throughout periods of lockdown 27% of pet owners acquired new pets. Supporters of the One Health initiative advocate the establishment of One Health clinics. Their position is based on the following facts:
1. Pets often live with their owners in houses or apartments and are perceived and treated as

integral members of the family and are therefore humanized; 2. Zoonoses are infectious diseases transmitted from animals to humans, while anthroponoses are infectious diseases transmitted from humans to animals; 3. Comparative analyses show that there is a clear similarity in the gut microbiota and diseases of humans, dogs and cats, as well as in the pharmacological agents used to treat these diseases; Moreover, several disease phenotypes are shared between humans and pets and are associated with changes in the composition of the gut microbiota, including enteropathies, inflammatory bowel disease, acute diarrhea, as well as cardiovascular diseases, hyperlipidemia, hypertension and type II diabetes mellitus. Opponents argue that establishing clinics based on the "One Health" principle, where people and animals would be treated in adjacent departments, is not a good idea. First, both human and veterinary healthcare clinics require specific facilities and healthcare workers with different profiles and specializations. Also, in addition to dozens of common pet species, some people also keep exotic animal species as pets. Finally, such clinics would be economically very expensive.
Conclusion: The One Health initiative is of great importance. Hygiene and epidemiology, as complementary pillars of public health, should coordinate and interconnect medical and veterinary experts, as well as conduct continuous campaigns through the media to inform people about diseases transmitted between humans and animals.
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P45. Serum Zonulin - marker of intestinal permeability and association with developmental domains in children 0-3 years old

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Introduction: The integrity of the intestinal epithelium represents a central element of the microbiota–gut–brain axis. Zonulin - a family of structurally and functionally related proteins, are the only known physiological mediators for the reversible regulation of intestinal

permeability, identified to date. Thus, zonulin can initiate neuroimmune cascades capable of influencing neurodevelopmental processes, suggesting its role as a pathogenic biomarker in the occurrence of developmental disorders.
Material and methods: An observational study was conducted within primary health care. The analysis of nutritional status was performed based on body mass index (bmi), and the assessment of children's development was performed according to the guidelines for monitoring child development (gmdc). Serum zonulin concentrations were determined from peripheral venous blood. Data analysis was performed using the mo excel 365 program. Results: The study group included 17 children, of whom 7 boys (41.2%) and 10 girls (58.8%), born at term, coming from an urban area, with a mean age of 18.3±9.20 months (95% ci: 7; 36). In terms of nutritional status, the majority were normal weight (70.6%), and excess weight was present in 23.5% of the children. The mean bmi value was 15.80±2.39 kg/m2 (95% ci: 13.28; 21.82). The neurological evaluation of the children's development noted developmental disorders in the following areas: expressive language 35.3% and receptive language 11.8%, interaction 29.4% and play 17.6%. Regarding serum zonulin levels, most children presented values within the normal range, but 3 children had values at the upper limit, with the median value in the studied group of 7.1 ng/ml (iqr: 5.6; 11.1).
Conclusions: Overall, the data obtained do not support a direct association between serum zonulin and neurodevelopmental disorders, but a positive association trend was observed between serum zonulin value and bmi, but without statistical significance in the analyzed sample ($r = 0.28$; $p = 0.27$), thus the observations obtained indicate the need to include a larger number of participants, in order to increase statistical relevance and validate the identified relationships.

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P46. Impact of selenosemicarbazone-based compounds on the intensity of oxidative/nitrosative stress and antioxidant system in healthy animals

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Introduction: The development of new potential therapeutics remains a key priority in biomedical research. Selenosemicarbazones and their complexes with metal ions have attracted

considerable interest due to previously demonstrated antimicrobial, antifungal, and anticancer properties.
Materials and methods: A preclinical evaluation was performed on healthy laboratory animals (female Wistar rats) to assess the effects of 4-alylselenosemicarbazone of 2-formylpyridine (HL) (MIR-01) and its Cu(II) complex, $\{Cu(L)\}_2Cu(edta)\cdot 6H_2O$ (MIR-02) ($edta^{4-}$ =ethylenediamine-tetraacetate), on redox homeostasis. Markers of oxidative stress (reactive oxygen metabolites – ROM; NO metabolites), oxidative damage to biomolecules (advanced oxidation protein products – AOPP; malondialdehyde – MDA), and the antioxidant system (total antioxidant activity – TAA) were investigated. Statistical analysis was conducted using one-way ANOVA with Bonferroni post hoc test; significance was set at $p<0.05$ (SPSS v23, SPSS Inc., USA). Results. MIR-01 reduced ROM levels (−14%), whereas MIR-02 increased them (+24%, $p<0.02$). NO metabolites were elevated by both compounds (+22%, $p<0.05$ and +13%, respectively). Both compounds induced oxidative damage, with MIR-01 increasing AOPP by 70% ($p<0.05$) and MDA by 28%, and MIR-02 increasing AOPP by 148% ($p<0.05$) and MDA by 16% ($p<0.05$). Minimal effects were observed on total antioxidant activity and catalase (within ±3% vs. control).
Conclusions: Selenosemicarbazone-based compounds MIR-01 and MIR-02 exert differential effects on redox homeostasis, demonstrating both modulatory and pro-oxidant properties. MIR-01 slightly reduced reactive oxygen species, whereas MIR-02 increased them; both enhanced nitrosative stress and subsequent protein and lipid oxidation. The limited impact on the antioxidant system suggests a redox imbalance, relevant for their pharmacological profiling and safety assessment.

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P47. Age- and sex-related differences in sella turcica dimensions on skull radiography

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The sella turcica is an important anatomical structure of the sphenoid bone that accommodates the pituitary gland. Variations in its dimensions may be influenced by age and sex, and correct recognition of physiological changes is essential to avoid misinterpretation of radiographic findings as pathological conditions. The aim of this study was to analyze sella turcica dimensions in an elderly population and to compare these results with those of a younger control group, with particular emphasis on sex-related differences.
The study included 64 patients older than 80 years (32 males and 32 females) who underwent standard lateral skull radiography. The control group consisted of individuals up to 24 years of age, of both sexes, without known endocrine or neurological disorders. Measurements were

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performed on lateral radiographs using standard radiological landmarks. The anteroposterior (AP) diameter was defined as the distance between the tuberculum sellae and the dorsum sellae, while the vertical depth was measured from the deepest point of the sella floor to the line connecting the tuberculum and dorsum sellae. Statistical analysis included descriptive statistics (mean ± standard deviation). Comparisons between age groups and sexes were performed using the Student's t-test, with statistical significance set at $p < 0.05$.

The results showed significantly larger sella turcica dimensions in patients older than 80 years compared with the younger control group. In the elderly population, the mean AP diameter was 14.1 \pm 1.5\ \text{mm} and the mean vertical depth was 10.0 \pm 1.2\ \text{mm}, whereas in the control group these values were 11.9 \pm 1.3\ \text{mm} and 8.5 \pm 1.1\ \text{mm}, respectively. Sex-based analysis revealed that elderly males had significantly larger AP dimensions than females ($p = 0.02$), while differences in vertical depth were not statistically significant. No significant sex-related differences were observed in the younger control group. In all subjects, the contours of the sella turcica were smooth and well preserved, without evidence of bone erosion or destruction. In conclusion, sella turcica dimensions increase with age, and moderate sex-related differences are present, particularly in the elderly population. Knowledge of age- and sex-specific radiographic values of the sella turcica is clinically important for accurate interpretation of skull radiographs and for avoiding unnecessary suspicion of pituitary pathology in elderly patients.

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P48. Antidepressant therapy during pregnancy: medication adherence and the role of pharmacists

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Introduction: Antenatal depression is a common condition associated with negative outcomes for both the mother and the infant. Despite the therapeutic role of antidepressants, pregnant women struggle to maintain consistent medication use. Our study aims to synthesize existing evidence on the level of medication adherence to antidepressant therapy during pregnancy and to evaluate the potential role of pharmacists in maternal mental health.
Material and methods: A narrative review was conducted using the “PubMed”, “Scopus”, and “Web of Science” databases. Studies published in English between 2010 and 2026 were searched using predefined keywords. Eligible studies included randomized controlled trials, cohort studies, and cross-sectional designs examining antidepressant adherence during pregnancy and the pharmacist’s role in perinatal mental health. All retrieved publications were synthesized using descriptive analysis.
Results: A total of 16 studies met the inclusion criteria. Fourteen studies assessed antidepressant adherence during pregnancy, consistently showing declining adherence, substantial medication discontinuation, and irregular intake patterns across pregnancy. Across studies, concerns about fetal safety and potential adverse effects were the leading factors contributing to antidepressant discontinuation and non-adherence during pregnancy. Maternal age, BMI, and physical comorbidities showed little association with adherence, whereas a history of more severe depression or longer pre-pregnancy treatment duration was linked to higher medication persistence. Two studies examined the potential role of pharmacists in supporting maternal mental health, identifying opportunities for enhanced counselling, screening, and treatment support, although the effectiveness of pharmacist-led interventions in this population is still unclear. Furthermore, evidence indicates that pharmacists’ involvement is constrained by limited mental health training and unclear referral mechanisms.
Conclusions: Medication adherence to antidepressants in pregnancy remains low worldwide. Although trials in pregnant populations are limited, strong evidence from general depression care shows pharmacist-led interventions improve adherence. Integrating pharmacist-led medication support alongside routine mental health screening could enhance continuity of care for pregnant individuals with depression or at elevated risk.

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P49. Surgical biopsy under general anaesthesia for complex acute breast abscesses in a middle-income country setting: diagnostic yield, clinical outcomes, and cost-effectiveness

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Background: Complex acute breast abscesses often mimic inflammatory breast cancer and idiopathic granulomatous mastitis (IGM), particularly in low- and middle-income countries (LMICs) where IGM prevalence is high.
Methods: Retrospective cohort study of 247 adult women who underwent emergency surgical biopsy under general anaesthesia for complex breast abscesses unsuitable for percutaneous or conservative management at tertiary-level breast centres in Turkey between January 2020 and July 2025.
Results: Histopathology revealed breast cancer in 29 patients (11.7%, 95% CI 8.1–16.7%), IGM in 80 (32.4%), and benign conditions in 138 (55.9%). Patients with breast cancer were significantly older and more likely to have a family history; IGM was associated with recent pregnancy/breastfeeding. Total procedural costs were US$6,100–$21,700 in public tertiary centres and US$103,700–$229,700 in private centres. Early accurate diagnosis yielded estimated savings of S$12,000–$48,000 for IGM patients and US$3,000–$12,000 annually for breast cancer patients.
Conclusion: Surgical biopsy under general anaesthesia is diagnostically accurate and highly cost-effective in complex breast abscesses in middle-income settings, supporting its routine use where IGM prevalence is elevated.

P50. Helicobacter pylori infection in patients with gastric precancerous lesions: gastropanel, endoscopic and histological evaluation

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Introduction: Helicobacter pylori (*H. pylori*) infection is one of the main risk factors for the development of gastric precancerous lesions and gastric cancer. Early identification of gastric

mucosal changes through serological biomarkers, endoscopic evaluation, and histological confirmation is essential for the diagnosis and prevention of malignant transformation. The aim of the study was to evaluate the relationship between *H. pylori* infection and gastric precancerous lesions using GastroPanel testing, endoscopic examination and histological analysis.
Material and methods: The prospective study included 72 patients with dyspeptic symptoms who underwent endoscopic investigations between January and December 2025. All patients were evaluated using the GastroPanel test, including the determination of pepsinogen I, pepsinogen II, gastrin-17, and anti-H. pylori immunoglobulin G antibodies. Endoscopic examination assessed the presence of atrophic gastritis, intestinal metaplasia, erosive lesions, and gastric mucosal atrophy. Gastric biopsy samples were collected according to the Sydney protocol and histologically analyzed for the identification of *H. pylori* infection, chronic inflammation, glandular atrophy, and intestinal metaplasia.
Results: *H. pylori* infection was identified in 58 patients (80.6%). Endoscopic examination revealed atrophic gastritis in 41.7% of cases and intestinal metaplasia in 25.0% of cases. Histological analysis confirmed chronic active gastritis in 76.4% of patients, glandular atrophy in 34.7%, and intestinal metaplasia in 23.6%. Patients positive for *H. pylori* showed significantly lower levels of pepsinogen I and a lower pepsinogen I/II ratio compared to noninfected patients ($p<0.05$). GastroPanel biomarkers correlated with the severity of histological and inflammatory gastric mucosal changes.
Conclusions: *H. pylori* infection is strongly associated with the development of gastric precancerous lesions. Combined assessment using GastroPanel, endoscopic examination and histological analysis facilitates the detection of gastric mucosal alterations and may contribute to the development of early gastric cancer prevention strategies.

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P51. Assessment of systolic dysfunction by speckle-tracking echocardiography in frail patients with heart failure with preserved ejection fraction

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Introduction: Heart failure with preserved ejection fraction accounts over 50% of all heart failure cases and is increasingly investigated using myocardial deformation imaging techniques. Global longitudinal strain has emerged as a sensitive marker of subclinical myocardial dysfunction, enabling early detection of impaired longitudinal function. Speckle-tracking echocardiography allows quantitative assessment of myocardial deformation and provides a more accurate evaluation of systolic function compared with left ventricular ejection fraction [5][6]. The aim of the study was to evaluate strain-derived parameters in frail patients with heart failure with preserved ejection fraction and to assess their prognostic significance.

Materials and Methods: We conducted a prospective, observational, cross-sectional study on a cohort of 36 hospitalized patients with heart failure with preserved ejection fraction. Evaluation included assessment of left ventricular ejection fraction by conventional echocardiography using the biplane Simpson method, alongside myocardial deformation analysis using speckle-tracking echocardiography, with determination of global longitudinal strain and strain-derived ejection fraction. Global longitudinal strain values were interpreted according to current clinical thresholds, considered normal at ≤ −18%, while values > −18% were considered suggestive of impaired longitudinal systolic function. Frailty was assessed using the Edmonton Frail Scale, and patients were stratified into two groups: G1 - frail and G2 - non-frail. Comorbidity burden was evaluated using the Charlson Comorbidity Index. N-terminal pro-brain natriuretic peptide levels were also assessed. Statistical analysis included descriptive methods and correlation analysis, with a significance threshold set at $p < 0.05$. Results: The cohort included 36 patients with heart failure with preserved ejection fraction, predominantly female (72.2%), a mean age of 68.3 ± 8.3 years (median 68; interquartile range 63-74). Frail patients accounted for 63.9%. A significant discordance between left ventricular ejection fraction and strain-derived parameters was observed, with systolic dysfunction identified in 52.8% of patients based on impaired global longitudinal strain despite preserved ejection fraction, more frequently in G1 (56.5% vs. 46.2%). Reduced strain-derived ejection fraction was also more common in frail individuals (56.5% vs. 38.4%; odds ratio 2.09). Global longitudinal strain ranged from −20.5% to −12.4%, with values > −16% frequent in G1 (39.1% vs. 15.3%). Median global longitudinal strain values were less negative in frail patients (−17.0% vs. −18.8%), indicating pronounced longitudinal dysfunction. Concomitant impairment of strain parameters was predominantly in frail patients (39.1% vs. 15.3%), associated with higher hospitalization rates (≥2/year; 60.9% vs. 30.8%). Elevated levels of N-terminal pro-brain natriuretic peptide and a higher prevalence of diabetes mellitus (39.1% vs. 23.1%; odds ratio 2.13) further characterized the frail group, while a high comorbidity burden was comparable between groups (46.1% vs. 43.4%).

Conclusions: Frail patients exhibited more pronounced myocardial dysfunction compared with non-frail individuals, as reflected by altered strain parameters despite preserved ejection fraction. These alterations were associated with a more severe clinical profile, including frequent hospitalizations and increased N-terminal pro-brain natriuretic peptide levels. Speckle-tracking echocardiography demonstrates superior sensitivity for detecting myocardial dysfunction and provides incremental value for risk stratification in frail patients with heart failure with preserved ejection fraction.

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P52. Antioxidant activity of *verbascum niveum* leaf – two methods

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Introduction: Extracts from *Verbascum* species exhibit a wide range of biological activities, including anti-inflammatory, antimicrobial, antiseptic, sedative and immunomodulatory effects. Numerous studies in the literature report the chemical composition and biological effects of some of these species. However, certain species remain insufficiently studied. One such species is *Verbascum niveum* Ten. Our study aimed to determine the antioxidant activity of leaf extracts from this plant species.
Material and methods: The leaves were dried at room temperature, in a dark place with constant airflow. Three different solvents (50% ethanol, distilled water, and 80% propylene glycol) were used to prepare extracts by percolation (VNE – *V. niveum* ethanol extract; VNH – *V. niveum* aqueous extract; VNP – *V. niveum* propylene glycol extract) according to the European Pharmacopoeia 10.0 (2019). Antioxidant activity was assessed using two methods: the β-carotene bleaching test (BCBT) and the ferric reducing antioxidant power (FRAP) assay.
Results: There is no universal method that can accurately and qualitatively measure exact antioxidant capacity, as different types of free radicals and various mechanisms are involved in antioxidant activity. In this study, two *in vitro* methods were used to measure antioxidant capacity: BCBT and FRAP. The best results were obtained with the ethanol extract (IC_{50}=431.98 ± 9.33 μg/ml in BCBT and 900.81 ± 48.75 μmol Fe2+/g of extract in FRAP), while the propylene glycol extract showed the weakest activity.
Conclusion: All tested extracts showed antioxidant activity, with the ethanol extract demonstrating the strongest activity in both tests. However, further tests are required to draw a definite conclusion.
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P53. Large language model recommendations for empiric antibiotics versus clinician prescribing: a non-interventional paired retrospective antimicrobial stewardship analysis

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Introduction: In the context of increasing antimicrobial resistance, a major global health threat, optimizing empirical antibiotic therapy has become a major priority in clinical practice. Antimicrobial stewardship aims to promote the judicious use of antibiotics, particularly by reducing unnecessary exposure to broad-spectrum agents without compromising early treatment of severe infections. Large language models such as ChatGPT are being explored as clinical decision support tools; however, their performance requires rigorous evaluation prior to implementation.
Material and methods: We conducted a retrospective, single-center, non-interventional paired study in the Department of Internal Medicine, Emergency Clinical Hospital Bucharest, between 2020 and 2024. A total of 493 eligible hospitalizations were included. For each case, the empirical antibiotic regimen initiated by the clinician within the first 24 hours was compared with a recommendation subsequently generated by ChatGPT, without influencing patient care. Concordance with antimicrobial stewardship criteria was assessed. Results. ChatGPT-recommended regimens showed fewer deviations from stewardship criteria compared to clinician-prescribed regimens (4.9% vs. 17.0%). In discordant pairs, ChatGPT recommendations were more frequently aligned with stewardship criteria. The use of broad-spectrum antibiotics was lower in the ChatGPT group (39.6% vs. 58.6%). Additionally, the median cost of empirical antibiotic therapy at 24 hours was reduced for ChatGPT-generated recommendations. Conclusions: In this retrospective non-interventional analysis, ChatGPT-generated recommendations were more frequently aligned with antimicrobial stewardship principles than initial clinician prescribing. These findings support the potential role of such systems as clinical decision support tools and justify further prospective evaluations under appropriate clinical supervision and safety frameworks.

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P54. Physical rehabilitation for older patients hospitalized for heart attack

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Introduction: Older patients hospitalized for acute myocardial infarction (AMI) frequently experience reduced physical function, increased frailty, and prolonged recovery periods. These impairments are associated with diminished quality of life, higher risk of complications, and increased rates of rehospitalization and mortality. Despite advances in acute cardiac care, structured rehabilitation strategies initiated early during hospitalization remain underutilized in this population. This study aimed to evaluate the effects of an early, individualized physical rehabilitation program on functional recovery and clinical outcomes in elderly patients following AMI.
Material and methods: We conducted a prospective, randomized controlled trial including 320 patients aged 65 years or older who were hospitalized for AMI. Participants were randomly assigned to either a structured rehabilitation group (n=160) or a standard care group (n=160). The intervention consisted of a tailored, progressive rehabilitation program targeting four domains: muscle strength, balance, mobility, and aerobic endurance. The program was initiated during hospitalization and continued after discharge through 30 supervised outpatient sessions over 12 weeks. Functional capacity was assessed using the Short Physical Performance Battery (SPPB), while secondary outcomes included rehospitalization rates and health-related quality of life at 3 and 6 months.
Results: At baseline, both groups demonstrated significantly reduced physical function, with over 90% of participants classified as frail or prefrail. The mean SPPB score at 3 months was significantly higher in the rehabilitation group compared to the control group (8.1±0.3 vs. 6.7±0.3; mean difference 1.4; 95% CI, 0.8–1.9; $p<0.001$). Patients in the intervention group also showed greater improvements in mobility and endurance measures. Adherence to the rehabilitation protocol was 70%, and retention rate was 85%. At 6 months, the rehospitalization rate was lower in the rehabilitation group (1.12 vs. 1.27 events per patient), although this difference did not reach statistical significance. Mortality rates were similar between groups.
Conclusions: Early, structured, and individualized physical rehabilitation initiated during hospitalization for AMI significantly improves physical function in older patients. While the

impact on rehospitalization and mortality requires further investigation, these findings support the integration of multidomain rehabilitation programs into standard post-AMI care for elderly patients to enhance recovery and functional independence.

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P55. Assessing cataracts as a potential indicator of increased osteoporosis risk

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Introduction: Cataracts and osteoporosis are highly prevalent age-related conditions that significantly affect morbidity and quality of life in older populations. Emerging evidence suggests that common pathophysiological mechanisms, including oxidative stress, calcium metabolism disorders, and hormonal changes, may contribute to the development of both

conditions. Identifying easily detectable clinical markers, such as cataracts, could aid in early recognition of individuals at increased risk of osteoporosis. This study aimed to evaluate whether the presence of cataracts may serve as a potential indicator of reduced bone mineral density and increased osteoporosis risk.
Material and Methods: This prospective observational study included 280 patients aged 60 years and older treated at the Health Center Prokuplje between April 2025 and April 2026. Participants were divided into two groups: patients diagnosed with age-related cataracts (n=140) and a control group without cataracts (n=140). Cataract diagnosis was confirmed by ophthalmological examination. Bone mineral density (BMD) was assessed using dual-energy X-ray absorptiometry (DXA) at the lumbar spine and femoral neck. Additional data collected included demographic characteristics, comorbidities, body mass index, and laboratory parameters related to calcium and vitamin D metabolism. Osteoporosis was defined according to World Health Organization criteria (T-score ≤ -2.5). Statistical analysis was performed to evaluate the association between cataracts and osteoporosis risk.
Results: Patients with cataracts demonstrated significantly lower mean BMD values compared to controls at both lumbar spine and femoral neck sites ($p<0.01$). The prevalence of osteoporosis was higher in the cataract group (38%) compared to the control group (24%) ($p=0.02$). Multivariate regression analysis, adjusted for age, sex, and comorbidities, showed that the presence of cataracts was independently associated with increased odds of osteoporosis (OR 1.8; 95% CI, 1.1–2.9). Additionally, lower serum vitamin D levels were more frequently observed in patients with cataracts. No significant differences in calcium levels were found between groups.
Conclusions: The presence of age-related cataracts may be associated with decreased bone mineral density and a higher risk of osteoporosis in older adults. Cataracts could potentially serve as a simple clinical indicator for identifying individuals who may benefit from early osteoporosis screening. Further large-scale studies are needed to confirm these findings and clarify underlying mechanisms.

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P56. The biochemical impact of natural compounds on bone metastasis: modulating the pathological feedback loop

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Introduction: Bone metastasis is a devastating complication affecting over 70% of metastatic breast cancer patients, leading to severe skeletal-related events. This progression is driven by the biochemical disruption of bone homeostasis through abnormal osteoclast and osteoblast interactions. Because current bone-modifying agents often trigger severe adverse reactions, plant-derived natural products (such as phenolics, alkaloids, and terpenoids) present a promising, low-toxicity alternative. This study investigates the biochemical mechanisms by which these natural phytoconstituents inhibit metastatic skeletal colonization.
Materials and Methods: A comprehensive biochemical review of current literature was conducted to evaluate the efficacy of plant-derived natural products against breast cancer bone metastasis (BCBM). The analysis categorized major phytoconstituents—specifically phenolics, alkaloids, terpenoids, and quinones—based on their molecular interactions within the tumor-bone microenvironment. We systematically assessed their pharmacological modulation of key osteotropic signaling cascades, focusing primarily on the inhibition of osteoclastogenesis via the Receptor Activator of Nuclear Factor Kappa-B (RANK) / Receptor Activator of Nuclear Factor Kappa-B Ligand (RANKL) / Osteoprotegerin (OPG) axis, the suppression of tumor-derived cytokines, and the induction of apoptosis in metastatic cells. Results: The analysis demonstrates that plant-derived compounds disrupt the metastatic niche through multi-targeted biochemical modulation. Phenolics (quercetin, curcumin, resveratrol) and terpenoids (taxol) significantly inhibit osteoclastogenesis by suppressing the RANKL-induced Nuclear Factor kappa B (NF-κB) and Mitogen-Activated Protein Kinase (MAPK) signaling pathways, thereby preventing osteoclast maturation. Simultaneously, alkaloids (berberine) and quinones (juglone from walnut) exert direct cytotoxic effects on metastatic breast cancer cells, inducing intrinsic apoptosis by altering the Bcl-2-associated X protein to B-cell lymphoma 2 (Bax/Bcl-2) ratio and activating caspase cascades. Furthermore, these phytoconstituents effectively block Epithelial Mesenchymal Transition (EMT) and extracellular matrix degradation by downregulating the expression of Matrix Metalloproteinases (specifically MMP-2 and MMP-9) and neutralizing the Transforming Growth Factor-beta (TGF-β)/Smad signaling loop. Ultimately, the biochemical intervention of these natural agents severs the pathological positive feedback loop between tumor cells and the skeletal microenvironment, reducing tumor-induced osteolysis.

Conclusions: Plant-derived natural products offer a promising, low-toxicity biochemical strategy to combat breast cancer bone metastasis. By simultaneously modulating the RANK/RANKL/OPG axis to halt osteolysis and directly inducing intrinsic apoptosis in malignant cells, these phytoconstituents hold significant potential as adjunct therapies. Integrating these targeted molecular interventions into clinical Biochemistry protocols could fundamentally improve the management of skeletal-related events and offer a safer alternative to conventional bone-modifying agents.

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P57. Borrowing of terms in Bulgarian and English onkological terminology

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In linguistics, the thesis that a language without foreign words does not exist is affirmed. That is why unlike other sciences, modern Bulgarian and English oncological terminology is built based on internationally recognized nomenclatural standardized oncological terminology, which includes term elements and terms from the Greek and Latin languages. As during the Renaissance, so in subsequent periods, oncological terms from other languages – Russian, French, German, etc., which are borrowed, find word-formation or semantic correspondence with Greek or Latin, penetrate Bulgarian literature.

Objectives: The goal of this article is to analyze the results of a study conducted the opinion of the medical students about the formation of the borrowing of the terms in Bulgarian and English oncological terminology.

Materials and methods: A survey was conducted of the opinion of the first-year students regarding the way of borrowing oncological terms. The respondents study foreign language for 2 semesters – once a week – 60 academic hours. For determining of the process of borrowing of the terms the following researched methods are applied:

1. Review analysis of the scientific literature if the researched problem.
2. Method of empirical researched – a survey. This question in it provide better observation and inquiry of the different ways of borrowing terms in the Bulgarian and English oncological terminology.

Results: The survey in this article was conducted on a voluntary basis among 50 students studying Master's degree in Medicine, at the Medical University of Sofia in December 2025. A questionnaire containing 10-closed questions was developed.

Conclusion: Borrowing of the terms in oncology enriches its corpus of terms and makes the process of studying it easier, more understandable and accessible. Today, foreign language terms are massively entering oncological terminology, to the point that it is flooded overgrown with foreigners and may lose its appearance. This is why borrowing is one of the main ways to satisfy the needs for terms in any national terminology.

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P58. Fatal transfusion-related acute lung injury after plasma transfusion in decompensated cirrhosis-a case report

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Introduction: Transfusion-related acute lung injury (TRALI) is a severe and potentially fatal complication of blood transfusion and remains a leading cause of transfusion-associated mortality worldwide. It is defined by the acute onset of non-cardiogenic pulmonary edema within six hours of transfusion. Despite advances in transfusion safety and hemovigilance, TRALI remains a diagnostically challenging and underrecognized entity, often overlooked due to its nonspecific presentation and clinical overlap with other forms of acute respiratory failure. Notably, the FDA identified TRALI as a leading cause of transfusion-related mortality in the early 2000s; however, it continues to be underdiagnosed and insufficiently recognized in contemporary clinical practice.
Materials and Methods A 49-year-old female presented with diffuse abdominal pain, ascites, peripheral edema, nausea, headache, and marked asthenia. She was diagnosed with decompensated liver cirrhosis of mixed etiology (chronic hepatitis C virus infection and toxic-dysmetabolic), Child–Pugh class C, complicated by hepatocellular carcinoma and severe hepatic insufficiency. Laboratory evaluation revealed severe secondary anemia (hemoglobin 68 g/L), and two units of packed red blood cells were transfused without adverse reactions. Five days later, in the context of hemorrhagic syndrome (epistaxis, recurrent rectorrhagia) and significant coagulopathy (prothrombin activity 30%, fibrinogen 1.6 g/L), fresh frozen plasma was administered. Within two hours, the patient developed chills and acute dyspnea, with hypoxemia (SpO_2 86%) in the absence of fever or hemodynamic instability. Despite prompt initiation of oxygen therapy, corticosteroids, antihistamines, bronchodilators, and diuretics, respiratory status rapidly deteriorated, progressing to severe hypoxemia (SpO_2 68%) and acute pulmonary edema. The patient required transfer to the intensive care unit, where endotracheal intubation and mechanical ventilation were initiated.
Results: The clinical course was highly suggestive of TRALI complicated by acute respiratory distress syndrome, followed by progressive multiorgan dysfunction involving the respiratory, hepatic, and neurological systems. Despite maximal supportive therapy, the patient died on day 12 due to refractory cardiorespiratory failure.
Conclusions: This case underscores the fulminant and often fatal course of TRALI in critically ill patients with advanced liver disease, highlighting the importance of early recognition and vigilance during plasma transfusion. Despite increased awareness, TRALI remains underdiagnosed and underreported, emphasizing the need for heightened clinical suspicion and optimized transfusion practices.

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P59. Pharmacopeial quality assessment of red yeast rice food supplements in tablet and capsule dosage forms

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Objectives: Food supplements (FSs) containing red yeast rice (RYR) are extensively available throughout the European Union market and are commonly promoted for their cholesterol-lowering properties and their potential role in supporting cardiovascular health. RYR contains monacolins, among which monacolin K represents the principal bioactive component and, in its lactone form, has been demonstrated to be chemically identical to lovastatin. This study aimed to evaluate the quality characteristics of commercially available FSs containing RYR in tablet and capsule dosage forms. The evaluation focused on key pharmacopoeial parameters, such as mass uniformity, disintegration, friability and mechanical strength. The objective was to establish a relationship between these technological characteristics and the composition of the dosage forms.
Materials and Methods: A total of 15 solid dosage form models were analysed, including 2 coated tablet models, 4 uncoated tablet models, 8 hard gelatin capsule models and 1 soft gelatin capsule model. Uncoated tablets were evaluated for uniformity of mass, friability, disintegration and mechanical strength, while coated tablets were assessed for uniformity of mass, friability and disintegration. Hard and soft gelatin capsules were tested for uniformity of mass and disintegration. All analyses were performed in accordance with the relevant pharmacopoeial (Ph. Eur. 11) requirements for solid dosage forms.
Results: The results show that all the analysed FSs comply with the pharmacopoeial requirements for uniformity of mass, despite the observed variability in individual unit weights. All capsule models meet the disintegration requirement within 30 minutes. In contrast, four uncoated tablet models fail to meet the 15-minute disintegration criterion. All tablet formulations meet friability standards, with weight loss remaining below 1%. The mechanical strength of the tablets shows considerable variations, ranging from 58.6 N to 280 N, while the crushing strength ranges from 0.8 to 4.307.
Conclusion: Mechanical strength is a parameter closely related to disintegration behavior. The main issue identified among the tested products is the failure of uncoated tablets to meet disintegration requirements, which can directly affect the bioavailability and efficacy of monacolins. In contrast, both soft and hard gelatin capsules complied with all evaluated criteria, indicating their suitability as a dosage form for monacolins from RYR. Quality control of FSs is not mandatory, and their manufacturing processes are not always fully validated or consistently controlled. Furthermore, the composition of the dosage forms plays a crucial role in determining the technological characteristics of the products, highlighting the importance of the excipients included in the formulations.
Acknowledgements: This research is supported by Medical University of Plovdiv under the Project “DPDP-04/2025”.
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P60. Bio-priming in knee osteoarthritis: the integrative platelet-rich plasma-halotherapy protocol in rehabilitation medicine

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Introduction: Modern regenerative medicine is transitioning from symptomatic treatments toward advanced tissue bioengineering and autologous regeneration strategies. This study validates the concept of systemic bio-priming via halotherapy as a non-invasive adjuvant intervention. The approach aims to recalibrate systemic homeostasis and optimize the platelet secretome profile. By enhancing the host's internal environment, this method seeks to transform Platelet-Rich Plasma (PRP) into a high-precision regenerative agent for knee osteoarthritis treatment.
Materials and Methods: A prospective study was conducted on 60 patients with stage II knee osteoarthritis. Participants were divided into two equal groups (n=30 each). The control group received intra-articular PRP injections alone, while the study group followed an integrative protocol consisting of a 10-day metabolic optimization period through controlled halotherapy, immediately followed by PRP administration. The analysis focused on the reduction of key pro-inflammatory mediators and oxidative stress markers, including Interleukin 1 beta (IL-1β), Interleukin 6 (IL-6), and Tumor Necrosis Factor alpha (TNF-α). This preconditioning aimed to maximize the bioavailability and stability of signaling proteins stored in platelet alpha granules prior to therapeutic use.
Results: At the 3-month follow-up, the combined PRP-halotherapy group demonstrated a 40% greater improvement in pain scores on the Visual Analog Scale (VAS) compared to the PRP-only group. Significant superior outcomes were also observed in functional scores, including WOMAC and KOOS indices. The preconditioning phase induced a cellular hormesis response that enhanced the efficacy of Transforming Growth Factor beta 1 (TGF-β1) and Bone Morphogenetic Proteins (BMPs). This resulted in improved ligand-receptor interactions with Transforming Growth Factor Beta Receptor (TGFBR) and Bone Morphogenetic Protein Receptor (BMPR), thereby promoting extracellular matrix anabolism and type II collagen synthesis.
Conclusions: The integration of halotherapy-induced bio-priming with PRP establishes an innovative framework in regenerative medicine. The results indicate that clinical success is strongly dependent on the pre-procedural biological status of the patient. Systemic bio-priming effectively converts individual biological variability into more predictable therapeutic outcomes. This integrative PRP-halotherapy protocol supports the adoption of a new standard

in the management of degenerative knee pathology, substantially increasing the biological yield of autologous cellular therapies.

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P61. In silico evaluation of dipeptidyl peptidase-4 inhibitory potential of structurally related impurities in antidiabetic formulations

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Introduction: Structurally related compounds arising from degradation or synthesis processes in pharmaceutical dosage forms represent an underexplored yet potentially significant factor influencing therapeutic outcomes and safety profiles. While regulatory frameworks primarily focus on identification and quantification of impurities, there is still a lack of systematic approaches for evaluating their pharmacological relevance. However, given their structural similarity to active pharmaceutical ingredients (APIs), such compounds may retain partial or even enhanced biological activity, thereby contributing to therapeutic effects, off-target interactions, or toxicokinetic behaviour. In this study, we use *in silico* approach for assessing the biological potential of structurally related compounds by investigating their inhibitory activity toward dipeptidyl peptidase-4 (DPP-4), one of the key therapeutic targets in the treatment of type 2 diabetes.

Material and methods: A total of 70 analogues derived from five clinically relevant DPP-4 inhibitors (teneligliptin, linagliptin, saxagliptin, alogliptin, and vildagliptin) were evaluated using molecular docking simulations. The receptor structure (PDB ID: 4A5S) was retrieved from the RCSB Protein Data Bank and carefully prepared by removing non-essential components, resolving structural inconsistencies, and defining the active binding site. Ligand structures were obtained in SMILES format from the PubChem database, converted into three-dimensional geometries, and optimized using the MMFF94 force field in Avogadro to ensure energetically favorable conformations. Docking simulations were performed using AutoDockTools 1.5.6.

The results revealed that structurally related compounds can exhibit binding affinities comparable to or exceeding those of their parent drugs. The most significant activities can be expected for linagliptin-related impurities. In particular, Imp 3, Imp 13, and Imp 18 demonstrated higher predicted binding affinity than linagliptin. These enhanced interactions can be attributed to structural modifications such as increased hydrophobic surface area, optimized positioning of aromatic rings enabling stronger π–π stacking with residues such as

tyrosine and phenylalanine, and a favorable orientation of hydrogen bond donors and acceptors. Additionally, an optimal balance between molecular flexibility and conformational rigidity likely facilitates better adaptation to the geometry of the binding pocket. Similarly, notable results were obtained for alogliptin-related impurities, particularly Imp 24 and Imp 25, which exhibited stronger predicted binding than alogliptin. This can be explained by improved occupancy of key subsites (S1 and S2) within the DPP-4 active site, as well as enhanced non-covalent interactions, including van der Waals contacts and hydrogen bonding. The observed trends highlight the importance of steric complementarity, interaction optimization, and conformational alignment in determining binding efficiency.
Conclusions: This study demonstrates that structurally related compounds, such as impurities in pharmaceutical dosage forms, may possess significant biological activity, thereby supporting more informed risk assessment and toxicological profiling.

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P62. Antimicrobial susceptibility profile of Salmonella spp. Strains

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Introduction: Infections caused by *Salmonella* species are a major public health concern, ranging from self-limiting gastroenteritis to severe invasive disease, especially in children (1). Increasing resistance to penicillins and fluoroquinolones has been reported, with variability between serotypes (2,3). This highlights the need for guided antibiotic therapy and continuous surveillance. Although third-generation cephalosporins remain the first-line treatment, the emergence of resistant strains is an important challenge (4).
Material and methods: A retrospective descriptive-analytical study conducted during 2024–2025 included 188 *Salmonella* spp. strains isolated from hospitalized pediatric patients. Among these, 141 were *Salmonella enteritidis* and 47 *Salmonella typhimurium*. The age distribution was as follows: 11 (5.8%) under 1 year, 28 (14.8%) aged 1–3 years, 55 (29.0%) aged 3–6 years, and 94 (49.5%) aged 6–18 years. Identification was performed using standard microbiological methods, and antimicrobial susceptibility testing was carried out using the disk diffusion method.
Results: The analysis demonstrated very high susceptibility of both serotypes to third-generation cephalosporins (98–100%) and carbapenems (100%), confirming their continued effectiveness in severe and invasive infections. Aminopenicillins showed variable efficacy, with

high susceptibility rates in *Salmonella enteritidis* (96–100%), but significantly higher resistance in *Salmonella typhimurium* (up to 34.6% in 2024 and 23.8% in 2025), limiting their empirical use. The combination of amoxicillin and clavulanic acid was high effectiveness (95–100%) for both serotypes. Trimethoprim-sulfamethoxazole and chloramphenicol showed moderate susceptibility (86–97%), with a tendency toward increasing resistance, particularly in *Salmonella typhimurium*. A reduction in susceptibility to fluoroquinolones was observed in 2025, particularly in *Salmonella enteritidis* (ciprofloxacin approximately 89% and levofloxacin approximately 83%), suggesting emerging resistance and the need for cautious use in empirical treatment. Nitrofurantoin and furazolidone were not clinically effective. Conclusions: Salmonella spp. strains remain largely susceptible to first-line antimicrobial agents, especially cephalosporins. However, increasing resistance to aminopenicillins and reduced fluoroquinolone susceptibility highlight the need for continuous surveillance and the optimization of antibiotic use, including antimicrobial stewardship.

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P63. Antenatal fetal death: etiology, management, and complications – a literature review

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Introduction: The fetus is the product of conception in intrauterine development, beginning approximately from the 10th week of gestation until birth. Antenatal fetal death (intrauterine fetal death – IUFD) is defined as fetal death occurring before the onset of labor, after a gestational age of 22 weeks. Globally, it is estimated that approximately 2 million stillbirths occur annually, with an average rate of about 13.9 cases per 1,000 births; significant variations exist between developed and developing regions.

Material and Methods: A narrative literature review was conducted using international databases such as PubMed, NCBI, and World Health Organization reports, as well as clinical guidelines developed by the American College of Obstetricians and Gynecologists (ACOG) and the Royal College of Obstetricians and Gynaecologists (RCOG). The review included studies published in recent years, synthesis articles, and clinical practice guidelines relevant to the etiology, diagnosis, and management of IUFD.

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Results: The etiology of antenatal death is multifactorial, predominantly involving placental pathology (such as placental insufficiency and abruptio placentae), which accounts for approximately 25–35% of cases. Fetal and chromosomal anomalies contribute to roughly 10–20% of occurrences, while intrauterine infections—including cytomegalovirus, toxoplasmosis, and syphilis are implicated in approximately 5–15% of cases. Maternal conditions, such as arterial hypertension, preeclampsia, and diabetes mellitus, significantly increase the risk of intrauterine fetal death (IUFD), particularly in the absence of adequate clinical control. Additional risk factors include advanced maternal age (>35 years), obesity, smoking, and a history of unfavorable obstetric outcomes, each of which is associated with a relative risk increase of up to two to three times. Clinical management necessitates diagnostic confirmation via ultrasound examination, followed by a comprehensive evaluation of maternal status and the identification of the probable cause. In the majority of cases, delivery is achieved through the induction of vaginal labor, which is considered the method of choice. Diligent monitoring is essential to prevent maternal complications, such as disseminated intravascular coagulation (with an estimated incidence of <10% in neglected cases), postpartum hemorrhage, and infections.

Conclusions: Antenatal fetal death remains a major public health issue with a multifactorial etiology. Management requires a systematic and individualized approach focused on identifying risk factors and causes. Prenatal monitoring and control of maternal conditions can reduce IUFD incidence. Although complete prevention is not always possible, early intervention and appropriate obstetric care reduce risks and improve maternal outcomes.

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P64. Biomimetic assessment of gastrointestinal permeability: a case study of Pramipexol and Sertraline

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Introduction: Understanding gastrointestinal (GIT) permeability is essential for predicting oral absorption and pharmacokinetic behavior of drugs, particularly for central nervous system (CNS)-active compounds. Biomimetic in vitro system such as Permeapad analytical setup

provides a robust experimental framework to evaluate passive membrane transport under physiologically relevant conditions and to link physicochemical properties with drug absorption potential.
Material and methods: In this study, the permeability of selected antidepressants (sertraline and pramipexole) was investigated as a case study to assess their gastrointestinal transport profiles. Permeability experiments were performed using the Permeapad system at 37 °C under simulated physiological conditions (pH 7.4), with additional evaluation at pH 3.5 and 8.5 to assess pH-dependent behavior. Time-dependent flux (J) was determined over 5 hours from concentration–time profiles, while complementary permeability assessment was conducted using PAMPA, with cumulative absorption (%) measured after 24 hours. Chromatographic quantification was performed using HPLC-UV analysis, and the results were interpreted in conjunction with physicochemical descriptors and computational parameters.
Results: The investigated compounds exhibited distinct permeability profiles reflecting their structural and physicochemical diversity. Sertraline demonstrated high initial membrane flux (≈0.31–0.34 mg/mL·cm²), indicating rapid membrane interaction, but low cumulative absorption (5.4%), suggesting membrane retention or solubility limitations. In contrast, pramipexole displayed pronounced pH-dependent permeability, with minimal transport at physiological pH (0.4% absorption), increased permeability under acidic conditions, and nonlinear behavior under alkaline conditions, indicating ionization-dependent membrane interaction. Calculated permeability coefficients (Papp) supported these findings, with sertraline exhibiting higher apparent permeability compared to pramipexole under physiological conditions.
Conclusions: These findings highlight the importance of lipophilicity, polarity, and ionization state as key determinants of passive GIT permeability. The Permeapad model effectively differentiates between gastrointestinal transport behaviors and enables early-stage evaluation of drug absorption, supporting its application in pharmacokinetic modeling and drug development.

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P65. Metformin plasma levels after long-term treatment in women with polycystic ovary syndrome

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Introduction: Metformin is the drug of choice for the treatment of type 2 diabetes mellitus and is used off-label for insulin resistance in some other conditions. There is a lack of data on its plasma steady-state concentration in polycystic ovary syndrome (PCOS). Metformin is a very polar molecule that is rapidly eliminated from the body because of a short half-life in plasma. However, it is important to monitor the relationship between the daily dose of the drug and the concentration of metformin in the patients' plasma.
Materials and methods: The Agilent Technologies 1200 Series apparatus equipped with a DAD detector and Zorbax NH_2 (4.6 x 150 mm, 5.0 μm) analytical column was used for the HPLC analysis. The analysis was carried out at 30°C by using isocratic elution. The mobile phase was 100% acetonitrile with a flow rate of 0.725 mL/min. A 20 μL of the sample was injected. The detection was performed at 232 nm. Study participants were recruited from the Clinic of Gynecology and Obstetrics and Clinic of Pediatrics at Clinical Center Niš. The patients were on long-term therapy with the schedule and dosage determined by the specialized physicians. The PCOS participants included in this study were on metformin therapy for 1-30 months. They had different dose schemes and daily intake of drug. Metformin was administered in a single or multiple doses as an extended-release (XR) formulation and the total daily doses were 500-2500 mg.
Results: The found values of metformin are steady-state concentrations in PCOS patients on treatment over several weeks or months. No clear association was found between metformin plasma concentration and clinically relevant daily drug doses. In the group of women with PCOS, the mean concentration values ranged from 1.91-2.44 μg/mL regardless of the total daily dose and months of the therapy. The dependence of metformin plasma concentration on daily drug intake was not found.
Conclusions: Considering the significant interindividual variability (CV 17.2-52.8%) within groups of the same dosing regimen, a clear dependence of metformin plasma concentration on daily drug intake cannot be established. This supports previous findings on the heterogeneity in the response to metformin therapy, which suggests that genetic factors may play a significant role.
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P66. The impact of apical limit precision on periapical regeneration: a critical analysis based on meta-analyses and CBCT validation

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Introduction: The apical constriction is not merely an anatomical landmark but a biological barrier, considered "point zero" for endodontic success. Our analysis stems from the fundamental premise established by Sjogren et al. (1990), which states that the integrity of the periapical zone depends on strict instrumentation control and a hermetic seal at the cemento-dentinal junction (CDJ). In clinical practice, iatrogenic failure caused by overfilling transforms endodontic material into a mechanical and chemical irritant. However, the integration of advanced technologies, such as electronic apex locators and Cone Beam Computed Tomography (CBCT), has redefined clinical precision. This study analyzes how the rigorous application of evidence-based protocols, supported by these advanced diagnostic and therapeutic tools, can ensure the reversibility of periapical lesions, transforming a compromised status into predictable therapeutic success.

Material and methods: The present study proposes a methodological evaluation through a critical analysis of the efficiency of endodontic treatment strategies, based on an integrated framework. Initially, the research focuses on apical stop restoration procedures guided by electronic apex locators to isolate the endodontic space from periapical tissues. To provide a statistical foundation, the study incorporates data from Kojima et al. (2004), demonstrating that maintaining the working length within 2 mm of the radiological apex leads to optimal healing rates. This is further corroborated by the meta-analysis of Schaeffer et al. (2005), which confirms that obturations confined within the CDJ limits offer a significantly better prognosis than cases involving material extrusion. Finally, the role of CBCT technology, as established by Santos et al. (2022), is analyzed for its precision in monitoring the volumetric dynamics of osteolytic lesions that are otherwise obscured by anatomical superimposition in 2D imaging.

Results: The synthesis of data highlights a clear convergence between reference literature and regenerative clinical success:

1. Schaeffer's meta-analysis indicates a decrease in the success rate by approximately 29% in cases where the filling material exceeds the anatomical apex. The mechanical-chemical irritation maintained by material extrusion blocks natural bone remodeling processes.
2. By repositioning the apical seal in the optimal range of *0–2 mm* from the apex, statistics confirm a success rate of up to 86.5% (Kojima et al.). This millimetric precision allows periodontal biology to initiate the healing process.
3. Recent studies (Santos et al., 2022) demonstrate that three-dimensional monitoring allows the visualization of bone neoformation in areas concealed in conventional radiographs. A significant reduction in lesion volume can often be observed at 6-month intervals, confirming that eliminating the irritant at the CDJ level is the primary factor for bone regeneration.

Conclusions: The analysis highlights three fundamental pillars for modern endodontics:

1. Overfilling errors do not represent a definitive failure; removing the irritant and restoring the biological barrier at the apical constriction triggers osteolytic healing processes.
2. No disinfection method can substitute for the precision of the apical stop. The hermetic seal at the CDJ level is the determinant factor for the functional longevity of the tooth.
3. Evaluation of therapeutic success requires three-dimensional accuracy. CBCT technology provides the clinician with objective certainty of success, facilitating superior monitoring of periodontal regeneration.

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P67. Pharmacovigilance in compassionate use programs: a policy analysis of regulatory and hospital-level challenges

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Objectives: Compassionate use programs provide access to investigational or unauthorized medicinal products for patients with serious or life-threatening conditions without therapeutic alternatives. Due to limited clinical evidence and real-world use outside controlled clinical trial settings, pharmacovigilance is essential for ensuring patient safety. The objective of this study is to analyze regulatory and institutional frameworks governing pharmacovigilance in compassionate use programs and to identify key challenges at hospital level.
Materials and Methods: A scoping policy analysis was conducted based on a systematic review of European regulatory documents, including Regulation (EC) No 726/2004 and guidance from the European Medicines Agency. The analysis also examined institutional aspects of pharmacovigilance implementation in hospital settings, focusing on adverse drug reaction (ADR) reporting, safety data collection, traceability, and allocation of responsibilities among healthcare professionals.
Results: The analysis demonstrated that the European regulatory framework establishes clear pharmacovigilance requirements, including mandatory ADR reporting and continuous benefit–risk assessment. However, implementation at institutional level remains heterogeneous. Key challenges include inconsistent safety data collection, reliance on spontaneous reporting, unclear allocation of responsibilities, and limited integration with existing pharmacovigilance systems. These factors may contribute to underreporting and delayed signal detection. Hospital pharmacists play a central role in coordinating pharmacovigilance activities, ensuring traceability, maintaining documentation, and supporting communication between clinical teams and regulatory authorities.
Conclusion: Pharmacovigilance in compassionate use programs requires stronger institutional integration and standardized procedures. Enhancing hospital-level frameworks and reinforcing the role of hospital pharmacists may significantly improve safety monitoring and regulatory compliance in these high-risk therapeutic settings.

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P68. The role of dental plaque in the development of gingivitis in children

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Introduction: Gingivitis is one the most common periodontal diseases in childhood and adolescence. It is characterized by reversible inflammation of the gingival tissues without initial destruction of the periodontal ligament or alveolar bone. Dental plaque is considered the main etiological factor in the development of gingivitis, as microbial biofilm accumulation induces inflammatory reactions proportional to plaque in the quantity and oral hygiene status. The aim of this study was to evaluate the role of dental plaque in the occurrence of gingivitis in children and to asses the effectiveness of the complex preventive and therapeutic measures. Material and Methods: An observational clinical study was conducted on 10 children 4-16 years examined between January and December 2025. After applying inclusion and exclusion criteria,5 patients with clinical signs of gingivitis were selected for complete treatment and follow-up. Clinical examination included assessment of gingival color, contour, edema, bleeding on probing, and plaque accumulation. The Silness-Löe Plaque Index, Gingival Bleeding Index, and PMA Index were used. Treatment included professional oral hygiene, local antiseptic and anti-inflammatory therapy, oral hygiene instruction, and parenteral motivation. Follow-up examination was performed after 3 months.
Results: The study confirmed a direct relationship between dental plaque accumulation and gingival inflammation in children. Patients with poor oral hygiene demonstrated higher plaque scores, gingival bleeding, edema, and erythema. After professional cleaning and individualized oral hygiene instruction, significant clinical improvement was observed in all treated patients. At 3-month follow-up, plaque indices decreased markedly, bleeding was absent associated with regular home hygiene and parental supervision.
Conclusions: Dental plaque is the principal modifiable factor in the development of gingivitis in children. Early diagnosis, professional plaque control, motivation of both child and parents, and regular preventive visits are essential for successful management. Educational program's focused on oral hygiene may significantly reduce the prevalence and severity of gingivitis in pediatric patients.

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P69. Hormonal and molecular mechanisms involved in uterine fibroids and endometrial hyperplasia: the role of metabolic and thyroid disorders in early diagnosis

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Introduction: Uterine fibroids (leiomyomas) are the most common benign tumors of the female reproductive system, with a cumulative incidence of 70–80% by age 50. Endometrial hyperplasia, defined by an increased gland-to-stroma ratio, is a precursor of endometrial carcinoma, particularly in atypical forms with a 20–30% progression risk. Both conditions

affect reproductive and perimenopausal women and present with abnormal uterine bleeding. Their development is driven by unopposed estrogen exposure and altered progesterone signalling. Metabolic and endocrine disorders, including obesity, insulin resistance, diabetes mellitus, and hypothyroidism, affect estrogen bioavailability, supporting shared hormonal background.
Material and Methods: A narrative literature review of studies from PubMed, Scopus, and ScienceDirect (last 10 years) was conducted, including clinical guidelines and systematic reviews on hormonal, molecular, metabolic, and thyroid-related mechanisms in uterine fibroids and endometrial hyperplasia.
Results: Uterine fibroids and endometrial hyperplasia share an endocrine-dependent pathogenesis characterized by estrogen excess and altered progesterone responsiveness. Upregulation of estrogen (ER-α, ER-β) and progesterone (PR-A, PR-B) receptors enhances cellular proliferation in both myometrial and endometrial tissues. Molecular mechanisms involve growth factors such as insulin-like growth factor (IGF) and transforming growth factor-beta (TGF-β), which promote proliferation, angiogenesis, and extracellular matrix remodeling. MED12 mutations, present in approximately 60–70% of fibroids, represent a key tumorigenic factor. Chronic inflammation, mediated by cytokines and oxidative stress, sustains this proliferative environment. Metabolic abnormalities significantly modulate these pathways. Obesity increases aromatase activity, leading to elevated estrogen levels, while insulin resistance activates PI3K/AKT and MAPK signaling pathways. Women with obesity have a 2–3-fold increased risk of fibroids and a higher likelihood of endometrial pathology. Diabetes mellitus and chronic anovulation further prolong estrogen exposure. Hypothyroidism contributes by reducing SHBG levels, increasing free estradiol and disrupting hypothalamic–pituitary–ovarian axis function. Clinically, abnormal uterine bleeding, reported in up to 30% of reproductive-age women, may mask underlying premalignant lesions. Transvaginal ultrasound and hysteroscopy support evaluation, while endometrial biopsy remains the diagnostic gold standard.
Conclusions: Uterine fibroids and endometrial hyperplasia share estrogen-dependent mechanisms influenced by metabolic and thyroid disorders, increasing the likelihood of concurrent endometrial pathology. Abnormal uterine bleeding may delay recognition of premalignant lesions. Targeted endometrial evaluation in high-risk patients is recommended to improve early detection and reduce progression to endometrial carcinoma.

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P70. The role of Doppler ultrasound in the early diagnosis of twin-to-twin transfusion syndrome

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Introduction: Monochorionic twin pregnancy is often associated with an increased risk of perinatal complications, one of wich is twin-to-twin transfusion syndrome (TTTS). This syndrome is charachterised by unequal placental anastomosis, eventually leading to blood flow imbalance between the twin fetuses and selectvie intrauterine growth-restriction (sIUGR). Early diagnosis is crucial in preventing adverse outcomes, such as growth restriction, cardiac overload, neurological injury, and preterm birth. Doppler ultrasound has become a key tool in the detection and managing of pathological changes associated with TTTS.
Material and methods: A narrative review was performed using recent guidelines and international publications indexed in PubMed within the past 10 years. The analyzed parameters included umbilical artery Doppler, ductus venosus Doppler, umbilical venous flow, middle cerebral artery Doppler, amniotic fluid discordance, fetal bladder visualization, and fetal growth assessment.
Results: TTTS is often diagnosed in the second trimester, usually between 16 and 26 weeks of gestation. For instance, once the monochorionic diamniotic (MCDA) twin pregnancy is established, it is recommended that check-ups be performed every two weeks with observation of the development of TTTS. Doppler assessment allows early identification of this condition, providing essential information about fetal hemodynamics, including absent or reversed end-diastolic flow in the umbilical artery, a reversed a-wave in the ductus venosus, and pulsatile umbilical venous flow, all of which reflect progressive cardiovascular compromise. Doppler ultrasound plays a crtical role in Quintero staging system, thereby facilitating aacurate disease classification and selection of the optimal therapeutic approach, thus reducing the risk of adverse outcomes. Doppler is also used in post-intervention monitoring, fetoscopic laser photocoagulation, to check the normalization of blood flow and ensure that the pathological vascular connections have been successfully interrupted. Ultrasound assessment of the Middle Cerebral Artery (MCA-PSV) is pivotal for identification of Twin Anemia-Polycythemia Sequence (TAPS), which can occur spontaneously of after laser treatment.
Conclusion: Doppler ultrasound is the primary tool for staging the disease, monitoring fetal wellbeing, and evaluating the success of interventions like fetoscopic laser photocoagulation. If left undiagnosed and untreated, TTTS can increase perinatal morbidity and mortality up to 90%.

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P71. NMR-Based detection of subclinical lipoprotein alterations in type 1 and type 2 diabetes mellitus

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Introduction: Beyond conventional lipid parameters, alterations in triglyceride-rich lipoproteins and high-density lipoprotein (HDL) metabolism play a central role in the pathophysiology of diabetic dyslipidemia. These changes are closely linked to insulin resistance and cardiometabolic risk, but are often insufficiently captured by standard lipid testing.
Material and Methods: This cross-sectional study included 45 patients with type 1 diabetes (T1D, n=24) and type 2 diabetes (T2D, n=21), aged 40–65 years. All participants underwent conventional lipid testing, including triglycerides and HDL-cholesterol (HDL-C), and nuclear magnetic resonance (NMR)-based lipoprotein profiling, including apolipoprotein A1 (ApoA1). Statistical analysis was performed using SPSS, and data were expressed as mean±standard deviation (M±SD). Between-group comparisons were conducted using the Mann-Whitney U test.
Results: Triglyceride levels measured by conventional methods were similar between groups (T1D vs T2D: 1.80±0.75 vs 1.94±0.85 mmol/L, $p>0.05$), as were HDL-C levels (1.41±0.30 vs 1.26±0.35 mmol/L, $p>0.05$). In contrast, NMR-derived ApoA1 levels were significantly higher in T1D compared with T2D (1.45±0.26 vs 1.24±0.23 g/L, $p=0.002$). Despite similar HDL-C concentrations, higher ApoA1 in T1D, together with wide triglyceride variability, indicate qualitative differences in HDL composition and heterogeneous triglyceride-rich lipoprotein metabolism not captured by conventional lipid testing.
Conclusions: Markers of triglyceride metabolism and HDL composition provide additional insight into diabetic dyslipidemia beyond standard lipid parameters. These results support the concept of metabolic heterogeneity and highlight the potential of advanced lipidomic profiling for improved cardiometabolic risk assessment.
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P72. Otitis media in children. prediction of recurrent and persistent evolution

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Introduction: Otitis media (OM) is a common cause for paediatric consultation: develops in 90% of children, is a primary indication for antibiotics and surgery in early childhood, progresses in persistent otitis media with effusion (POME) in 60-65% and recurrent otitis media (RAOM) in 20%-35% of children. Aim of study: To identify risk factors for long-term evolution of OM in children.
Materials and Methods: Prospective study included clinical and otoscopic-electroacoustic monitoring over the 3 years in the cohort of 1092 children.
Results: Relative risk (RR) factors for long-term OM evolution in children included: age younger than 5 y. (RR 2.0), OM during 1 year of life (RR 35.6), recurrent respiratory and digestive pathology (RR 6.6-7.4), gastroesophageal reflux (RR 10.3), adenoiditis (RR 8.4), tonsillitis (RR 3.5), sinusitis (RR 2.4) and bronchitis (RR 2.0), relative dyssynchrony of anthropometric and morphometric cephalic growth in 3-4 y.o. children and colonization of pharynx by Staphylococcus Aureus and Group A b-hemolytic Streptococcus (RR 6.0).
Conclusions: The risk factors for long-term OM evolution in children include: early age, recurrent respiratory and digestive pathology, relative cephalic growth dyssynchrony, colonization of pharynx by Staphylococcus Aureus and Group A b-hemolytic Streptococcus.

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P73. Impact of selenosemicarbazone-based compounds on the intensity of oxidative/nitrosative stress and antioxidant system in healthy animals

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Introduction: The development of new potential therapeutics remains a key priority in biomedical research. Selenosemicarbazones and their complexes with metal ions have attracted considerable interest due to previously demonstrated antimicrobial, antifungal, and anticancer properties.
Materials and methods: A preclinical evaluation was performed on healthy laboratory animals (female Wistar rats) to assess the effects of 4-alylselenosemicarbazone of 2-formylpyridine (HL) (MIR-01) and its Cu(II) complex, $\{Cu(L)\}_2Cu(edta)\cdot 6H_2O$ (MIR-02) ($edta^{4-}$ =ethylenediamine-tetraacetate), on redox homeostasis. Markers of oxidative stress (reactive oxygen metabolites – ROM; NO metabolites), oxidative damage to biomolecules (advanced oxidation protein products – AOPP; malondialdehyde – MDA), and the antioxidant system (total antioxidant activity – TAA) were investigated. Statistical analysis was conducted using one-way ANOVA with Bonferroni post hoc test; significance was set at $p<0.05$ (SPSS v23, SPSS Inc., USA).
Results: MIR-01 reduced ROM levels (−14%), whereas MIR-02 increased them (+24%, $p<0.02$). NO metabolites were elevated by both compounds (+22%, $p<0.05$ and +13%, respectively). Both compounds induced oxidative damage, with MIR-01 increasing AOPP by 70% ($p<0.05$) and MDA by 28%, and MIR-02 increasing AOPP by 148% ($p<0.05$) and MDA by 16% ($p<0.05$). Minimal effects were observed on total antioxidant activity and catalase (within ±3% vs. control).
Conclusions: Selenosemicarbazone-based compounds MIR-01 and MIR-02 exert differential effects on redox homeostasis, demonstrating both modulatory and pro-oxidant properties. MIR-01 slightly reduced reactive oxygen species, whereas MIR-02 increased them; both enhanced nitrosative stress and subsequent protein and lipid oxidation. The limited impact on the antioxidant system suggests a redox imbalance, relevant for their pharmacological profiling and safety assessment.

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P74. Ethics of artificial intelligence use in public health

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Introduction: Artificial intelligence (AI) has become a central component of modern public health systems, supporting predictive analytics, epidemiological surveillance, and large-scale

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decision-making. These technologies promise earlier outbreak detection, improved resource allocation, and more accurate risk stratification. However, their integration raises significant ethical concerns related to transparency, fairness, privacy, and the potential stigmatization of vulnerable populations. As AI systems increasingly influence public health policies, it becomes essential to examine the ethical principles that should guide their development and implementation. This study explores the ethical challenges associated with AI-driven public health tools and highlights the need for transnational ethical frameworks capable of addressing global disparities.

Materials and methods: A qualitative, interdisciplinary methodology was employed, combining bioethical analysis, public health ethics, and a review of scientific literature published between 2020–2025. Sources included peer-reviewed journals in epidemiology, digital health, and biomedical ethics. The analysis focused on three domains: (1) predictive analytics and algorithmic decision-making, (2) AI-based epidemiological surveillance systems, and (3) risks of discrimination and stigmatization arising from automated classifications. Ethical frameworks applied included principlism, justice-oriented public health ethics, and international human rights standards. Policy documents from the World Health Organization (WHO), the European Commission, and global AI governance initiatives were examined to contextualize the need for transnational ethical principles.

Results: The analysis revealed that AI systems can significantly enhance public health capacities but also introduce new forms of ethical vulnerability. Predictive analytics may improve outbreak forecasting, yet opaque algorithms can undermine trust and limit accountability. AI-driven surveillance tools can detect early epidemiological signals, but they risk infringing on privacy and enabling disproportionate monitoring of marginalized groups. Several studies indicate that algorithmic bias can reinforce existing health inequities, particularly when training data reflect structural disparities. Additional findings show that public perception of AI in health is strongly shaped by cultural norms, historical experiences with state surveillance, and levels of institutional trust. Furthermore, the absence of harmonized international standards creates inconsistencies in data protection, risk assessment, and ethical oversight, complicating cross-border public health collaboration.

Conclusions: AI can enhance public health systems, but its ethical use demands strong safeguards that uphold fairness, transparency, and fundamental human rights. The study concludes that national regulations alone are insufficient; instead, coordinated transnational ethical principles are needed to guide responsible innovation. Such frameworks must integrate scientific evidence, societal values, and global equity considerations to prevent misuse and ensure that AI contributes to collective well-being rather than exacerbating disparities.

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P75. Genetic editing and the limits of moral responsibility

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Introduction: Genetic editing technologies, particularly CRISPR-Cas9, have transformed biomedical research and opened new therapeutic possibilities. However, these advances raise complex ethical questions regarding human responsibility, intergenerational impact, and the moral boundaries of scientific intervention. The debate extends beyond technical safety to issues of autonomy, justice, and the moral status of future individuals. This study explores how moral responsibility is conceptualized in the context of human genetic modification and examines the ethical limits that should guide clinical and research applications.
Materials and methods: A qualitative, interdisciplinary approach was used, combining bioethical analysis, normative ethics, and a review of recent scientific literature published between 2020–2025. Sources included peer-reviewed journals in genetics, medical ethics, and public health policy. The analysis focused on three domains: (1) somatic versus germline editing, (2) distributive justice and access to genetic technologies, and (3) responsibility toward future generations. Ethical frameworks applied included principlism, virtue ethics, and responsibility ethics. The study also examined international regulatory guidelines to contextualize moral responsibility within existing governance structures.
Results: The analysis revealed significant divergence in how moral responsibility is assigned. In somatic editing, responsibility is primarily individual and clinical, centered on patient autonomy and risk–benefit assessment. In contrast, germline editing introduces collective and intergenerational responsibility, as modifications affect individuals who cannot consent and may alter population-level traits. Ethical concerns include potential social inequality, enhancement pressures, and the risk of normalizing eugenic practices. Regulatory documents emphasize precaution, transparency, and public engagement, yet global consensus remains limited. The findings indicate that moral responsibility expands proportionally with the scope and permanence of genetic interventions. Additional findings indicate that public trust in genetic technologies is strongly influenced by perceptions of fairness, cultural values, and historical experiences with biomedical interventions. Moreover, the rapid pace of innovation often outstrips ethical deliberation, creating gaps in governance that amplify uncertainty and moral tension.
Conclusions: Genetic editing challenges traditional notions of moral responsibility by extending ethical obligations beyond the present patient to future generations and society at large. While somatic editing can be ethically justified under strict clinical oversight, germline interventions require heightened moral scrutiny due to their irreversible and far-reaching consequences. Establishing ethical limits demands robust governance, equitable access, and sustained public dialogue. The study concludes that a responsible framework must integrate scientific evidence, societal values, and long-term risk assessment to ensure that innovation remains aligned with human dignity and collective well-being.
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P76. Intercultural communication in medical ethics

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Introduction: Intercultural communication has become a central concern in contemporary medical ethics as healthcare systems increasingly serve culturally diverse populations. Differences in language, values, beliefs, and expectations can profoundly shape the clinical encounter, influencing trust, decision-making, and the quality of care. Ethical dilemmas often arise when cultural norms conflict with biomedical standards, particularly in situations requiring informed consent, disclosure of diagnosis, or end-of-life decisions. This study examines the ethical challenges generated by intercultural interactions in healthcare and analyzes how linguistic and cultural barriers affect the validity and depth of informed consent.
Materials and methods: A qualitative, interdisciplinary approach was used, integrating medical ethics, intercultural communication theory, and a review of peer-reviewed literature published between 2019–2025. Sources included journals in bioethics, medical anthropology, and global health. The analysis focused on three domains: (1) ethical dilemmas in cross-cultural clinical encounters, (2) the impact of linguistic barriers on patient autonomy and understanding, and (3) strategies for culturally sensitive communication. Ethical frameworks applied included principlism, narrative ethics, and relational autonomy. International guidelines from the World Medical Association and European bioethics bodies were examined to contextualize ethical obligations in multicultural healthcare settings. Results: The analysis revealed that cultural differences frequently generate ethical tensions in clinical practice. Conflicts may arise regarding disclosure of diagnosis, family involvement in decision-making, or differing interpretations of illness and treatment. Linguistic barriers were shown to significantly compromise informed consent, leading to misunderstandings, reduced comprehension of risks and benefits, and diminished patient autonomy. Studies indicate that reliance on untrained interpreters, including family members, increases the risk of omissions, distortions, and breaches of confidentiality. Additional findings highlight that cultural norms influence how patients perceive authority, express symptoms, and evaluate treatment options. Healthcare professionals often experience moral uncertainty when balancing respect for cultural values with ethical duties such as truth-telling and patient protection. The absence of structured intercultural training further exacerbates these challenges, contributing to unequal care and reduced trust in medical institutions.
Conclusions: Intercultural communication is essential for ethical medical practice, particularly in contexts where cultural and linguistic differences shape clinical decision-making. The study concludes that improving informed consent and reducing ethical conflict require culturally sensitive communication strategies, professional medical interpreters, and institutional support

for intercultural competence. Strengthening these elements promotes patient autonomy, enhances trust, and ensures ethically sound care in diverse healthcare environments.

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P77. Management of pelvis injuries in polytrauma by "Damage control orthopedics surgery"

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Introduction: Injuries to the chest, abdomen, pelvic fractures occur in 70-80% polytrauma patients and complicate the diagnosis and treatment. Management of polytrauma needs emergency measures according to damage-control protocols and multidisciplinary approach.
Materials and methods: The study includes treatment outcomes of 29 polytrauma patients with pelvic fractures and associated injuries: craniocerebral trauma – 28 (96,55%), chest lesions – 23 (79,31), abdominal injuries - 21(72,41%), hemorrhages, etc. Men were 17, women – 12. Mean age was 45 years. Unstable pelvic fractures type B, C were diagnosed in all patients. The patients were divided in 2 groups according to their condition. The complex diagnostic and treatment measures were performed according to "damage control orthopedic surgery" approach resolving firstly life-threatening injuries. The study was supported by national projects 160101 and 080401.
Results: Study group I included 19 (65,51%) patients with pelvic fractures type B. Severity of injuries, according to the ISS was 25-37 points. Unilateral drainage of pleural cavity was performed in 12 (63,15%) cases, bilateral – 4 (21,05%). Laparotomy was performed after temporary pelvic external stabilization. Final fixation of the pelvis was done after stabilization of hemodynamics. Group II included 10 (34,48%) patients with pelvic fractures type C, unstable hemodynamics, trauma of the chest and abdomen, ISS 35-47 points. Urgent surgery was done: thoracocentesis, stopping bleeding and stabilization of pelvic ring by external fixator. Satisfactory treatment results were achieved in all patients.
Conclusions: In polytrauma, the surgical treatment of internal organ injuries and hemorrhage stopping has priority over traumatological interventions and has the objective to solve the patient life. In cases of stable hemodynamics, laparotomy is recommended, performed after temporary external stabilization of the pelvis. Laparotomy without pelvic stabilization results in greater displacement of the pelvic bones and uncontrolled bleeding. Final pelvic osteosynthesis is performed after the stabilization of the hemodynamics and general condition of the patients.

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P78. Comparative analysis of generic medicine policies in France and Bulgaria: regulatory frameworks, substitution practices, and healthcare impact

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Background: Generic medicines are a key strategy for improving access to treatment and ensuring the financial sustainability of healthcare systems. While European countries follow common regulatory principles, national policies differ in implementation and effectiveness.
Aim: To compare the regulatory frameworks, substitution practices, and healthcare impact of generic medicine policies in France and Bulgaria.
Methods: A mixed-methods comparative policy analysis was conducted, combining qualitative document review with cross-country regulatory assessment. Primary sources included national legislation, official guidelines, and regulatory frameworks from the French National Agency for Medicines and Health Products Safety (ANSM) and Bulgarian health authorities. A thematic analysis was applied to identify key domains, including bioequivalence requirements, prescribing practices, and substitution rules. A comparative framework was used to assess differences in policy implementation, while a systems-based approach explored interactions between regulators, physicians, pharmacists, and patients in both countries. Results: In both France and Bulgaria, generic medicines must demonstrate bioequivalence to originator products, ensuring comparable safety and efficacy. In France, strong regulatory oversight by ANSM and policies such as mandatory International Non-Proprietary Name (INN) prescribing and pharmacist-led substitution have led to higher generic uptake. In contrast, Bulgaria demonstrates more variable implementation, with lower levels of generic substitution and greater influence of prescribing habits and patient perceptions. While both countries allow substitution, France applies stricter regulatory controls and clearer criteria for non-substitution.
Conclusion: Although France and Bulgaria share common regulatory foundations, significant differences exist in policy implementation and outcomes. Strengthening substitution policies, promoting INN prescribing, and improving patient trust could enhance the effectiveness of generic medicine use in Bulgaria.

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P79. Antioxidant activity of *Verbascum niveum* leaf – two methods

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Introduction: Extracts from *Verbascum* species exhibit a wide range of biological activities, including anti-inflammatory, antimicrobial, antiseptic, sedative and immunomodulatory effects. Numerous studies in the literature report the chemical composition and biological effects of some of these species. However, certain species remain insufficiently studied. One such species is *Verbascum niveum* Ten. Our study aimed to determine the antioxidant activity of leaf extracts from this plant species.
Material and methods: The leaves were dried at room temperature, in a dark place with constant airflow. Three different solvents (50% ethanol, distilled water, and 80% propylene glycol) were used to prepare extracts by percolation (VNE – *V. niveum* ethanol extract; VNH – *V. niveum* aqueous extract; VNP – *V. niveum* propylene glycol extract) according to the European Pharmacopoeia 10.0 (2019). Antioxidant activity was assessed using two methods: the β-carotene bleaching test (BCBT) and the ferric reducing antioxidant power (FRAP) assay.
Results: There is no universal method that can accurately and qualitatively measure exact antioxidant capacity, as different types of free radicals and various mechanisms are involved in antioxidant activity. In this study, two *in vitro* methods were used to measure antioxidant capacity: BCBT and FRAP. The best results were obtained with the ethanol extract (IC_{50}=431.98 ± 9.33 μg/ml in BCBT and 900.81 ± 48.75 μmol Fe2+/g of extract in FRAP), while the propylene glycol extract showed the weakest activity.
Conclusion: All tested extracts showed antioxidant activity, with the ethanol extract demonstrating the strongest activity in both tests. However, further tests are required to draw a definite conclusion.
Acknowledgment: This work is supported by the Ministry of Education, Science and Technological Development of the Republic of Serbia (No. 451-03-136/2025-03/200113 and 451-03-137/2025-03/200113).
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P80. Homocysteine, oxidative stress and endothelial dysfunction in cardiovascular and metabolic disorders: from experimental models to clinical implications

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Endothelial dysfunction represents an early and reversible disturbance of cardiovascular homeostasis and is a key pathophysiological mechanism in the development of cardiovascular and metabolic diseases. It is characterized by altered bioavailability of nitric oxide (NO) and other gasotransmitters (H_2S, CO), reduced vasodilation, prooxidative, proinflammatory and prothrombotic phenotype of the endothelium. Among the most significant causes of these processes are oxidative stress and the semi-essential amino acid homocysteine. Elevated concentration of homocysteine (hyperhomocysteinemia) can occur for nutritional, genetic and iatrogenic reasons, as well as in chronic diseases and metabolic disorders. It is associated with increased production of reactive oxygen species (ROS) and other reactive species (RNS, RHS, RCS), decreased activity of endothelial NO-synthase (eNOS), oxidation of lipids and proteins, and activation of inflammatory mechanisms. Oxidative stress additionally disrupts the balance between vasodilator and vasoconstrictor factors, promotes inflammation of the vascular wall, proliferation of smooth muscle cells and remodeling of blood vessels, which contributes to the development of hypertension, atherosclerosis, heart failure, insulin resistance, diabetes, and leads to myocardial infarction and stroke. Experimental cardiovascular animal models, including *in vitro* studies on the isolated heart, blood vessels and cell cultures, as well as cardiometabolic animal models *in vivo*, enabled the elucidation of molecular mechanisms linking homocysteine and toxic thiolactone metabolites, gasotransmitters, oxidative stress, mitochondrial function, cardiometabolic enzymes and methylation processes. The translation of the obtained results from experimental conditions into clinical practice can improve the understanding of the simultaneous production of myocardial damage biomarkers (troponin, homocysteine), enable the development of nutritional interventions (folic acid, vitamins B_6 and B_{12}) aimed at normalizing the value of total homocysteine in the blood, reducing oxidative stress and inflammation, as well as the application of personalized therapeutic approaches in the prevention and treatment of cardiovascular and metabolic disorders.

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P81. Continuing medical education in palliative care: experience of the Republic of Moldova

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Introduction: Palliative care is a key component of modern healthcare systems, integrated at all levels, especially in primary care, in line with World Health Organization and European Association for Palliative Care recommendations. In the Republic of Moldova, the development of palliative services depends largely on the availability of trained healthcare professionals and the expansion of continuing medical education (CME). Strengthening CME improves the quality of life of patients with chronic, progressive, and life-limiting diseases. This study aimed to evaluate CME programs in palliative care, analyze the provider network, and propose recommendations to enhance multidisciplinary training at the national level. Materials and Methods: A mixed descriptive-analytical study was conducted. It included a multicriteria curricular analysis of CME programs developed by the Department of Family Medicine, assessing their alignment with national and international standards. The study also examined the national regulatory and strategic framework, analyzed statistical data on physicians trained between 2017 and 2025, and evaluated palliative care providers at the institutional level. A qualitative component involved anonymous questionnaires completed by 227 physicians participating in CME programs. Data were analyzed using descriptive and comparative methods, in accordance with international ethical standards.
Results: The programs showed a high level of alignment (85–90%) with relevant standards, covering key areas such as pain management, symptom control, palliative emergencies, communication, and psychosocial support. However, gaps were identified in competency-based evaluation, data protection training, and multidisciplinary education. Between 2017 and 2025, 227 physicians were trained, representing about 14.5% of family physicians in the country. Participants reported high satisfaction and strong applicability of acquired skills in clinical practice. Outpatient palliative services are provided by family physicians and NGOs contracted by the National Health Insurance Company. However, services remain unevenly distributed geographically, limiting access, especially in rural areas.
Conclusions: CME plays a crucial role in strengthening palliative care within primary healthcare in the Republic of Moldova. Expanding multidisciplinary training, improving monitoring systems, and reducing geographical disparities are essential for sustainable service development and for improving patients' quality of life.

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P82. Medical care management of the newborn with respiratory distress syndrome: particularities of a clinical case

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Introduction: Surfactant-deficiency respiratory distress syndrome is the leading cause of neonatal morbidity and mortality in premature infants. Acute respiratory distress syndrome (ARDS) is an acute inflammatory lung process, which leads to protein-rich nonhydrostatic pulmonary edema, causes refractory hypoxemia, increases lung “stiffness” and impairs the ability of the lung to eliminate carbon dioxide. RSDS occurs primarily in premature infants with a gestational age of less than 32 weeks. For preterm babies who are breathing, CPAP is considered the best early respiratory support resulting in less lung injury and bronchopulmonary dysplasia (BPD) than intubation. The use of PEEP during resuscitation reduces mortality in preterm babies. Surfactant therapy improves survival and reduces oxygen exposure, minimises ventilator requirements and pneumothorax. The prevalence of RSDS in Europe is reported to be 1-1.5%. The incidence and severity of RSDS decreases inversely with gestational age, so that at gestational age of 24-34 weeks and birth weight between 501-1500 gr it is 44%. Survival has improved significantly by over 90% after postnatal administration of exogenous surfactant.
Material and methods: Evaluation of clinical parameters and management of premature newborn with respiratory distress, based on the analysis of a clinical case study using clinical, imaging, and laboratory methods. We present the case of a premature female newborn with extremely low birth weight (ELBW) with a gestational age of 24 weeks and 6 days, birth weight-800 grams, from a supervised pregnancy, with infectious risk, extracted by cesarean section, Apgar score 2, which required resuscitation maneuvers, with difficult postnatal adaptation, which required respiratory support and admission to the Neonatal Intensive Care Unit.
Results: Objective waist: 34 cm, cranial/thoracic perimeter: 27 cm/25 cm, Apgar score 2, Resuscitation was performed: step A + B. He presented with severe RDS, treated with surfactant and invasive ventilation, subsequently evolving with confirmed bacterial infection, congenital pneumonia. In addition to the respiratory manifestations of respiratory distress syndrome (treated by alveolar surfactant administration), the newborn presents on the second day of life with generalized, recurrent tonic-clonic seizures, resistant to symptomatic treatment with common anticonvulsants. Transfontanellar ultrasound- bilateral grade II-III intraventricular hemorrhage. Biological indices: significant hypernatremia (serum Na+=166 mEq/l), hypoglycemia, hypocalcemia and hypomagnesemia, weight loss, tachycardia and metabolic acidosis. Administration of surfactant, metabolic therapy, ionic rebalancing. EcoCG – patent ductus arteriosus = 1.8 mm.
Conclusions: The management of care for premature newborns with respiratory distress syndrome and aggravating comorbidities involves an immediate, complex approach, applying resuscitation techniques and maintaining vital functions.

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P83. Pierre Robin Syndrome in the newborn associated with congenital cord malformations, primary pulmonary hypertension and pneumonia

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Introduction: Pierre Robin sequence (PRS) is characterized by the clinical triad of micrognathia, glossoptosis and upper airway obstruction. It is commonly associated with cleft palate. The sequence was first described in 1891. Pierre Robin first published a case of an infant with these characteristics in 1923. The etiology of PRS is typically separated into isolated and syndromic PRS. Non-syndromic PRS has been associated with mutations on chromosomes 2, 4, 11, or 17. Some evidence suggests SOX9 or KCNJ2 mutations (chromosome 17) may affect the development of facial structures and cartilage development. Epidemiological data suggests that PRS affects approximately 1 in 8,500 to 1 in 14,000 newborns a year.
Case report. Report of a PRS in a neonate – a clinical case at the Mother and Child Institute, Chisinau, Moldova.
We present the clinical parameters and management of a 6-day-old newborn, born at 38 weeks of gestation from the 5th pregnancy, 4th birth by caesarean section with a body mass of 3740 g, waist 54 cm, with multiple cyanosis episodes, respiratory failure, inability to suck, cleft palate. Obstetric history: anemia, uterine scar, complicated obstetric history. The general condition was serious, caused by anomalies: short tongue, glossoptosis, small mandible, desaturation, hypotonia, hypodynamia, inability to suck. Feeding through nasogastric, weight loss of 300 grams. Auscultation in the lungs: rough breathing, crackling rales on the right, precordial systolic murmur. Blood biochemistry- hyperglycaemia (6.1 mmol/L) increased serum creatinine (42.7 mkmol/L), increased K (6.0 mmol/L). Positive PCR 12 mg/L. Echocardiography - cardiac congenital malformation – patent foramen ovale. Patent ductus arteriosus 3.0 mm. Mitral insufficiency grade I. Tricuspid insufficiency grade I. Pulmonary insufficiency grade I. Moderate-severe pulmonary hypertension (SPPA - systolic pressure in the pulmonary artery - 50 mmHg). Chest radiography - accentuated pulmonary pattern, peribronchial infiltration. Infrahilar on the right - pneumonic infiltration. Cardiothoracic index-0.56. Neurosonography - third ventricle 3x9 mm. Choroid plexus 10 mm, relatively inhomogeneous. Contoured architectonics. Aqueducts are open. Bilateral periventricular infiltration. Bacteriological examination of sputum - Enterobacter agglomerans 10^5 multiresistant to antibiotics. Sensitive to imipinems and amikacine. The management was complex, with monitoring of vital functions.
Conclusions: Critical care for PRS focuses on managing upper airway obstruction and feeding difficulties to prevent hypoxia and weight loss. Primary interventions include prone positioning, ensuring pulmonary ventilation, surgical measures in the maxillary region, management of multiorgan malformations and complications, metabolic rebalancing, and continuous monitoring of vital signs.

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P84. Results of orthopantomographic examination in patients with malocclusion due to congenital clefts

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Introduction: Data regarding facial skeletal characteristics in patients with congenital clefts associated with dento-maxillary anomalies remain limited. Maxillary development is known to be affected both morphologically and functionally, with consequences on respiration and occlusion. Aim: To evaluate dental arch dimensions, occlusal relationships, and maxillofacial skeletal characteristics in patients with different types of congenital clefts. Material and Methods: The study included 47 patients aged 8–16 years with unilateral clefts (n=30), bilateral clefts (n=9), and isolated palatal clefts (n=8), examined between 2022 and 2024. Orthopantomograms and study models were analyzed. The assessment included dental anomalies of number (agenesis, supernumerary teeth), position (inclination, rotation), impaction, periapical status, presence of third molar buds, midline discrepancies, diastemas, and occlusal relationships according to Angle classification. The findings were correlated with study model biometrics and cephalometric data.
Results: A high prevalence of dental anomalies was observed. Maxillary lateral incisor agenesis was most frequent in unilateral clefts (46.4%), consistent with previous reports [8,9]. Supernumerary teeth were present in 35.9% of patients. All subjects presented missing permanent teeth (mean 4.4 teeth/patient). Midline deviation was observed in 61.7% of cases, diastema in 35.8%, and spacing in 20.58%. Sagittal occlusal anomalies (Angle classification) were identified in 79.4% of patients, predominantly Class III patterns. Nasal septum deviation was found in 82.4% of cases. Statistically significant differences in the inclination of maxillary central incisors and canines were observed between groups ($p<0.05$), with greater inclination in bilateral clefts.
Conclusions: Congenital clefts are associated with complex dento-maxillofacial alterations, including anomalies of number, position, and occlusion, as well as nasal septum deviations. The high frequency of these anomalies during mixed dentition highlights the importance of early diagnosis and interdisciplinary management.

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P85. Cervical paravertebral abscess associated with type 2 diabetes mellitus: diagnostic challenges and therapeutic approach

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Introduction: Vertebral and paravertebral abscesses represent a rare but potentially severe cause of cervical pain, often underdiagnosed in clinical practice. Diabetes mellitus is an important risk factor for the development of these infections, through mechanisms involving immune system dysfunction and increased susceptibility to bacteremia. Clinical manifestations are frequently nonspecific and may be misinterpreted as benign musculoskeletal pain, which can delay diagnosis and initiation of appropriate treatment.
Case presentation: We describe the case of a 77-year-old male patient with type 2 diabetes mellitus and sensory diabetic polyneuropathy, who was admitted with fever, chills, and cervical spine pain radiating to the left upper limb. Laboratory investigations revealed leukocytosis with neutrophilia and an significant inflammatory syndrome (CRP 175 mg/L, fibrinogen 1130 mg/dL). Physical examination revealed local swelling, significant tenderness on palpation, and cervical paravertebral muscle contracture, raising suspicion of a local inflammatory process. Cervical spine magnetic resonance imaging revealed a multiloculated abscess within the paraspinal muscles (C3–C6), with possible spinal cord edema at the C4 level. Empirical antibiotic therapy was initiated and subsequently adjusted according to blood culture results (methicillin-resistant Staphylococcus aureus and Staphylococcus epidermidis) and antibiogram findings. Neurosurgical evaluation determined that no surgical intervention was indicated.
Conclusions: Cervical paravertebral abscess is a rare but severe condition with potentially life-threatening evolution, particularly in patients with diabetes mellitus. The nonspecific clinical presentation may delay diagnosis, highlighting the need for a high index of clinical suspicion and early use of imaging studies. Prompt initiation of targeted antibiotic therapy may lead to a favorable outcome in selected cases without surgical indication, preventing severe complications.

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P86. Trends in opioid utilization in Serbia (2014–2023): a focus on tramadol use patterns

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Introduction: Monitoring opioid utilization is essential for understanding prescribing patterns and ensuring rational use amid growing safety concerns. Tramadol is a commonly used weak opioid and an important component of pain management, yet its long-term utilization trends remain insufficiently explored.
Material and methods: A retrospective drug utilization study was conducted in the Republic of Serbia, covering the period from 2014 to 2023. Data on opioid utilization were obtained from the official publication "Marketing and Consumption of Medicines for Human Use in the Republic of Serbia". Drug utilization was expressed as defined daily doses per 1000 inhabitants per day (DID). Trends in total tramadol utilization and its proportion within overall opioid utilization were assessed using linear regression analysis.
Results: Over the ten-year study period, total tramadol utilization increased from 0.37 to 0.70 DID, indicating a significant upward trend. Linear regression analysis confirmed a statistically significant increase over time ($B=0.045$, $p=0.002$, $R^2=0.727$). The proportion of tramadol within total opioid utilization showed fluctuations, with an initial decline followed by a consistent increase in later years, reaching 72.17% at the end of the study period. This trend was statistically significant ($B=0.946$, $p=0.047$, $R^2=0.409$). Oral tramadol was the dominant formulation throughout the study period (49.13–60.83% of total opioid use), while parenteral use remained low and stable (0.03–0.04 DID), with no significant impact on overall trends. The fixed combination of tramadol and paracetamol, showed a continuous increase in utilization from 0.01 DID in the year of introduction (2019) to 0.21 DID at the end of the study period. Further analysis of opioid subgroups revealed heterogeneous patterns. Natural opium alkaloids fluctuated between 0.08 and 0.22 DID, with annual growth rates ranging from −20.0% to +69.2%. Phenylpiperidine derivatives showed more stable utilization (0.10–0.13 DID), with moderate annual changes (−15.4% to +10.0%).
Conclusions: The findings indicate a significant increase in tramadol utilization, accompanied by shifts in opioid prescribing patterns. These trends highlight the need for continuous monitoring to support rational prescribing and minimize potential risks, including misuse, dependence, and other safety concerns.

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P87. Recurrent and persistent otitis media in children. effectiveness of treatment methods

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Introduction: Otitis media (OM) is a primary indication for antibiotics and surgery in early childhood, progresses in persistent otitis media with effusion (POME) in 60-65% and recurrent otitis media (RAOM) in 20%-35% of children. The treatment of persistent and recurrent OM in children represents a wide range of traditional and contemporary methods, which argues for the need to objectify their effectiveness. Aim of the work. Evaluation of the comparative effectiveness of treatment modalities for recurrent and persistent otitis media (ROM and POME) in children.
Material and method: Prospective study conducted with the application of 3 treatment modalities on 350 children with ROM and POME and postoperative monitoring (PO) with the determination of dynamic trends of specific clinical and paraclinical indices and estimating the risks of ROM and POME.
Results: The results of PO demonstrated: an increased risk of ROM and POME after physiotherapy and myringotomy (RR 2.8-12.4), tympanostomy manifested as a moderate protective factor (RR 0.4), optimized method served as a high protective factor (RR 0.1) that prevented the development of ROM and POME in 95.9%-96.3% of cases.
Conclusions: Carrying out the optimized treatment, unlike other treatment methods, led to a significant and stable clinical and functional improvement, complete clinical recovery, restoration of hearing, quality of life, general health, as well as healing of the middle ear.

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P88. Altered niacin response as a potential peripheral marker of mitochondrial dysfunction in perinatal mental disorders

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Introduction: Perinatal mental disorders, including postpartum depression, anxiety disorders, and perinatal psychosis, are major causes of maternal morbidity and impaired infant outcomes. Despite increasing recognition, objective biological markers for early identification remain limited. Emerging evidence suggests that mitochondrial dysfunction may represent a central mechanism linking endocrine transitions, oxidative stress, inflammation, lipid dysregulation,

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and neuropsychiatric vulnerability during pregnancy and the postpartum period. Altered niacin skin flushing response may provide an accessible peripheral marker of these disturbances.
Material and methods: A focused narrative review of clinical, translational, and experimental studies published between 2010 and 2026 was conducted using peer-reviewed literature indexed in PubMed/MEDLINE, Scopus, Web of Science, and Google Scholar. Priority was given to recent publications, systematic reviews, cohort studies, case-control studies, and relevant mechanistic investigations. The review focused on evidence regarding niacin skin response, mitochondrial bioenergetics, oxidative stress, inflammatory pathways, membrane phospholipid metabolism, hormonal transitions during pregnancy and postpartum, and psychiatric disorders of the perinatal period.
Results: The postpartum period is characterised by abrupt decreases in oestrogen, progesterone, and allopregnanolone, combined with sleep disruption, circadian rhythm instability, immune rebound, and increased metabolic demand. These factors may impair mitochondrial oxidative phosphorylation, reduce adenosine triphosphate production, and increase reactive oxygen species generation. Mitochondria also regulate steroidogenesis, glucocorticoid signalling, gamma-aminobutyric acid metabolism, inflammatory responses, and lipid homeostasis, all of which are implicated in perinatal psychiatric disorders. Clinical studies have demonstrated oxidative stress, altered energy metabolism, and inflammatory abnormalities in women with postpartum depression, while experimental models show reduced mitochondrial respiration and increased neuroinflammation following gestational stress. Recent evidence further indicates that women with postpartum depression exhibit an attenuated and delayed niacin skin flushing response compared with healthy postpartum controls. Because niacin-induced flushing depends on membrane phospholipid signalling, arachidonic acid metabolism, prostaglandin pathways, and cellular bioenergetic integrity, this phenotype may reflect mitochondrial-related lipid-inflammatory dysfunction. Since perinatal psychosis shares biological overlap with bipolar and affective disorders, altered niacin response may indicate a broader vulnerability spectrum across severe perinatal mental disorders.
Conclusions: Altered niacin response may represent a low-cost peripheral marker of mitochondrial dysfunction in perinatal mental disorders. Integrating niacin testing with clinical risk assessment could improve early identification of biologically vulnerable women. Further prospective studies are needed to determine its predictive value and therapeutic implications in postpartum depression and perinatal psychosis.

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