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**FRONTIERS IN ADVANCED EMERGENCY CARE &
THE MEDITERRANEAN ACADEMY OF EMERGENCY
MEDICINE JOINT CONGRESSES ABSTRACTS**

PART 2

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1 Electrolytes Assessed by Point-of-Care Testing: Are the Values Comparable with Results Obtained from the Central Laboratory? A Low-Income Country Experience

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Rapid availability of laboratory results is critical in emergency department (ED) and critical care settings. Point-of-care testing (POCT) provides immediate electrolyte measurements and may facilitate earlier clinical decision-making. However, concerns remain regarding the agreement and interchangeability of POCT results with central laboratory testing. We aimed to evaluate the agreement and clinical interchangeability of sodium, potassium and hemoglobin measurements obtained through POCT compared with central laboratory testing among critically ill patients presenting to the ED. Methods: A prospective observational study was conducted among 500 critically ill patients presenting to the ED of a tertiary care hospital. Paired POCT and central laboratory measurements of sodium, potassium, and hemoglobin were obtained simultaneously. Clinical interchangeability was evaluated using predefined acceptable error margins of ± 4 mmol/L for sodium, ± 0.5 mmol/L for potassium, and ± 1 g/dL for hemoglobin. Results: Paired measurements were available for 493 sodium, 491 potassium, and 439 hemoglobin comparisons. Mean bias was minimal for sodium (0.15 mmol/L), potassium (0.07 mmol/L), and hemoglobin (0.07 g/dL). Strong correlations were observed between POCT and laboratory measurements for sodium ($r=0.843$), potassium ($r=0.809$), and hemoglobin ($r=0.928$). Hemoglobin demonstrated the highest concordance (ICC=0.927; CCC=0.926). Within predefined clinical margins, agreement was observed in 89.2% of sodium, 75.2% of potassium, and 81.8% of hemoglobin measurements. Clinical classification agreement was high for sodium (82.4%; $\kappa=0.663$), potassium (83.5%; $\kappa=0.679$), and hemoglobin (93.4%; $\kappa=0.840$). Potassium agreement was reduced among patients with renal disease, sepsis, and acidosis. Conclusion: POCT showed strong agreement with central laboratory measurements for sodium, potassium, and hemoglobin, supporting its use for rapid ED decision making.

2 Neuro-Ophthalmic Adverse Event Signals Associated with CGRP Monoclonal Antibodies: A Pharmacovigilance Analysis of the FDA Adverse Event Reporting System (FAERS)

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Background: Calcitonin gene-related peptide (CGRP) monoclonal antibodies have transformed migraine prevention and are generally considered well tolerated. However, neuro-ophthalmic adverse events, including visual disturbances and intracranial pressure-related disorders, remain incompletely characterized. We evaluated neuro-ophthalmic adverse event signals associated with CGRP monoclonal antibodies using the FDA Adverse Event Reporting System (FAERS).

Methods: A retrospective pharmacovigilance analysis was conducted using FAERS reports submitted from January 2018 through the latest available quarter of 2025. Neuro-ophthalmic adverse events were identified using predefined MedDRA Preferred Terms, including idiopathic intracranial hypertension, papilledema, optic disc edema, intracranial pressure increased, diplopia, visual impairment, blurred vision, and optic neuropathy. Reports involving erenumab, fremanezumab, galcanezumab, and eptinezumab were evaluated. Disproportionality analyses were performed using reporting odds ratios (RORs), proportional reporting ratios (PRRs), and 95% confidence intervals (CIs).

Results: Among 33,304,573 FAERS reports, 150,124 involved neuro-ophthalmic adverse events. Neuro-ophthalmic events were reported in 476 erenumab, 130 fremanezumab, 368 galcanezumab, and 68 eptinezumab cases. All evaluated CGRP monoclonal antibodies demonstrated increased reporting compared with all other drugs in FAERS. Fremanezumab demonstrated the strongest signal (ROR=3.07, 95% CI: 2.58–3.65; PRR=3.06), followed by galcanezumab (ROR=2.97, 95% CI: 2.68–3.29; PRR=2.95), erenumab (ROR=2.10, 95% CI: 1.92–2.31; PRR=2.10), and eptinezumab

(ROR=1.93, 95% CI: 1.52–2.45; PRR=1.92).

Conclusion: CGRP monoclonal antibodies demonstrated disproportionate reporting of neuro-ophthalmic adverse events in FAERS. The strongest signals were observed with fremanezumab and galcanezumab. These findings highlight the need for clinician awareness of visual and intracranial pressure-related symptoms and support further investigation into potential mechanisms, causality, and clinical implications.

3 Delayed Inducible Clonus After Massive Sertraline and Antihistamine Overdose: The Diagnostic Value of Serial Neuromuscular Examination

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Background: Serotonergic toxicity is a potentially life-threatening toxidrome caused by excessive serotonergic activity. Diagnosis is clinical, and the Hunter Serotonin Toxicity Criteria emphasize neuromuscular findings, particularly inducible or spontaneous clonus, as key diagnostic features.

Case Presentation: A 26-year-old woman presented to the emergency department approximately 40–45 minutes after suicidal ingestion of nearly 5600 mg sertraline, 4000 mg hydroxyzine, 200 mg cetirizine, and an unknown amount of another antidepressant. On admission, she was conscious, oriented, and cooperative, with no evident autonomic instability or neuromuscular hyperactivity. At the eighth hour of observation, the patient developed bilateral mydriasis, tremor, diaphoresis, and a fever of 38.2°C; however, clonus and hyperreflexia were still absent. At the twenty-fourth hour, repeated neurological examination revealed bilateral inducible ankle clonus. In the presence of serotonergic exposure, tremor, diaphoresis, hyperthermia, and inducible clonus, the patient fulfilled the Hunter criteria for serotonergic toxicity. Laboratory tests, including creatine kinase, renal function, and liver function tests, remained within normal limits, and no systemic complications occurred. The patient improved with close monitoring and supportive care without cyproheptadine. Concomitant massive antihistamine ingestion may have modified the clinical course and potentially delayed the emergence of typical serotonergic neuromuscular signs.

Conclusion: This case demonstrates that serotonergic toxicity can still occur even with a normal initial examination. Serial neuromuscular assessment is essential, and delayed inducible clonus can provide a critical diagnostic clue in mixed antidepressant–antihistamine overdoses.

4 Two-bag versus three-bag N-acetylcysteine regimens for paracetamol overdose: meta-analysis of hepatotoxicity, adverse drug reactions, and treatment completion

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Background: Paracetamol overdose is a leading cause of acute liver failure worldwide, treated with intravenous N-acetylcysteine (NAC). The traditional three-bag (3B) regimen (150 mg/kg over 1 h, 50 mg/kg over 4 h, 100 mg/kg over 16 h) is associated with frequent non-allergic anaphylactoid reactions (NAARs), gastrointestinal adverse effects, treatment interruptions, and medication errors due to its rapid initial infusion rate and complex administration.

Objective: To compare two-bag (2B) versus three-bag intravenous NAC regimens for hepatotoxicity, adverse drug reactions, and treatment completion outcomes in paracetamol overdose.

Methods: We conducted a systematic review and meta-analysis in accordance with PRISMA guidelines, searching PubMed, EMBASE, MEDLINE, and Cochrane databases till January 2026. Studies of any design comparing 2B and 3B IV NAC in paracetamol overdose were eligible. Ten studies comprising of more than 10,000 patients across Australia, the UK, Denmark, and the USA were included.

Results: The 2B regimen was non-inferior to 3B for hepatotoxicity and acute liver injury across all included studies. NAARs were significantly reduced

with 2B (adjusted OR 0.23–0.44; $p < 0.0001$). Gastrointestinal reactions were similarly reduced in the randomized trial setting. Treatment delays were substantially shorter (median 35 vs 65 minutes; $p < 0.01$), delays exceeding one hour less frequent (31% vs 51%), and medication administration errors significantly lower (11% vs 27%; adjusted OR 0.24; $p < 0.005$).

Conclusions: The two-bag NAC regimen shows equivalent efficacy in preventing liver injury with significantly fewer adverse drug reactions and improved treatment completion, supporting its adoption as the preferred standard of care for paracetamol overdose.

5 GLP-1 Receptor Agonists in the Emergency Department: A Systematic Review and Meta-analysis of Acute Gastrointestinal and Pancreatobiliary Complications

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Background: GLP-1 receptor agonists are prescribed widely for type 2 diabetes and obesity, and acute gastrointestinal and pancreatobiliary adverse events increasingly bring patients to the emergency department (ED). No synthesis has quantified this burden across the evidence base.

Methods: We searched MEDLINE, Embase, Cochrane CENTRAL, ClinicalTrials.gov, and FAERS from inception to June 2026. Fifteen studies met inclusion criteria, spanning national surveillance, prospective observational studies, a target trial emulation, RCT meta-analyses, a retrospective cohort, and pharmacovigilance analyses. Risk of bias was assessed using design-appropriate tools.

Results: US surveillance estimated 24,499 ED visits attributable to semaglutide over 2022–2023; 69.3%

involved gastrointestinal effects, most commonly nausea or vomiting (57.6%), abdominal pain (25.1%), and diarrhea (12.2%). A UK pilot study ($n=56$) found GI features in 79%, with cholecystitis in 11%. Across RCT meta-analyses, cholelithiasis was significantly elevated (RR 1.46, 95% CI 1.09–1.97) and GERD doubled (RR 2.19, 95% CI 1.48–3.25); acute pancreatitis was not increased overall (OR 0.70–0.93). Real-world data ($n=333,687$) confirmed a null net pancreatitis result at 12 months but revealed early drug-induced excess offset by reductions in alcohol- and hypertriglyceridemia-related events. Semaglutide carried the highest nausea signal in pharmacovigilance data (ROR 7.41); liraglutide carried the highest pancreatitis signal (ROR 32.67). Biliary events peaked around six months, predominantly in women.

Conclusion: GLP-1RAs generate a predictable early GI burden at the ED level, a delayed biliary risk, and a null but cause-specific pancreatitis signal. Prospective ED surveillance with pharmacological confirmation and cause adjudication is needed to establish absolute population-level risk.

6 Enhanced Recovery After Surgery (ERAS) guidelines implementation – challenges and outcome; The Georgian experience

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Introduction: Implementing Enhanced Recovery After Surgery (ERAS) guidelines remains challenging across healthcare systems, particularly in countries such as Georgia, where organizational culture and medical education still reflect post-Soviet influences.

Objectives: To analyze organizational, clinical, and cultural barriers to ERAS implementation in Georgia and assess early postoperative outcomes.

Methods: Ingorokva University Clinic was the first medical center in Georgia to initiate ERAS implementation. Elective open colorectal surgery was selected as the pilot pathway. A multidisciplinary project group identified local barriers and introduced corrective measures through structured education, meetings, and practical training for anesthesia and surgical physicians and nurses. After three months of preparation, the ERAS protocol was implemented. Outcomes during the first six months

were compared with matched historical controls with similar inclusion criteria and demographics: Group A, ERAS patients (n=64); Group B, historical controls (n=64). Outcomes included hospital stay, pain management, postoperative complications, and readmission.

Results: Collaboration with international experts supported adaptation of ERAS protocols to the Georgian clinical context. Three major barriers were identified: staff reluctance to change, limited awareness of ERAS principles, and organizational concerns related to quality control, patient safety, and cost-effectiveness. After education, training, and monitoring, ERAS implementation was associated with shorter median hospital stay, decreasing from 8 to 6 days. Respiratory complications decreased by 4.7%, postoperative nausea and vomiting by 38%, postoperative ileus by 11.7%, thrombosis by 3.3%, and readmission by 30.8%.

Conclusion: ERAS implementation challenges vary across healthcare systems. In Georgia, international collaboration and context-specific protocol adaptation facilitated successful implementation and improved postoperative outcomes.

7 Territorial Right MCA Stroke Following Adelfan Overdose in a Patient with Paranoid Schizophrenia: A Case Report.

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Background: Adelfan combines reserpine and hydrochlorothiazide in a single tablet. Reserpine depletes presynaptic catecholamine stores and, in overdose, causes cardiovascular collapse with no specific antidote.

Case Description: A 49-year-old man with paranoid schizophrenia was brought by ambulance after reportedly ingesting 200 Adelfan tablets (66 times the maximum daily dose) as a suicide attempt. He arrived in shock: BP 80/45 mmHg, lactate 18.92 mmol/L. He was intubated and ventilated. Overnight, oxygenation deteriorated sharply, with pO₂ dropping to 43 mmHg and SpO₂ to 78%, during a period when neurological assessment was impossible. By day 3, left-sided weakness was apparent. CT on day 4 showed a large right MCA infarct with 4 mm midline shift; the admission scan had been normal. Echo found an EF of 58% and

no embolic source. He was extubated on day 10 and transferred to neurology with left hemiplegia, hemianopia, and hemisensory loss.

Discussion: The mechanism here is the point. No cardiac source, no prior cerebrovascular disease. The stroke most likely came from sustained hypotension and a night of critical hypoxemia acting together on a vulnerable cerebral territory. The normal admission CT did not mean the brain was safe.

Key Learning Points:

Stroke can follow antihypertensive poisoning through hemodynamic failure alone, without any intrinsic vascular disease. A normal admission CT does not rule out evolving ischemia; new focal signs should prompt repeat imaging. Echocardiography is essential to distinguish hemodynamic from cardioembolic stroke.

8 Cannabis-Related Emergency Department Visits Before and After Legalization: A Systematic Review of Clinical Outcomes and Policy Impacts Across North America and Europe

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Background: Cannabis legalization has expanded rapidly across North America and parts of Europe, but evidence on how different stages of the policy cycle affect emergency department (ED) utilization has not been systematically examined.

Methods: We conducted a systematic review of peer-reviewed studies on cannabis-related ED visits published between 2019 and 2025. Twenty-five studies from the United States, Canada, Switzerland, Germany, and France were included, covering retrospective cohorts, interrupted time-

series analyses, population-level surveillance studies, and cross-sectional surveys. Study design, legalization stage, population characteristics, and primary outcomes were extracted.

Results: Cannabis-related ED visits increased across most jurisdictions and demographic groups. In the United States, national rates grew 12.1% annually between 2006 and 2014, while rates among older adults in California rose 1,804% between 2005 and 2019. Ontario data showed a 4.8-fold increase in cannabis-related ED visits, with the highest rates among adolescents, young adults, and children exposed to edibles. Retail commercialization and expanded product availability, rather than legalization alone, drove increases in cannabis-induced psychosis presentations, particularly among individuals aged 19–24 years. Patients with depression faced four-fold higher risk of cannabis-related ED visits, and cannabis-associated traffic injury presentations rose 475% over 13 years. Acute intoxication, anxiety, and neuropsychiatric symptoms including psychosis were among the most common clinical presentations.

Conclusion: The data point to one conclusion: legalization opens the door, but commercialization determines how wide it spreads. Youth, older adults, and patients with depression or psychiatric comorbidity need targeted prevention strategies. Clinical training and public health surveillance must keep pace with market expansion.

9 Analysis of causes of mortality among adult patients with combined drugs poisoning

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Introduction: Clinical and forensic diagnostics of combined drug poisoning (overdose) is often a difficult task due to the atypical course of poisoning.

The aim: To study the correlations between clinical parameters in patients with combined drug poisoning associated with opioids, psychostimulants and alcohol.

Materials and methods: Medical data of 2741 patients treated in the toxicology department in the period 2016-2021 were analyzed. Pearson

correlation analysis was applied ($p \leq 0.05$).

Results: During the study period, a total of 98 people died from combined drug poisoning (hospital mortality - 3.57%), among whom 77 (78.58%) had two or more drugs in urine ($r=0.871$, $p \leq 0.05$). In 34 cases (34.69%) opioids and alcohol were present ($r=0.711$, $p \leq 0.05$); 21 cases (21.37%) - opioids, alcohol and psychostimulants ($r=0.651$, $p \leq 0.05$). According to forensic studies, death occurred for various reasons: toxic damage to the kidneys and liver - 31 cases (31.63%); compartment syndrome accompanied by rhabdomyolysis and acute renal failure - 20 (21.40%); acute kidney injury - 12 (12.24%) without rhabdomyolysis; aspiration of gastric contents with the development of Mendelssohn's syndrome - 18 (18.37%); community-acquired pneumonia - 15 cases (15.31%). The correlation between the number of detected toxicants (in urine) and the duration of treatment in the intensive care unit ($n=127$), $r=0.7864$ ($p=0.00123$), and the correlation between the number of toxicants and hospital mortality ($n=98$), $r=0.6927$ ($p=0.00143$).

Conclusion: Combined drug poisonings are characterized by a severe course and high mortality rates.

10 Machine Learning-Based Early Sepsis Detection in Emergency Departments: A Literature Review of Clinical Implementation and Patient Safety Outcomes.

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Background: Sepsis remains one of the most critical diagnostic challenges faced by Emergency Departments (EDs), with delayed recognition and treatment contributing to a 49.7% mortality rate.

Methods: This review assesses evidence from PubMed, Cochrane Library, and IEEE Xplore (2016–2026) to evaluate machine learning (ML)-driven early sepsis detection systems, their clinical accuracy, real-world ED implementation, and impact on patient safety outcomes.

Results: ML models consistently outperformed traditional scoring tools such as qSOFA and NEWS, demonstrating higher diagnostic and prognostic accuracy, sensitivity, and AUROC under both ED and ICU settings. Most notably, the COMPOSER (Conformal Multidimensional Prediction of Sepsis Risk) algorithm provided a 2.1-hour early warning

window, led to a 17% relative decrease in hospital mortality, and a 10% relative increase in sepsis bundle compliance. Similarly, TREWS (Targeted Real-time Early Warning System) showed an 18% reduction in mortality rate. The algorithm Descena and InSights showed the 39.5% mortality reduction. ML tools decreased the time to fluid resuscitation in pediatric populations. Successful implementation factors included nurse-facing interfaces, high provider integration rates, and selective enrollment strategies that effectively mitigate alert fatigue among healthcare providers.

Conclusion: Sepsis detection ML algorithms show strong potential for improving ED quality of care by substantially reducing sepsis mortality rates through earlier detection, antibiotic administration, and improved bundle compliance. Successful implementation requires meticulous attention to workflow integration, provider trust, and careful management of alert fatigue. These findings support evidence-based integration of ML into sepsis pathways that may inform future implementation strategies in emergency care.

11 Case report: Challenges in diagnosing atypical forms of abdominal pain

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Introduction: Abdominal angioedema is a rare condition with atypical abdominal pain. Diagnosing abdominal angioedema remains difficult, often leads to misdiagnosis and unnecessary surgeries. This case discusses the clinical and imaging findings of a patient with severe abdominal pain.

Case Description: A 31-year-old female presented with acute severe abdominal pain. Patient had history of left ovarian cystectomy and gastritis by H. Pylori. Lab findings were nonspecific. Patient had severe abdominal distention and high fever. On CT, the proximal third of small intestine was swollen, with pneumatosis but no obstruction and swollen lymph nodes in ileum. CT findings were suggestive for the right ovarian follicular cystic hemorrhage. To rule out infectious enteritis, fecal testing was performed. Laparotomy confirmed the rupture of right ovarian cyst with healing conglomerate. Adhesions were removed, lavage

and drainage of peritoneal cavity was performed, alongside removal of damaged ovarian sections. Laparotomy showed no small intestine swelling, confirming abdominal angioedema. No specific treatment was given; managed with antipyretics, narcotics, and crystalloid infusion. No triggers were found; genetic testing was advised.

Discussion: Abdominal angioedema and intestinal ischemia share symptoms, with labs showing neutrophilia, elevated lactate, and CRP could potentially delaying diagnosis. Specific CT findings, especially with history of ACE inhibitor use, can confirm the diagnosis and speed up recovery.

Key Learning Points:

- Abdominal angioedema should be considered as differential diagnosis of unexplained acute abdominal pain.
- Early recognition of self-resolving abdominal angioedema prevents unnecessary surgery.
- Accurate identification of CT findings is essential to prevent misdiagnosing with conditions like intestinal ischemia and appendicitis.

12 Reverse Takotsubo Cardiomyopathy as a Manifestation of the Heart-Brain Axis Following Traumatic Intracranial Hemorrhage: A Case Report & Literature Review

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Background: The brain and heart communicate through a powerful neurohumoral axis — one that, when disrupted by acute intracranial injury, can unleash a catecholamine surge sufficient to silence the heart. Reverse Takotsubo cardiomyopathy (RTC), characterized by basal and mid-ventricular akinesia with preserved apical function, represents the rarest morphological variant of stress cardiomyopathy, constituting approximately 2.2% of all Takotsubo cases. Its occurrence following

traumatic brain injury remains exceptionally rarely reported.

Case Presentation: A 20-year-old woman presented comatose (GCS 3) following a high-energy motor vehicle accident. CT confirmed traumatic subdural and subarachnoid hemorrhage with left-to-right midline shift of 1–2 cm, pulmonary contusion, and thoracic compression fractures (T8, T11, T12). Admission echocardiography showed preserved function — EF 58%, normal wall motion. Within 48 hours, she deteriorated into vasopressor-dependent shock. Repeat echocardiography revealed EF collapsed to 12–14%, with total basal and mid-ventricular akinesia and preserved apical hyperkinesia — pathognomonic of RTC. Troponin I was 4.87 ng/ml (reference <0.30 ng/ml). ECG demonstrated diffuse deep T-wave inversions across precordial and inferior leads — the "reverse shark fin" morphology of neurogenic myocardial injury.

Conclusion: This case illustrates a rare and life-threatening manifestation of the heart–brain axis in traumatic intracranial hemorrhage. The triad of basal akinesia, troponin elevation, and reverse shark fin ECG constitutes a recognizable neurocardiac emergency. In patients with severe intracranial injury, hemodynamic deterioration may be cardiogenic — and the heart deserves the same vigilance as the brain.

13 Lead Poisoning in the Republic of Georgia: A Public Health Success Story in Global Context

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Background: Lead exposure from adulterated spices emerged as a major pediatric public health crisis in the Republic of Georgia. A 2018 national survey found that 41% of children aged 2–7 years had blood lead levels (BLLs) at or above the CDC reference value of 5 µg/dL, with regional prevalence reaching 85% in Adjara. Lead chromate added to enhance spice color, particularly marigold-based mixes, was identified as the primary source, with contaminated Georgian spices also implicated in pediatric lead poisoning cases in New York and Los Angeles.

Methods: We reviewed published surveillance and intervention data from Georgia's National Center for Disease Control, UNICEF, Pure Earth, and US CDC partners spanning 2018–2024, alongside

comparative international data on turmeric-related lead chromate adulteration in South Asia.

Results: Following supply-chain enforcement and household-level public health counseling beginning in 2019, median pediatric BLLs declined by 2.5 µg/dL within months. Spice lead detection rates fell over 30% between 2017 and 2020, and market testing in 2022 found no detectable lead in sampled spices. Among children of Georgian ancestry in New York City, the proportion with elevated BLLs fell 96% between 2017 and 2022, compared to a 13% citywide decline. Comparable lead chromate adulteration persists in turmeric across India, Pakistan, and Nepal, where projected child BLLs remain far higher.

Conclusion: Georgia's coordinated, multi-stakeholder response demonstrates that supply-chain-level intervention can rapidly and substantially reduce pediatric lead exposure. This model offers a transferable framework for regions where spice-related lead adulteration remains unaddressed.

14 Xylazine: An Emerging Adulterant Driving a Novel Toxidrome in Emergency Care

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Background: Xylazine, a veterinary alpha-2 adrenergic agonist, has rapidly emerged as an adulterant in illicit opioid supplies, producing a clinical syndrome distinct from typical opioid toxicity. Unlike opioids, xylazine toxicity is not reversed by naloxone, and chronic exposure is associated with severe, necrotic skin wounds unrelated to injection site. Awareness of this toxidrome remains limited outside regions where xylazine adulteration is established, posing a diagnostic and management challenge for emergency clinicians elsewhere.

Methods: A narrative literature review was conducted using PubMed, identifying systematic reviews, cohort studies, and clinical guidance published primarily between 2023 and 2025 addressing xylazine toxicity, withdrawal management, wound characteristics, and patient-reported barriers to care.

Results: Xylazine co-exposure with fentanyl produces profound sedation and respiratory depression poorly responsive to naloxone, alongside

a distinct withdrawal syndrome marked by severe anxiety, autonomic instability, and pain not adequately managed by standard opioid withdrawal protocols. Xylazine-associated wounds, frequently on the extremities and not confined to injection sites, are linked to peripheral vasoconstriction and tissue devitalization, with patients reporting high rates of care-avoidance due to wound-related shame and fear of amputation. Awareness among both patients and frontline clinicians remains incomplete, with significant disparities by demographic group and geographic region.

Conclusion: Xylazine represents an emerging toxicologic threat with management implications distinct from conventional opioid toxicity. Increased clinician awareness, revised withdrawal protocols, and proactive wound assessment are needed as xylazine adulteration continues to spread beyond its initial high-prevalence regions.

15 Stevens-Johnson Syndrome and Toxic Epidermal Necrolysis: What is New in Diagnosis and Management

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Introduction and Objective: Stevens-Johnson syndrome (SJS) and toxic epidermal necrolysis (TEN) remain among the most severe dermatologic emergencies, associated with high mortality and significant diagnostic and therapeutic challenges. This review aims to highlight recent clinically relevant advances in the diagnosis and management of SJS/TEN.

Materials and Methods: A focused review of recent literature was performed, emphasizing updates in drug causality assessment, prognostic tools, biomarkers, and treatment strategies.

Results: Accurate identification of the culprit drug remains essential, with the Algorithm of Drug Causality for Epidermal Necrolysis (ALDEN) considered the gold standard. Emerging biomarkers such as granulysin and interleukin-15 show potential in early severity assessment. SCORTEN remains the most widely used prognostic tool, while updated models such as Re-SCORTEN, ABCD-10, and CRISTEN aim to improve risk stratification and early clinical applicability. Supportive care continues to be the cornerstone of management,

with early drug withdrawal and prevention of sepsis as key priorities. Increasing evidence supports the use of targeted immunomodulatory therapies. Cyclosporine and tumor necrosis factor- α inhibitors, particularly etanercept, have shown promising results, whereas the role of corticosteroids and intravenous immunoglobulin remains controversial.

Conclusion: Recent advances in biomarkers, prognostic scoring, and targeted therapies are reshaping the management of SJS/TEN. A focused, early, and individualized approach may improve patient outcomes and may redefine the standard of care.

16 ChatGPT Differential Diagnosis Performance in Emergency Department Patients Presenting with Dyspnea: A Two-Year Retrospective Study in Georgia

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Background: Dyspnea is a time-critical emergency department presentation with broad, overlapping causes, making early differential diagnosis clinically difficult. Large language models are increasingly proposed for diagnostic support, but real-world evaluation in Georgian emergency care remains limited. To our knowledge, this is the first Georgian ED record-based evaluation of ChatGPT differential diagnosis for dyspnea.

Methods: We conducted a two-year retrospective study at a single emergency department in Tbilisi, Georgia, using 2024-2025 records in which dyspnea was documented. We screened 893 records for dyspnea at presentation, sufficient early ED information, interpretable physician-assigned discharge diagnosis, and suitability for AI evaluation. Eligible cases are being de-identified and standardized into prompts containing only early ED information: chief complaint, history of present illness, vital signs, relevant history, medications, and focused physical examination. Cases are excluded or adjudicated when the current-episode diagnosis is explicitly documented before AI analysis, preventing the model from receiving the answer. Using OpenAI GPT-5.5 via API, three

ranked differential diagnoses will be generated per case. The primary outcome is whether the discharge diagnosis appears among ChatGPT's top three differentials. Secondary outcomes include top one agreement, correct-diagnosis rank, and diagnostic-category agreement.

Results: Structured screening retained 489 of 893 records as eligible dyspnea presentations. Diagnoses span pneumonia, congestive heart failure, COPD exacerbation, acute coronary syndromes, pulmonary embolism, and less common etiologies. Prompt standardization and final API analysis are ongoing.

Conclusion: This ongoing study will provide a real-world evaluation of AI-assisted differential diagnosis in Georgian emergency dyspnea care.

17 Diagnostic Delays in Acute Myocardial Infarction in Low-Resource Emergency Settings: Implications for Patient Safety and Quality Improvement

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Background: Acute myocardial infarction (AMI) is one of the major causes of mortality with 50% of deaths occurring within the first hour after symptom onset. Timely diagnosis is crucial for effective reperfusion therapy. However, in low-resource setting diagnostic delays are common due to atypical presentation, comorbidity and healthcare limitations.

Methods: A literature review was conducted using the published articles identified through PubMed and Google Scholar. Studies addressing diagnostic delays in AMI, barriers to timely diagnosis, patient safety implications and quality improvement intervention in emergency care settings were reviewed and synthesized.

Results: The literature identified multiple contributors to delayed diagnosis of AMI in low-resource emergency settings. Patient-related barriers included poor symptom awareness and delayed healthcare seeking. System-level challenges included inadequate referral pathways, limited infrastructure and funding, high emergency department workload and variability in consultant availability. Delayed diagnosis was associated with adverse outcomes, with some studies even

reporting death or potentially lethal complications among affected patients. Quality improvement interventions demonstrated benefits such as telemedicine-supported electrocardiography, prehospital ECG acquisition, structured referral networks, development of specialized myocardial infarction centers, healthcare worker education and task-shifting strategies. These interventions were associated with better access to timely reperfusion and more equitable delivery of care.

Conclusion: Diagnosis of AMI remains a challenge in low-resource setting. Compared with undelayed patients, diagnostic delays increase morbidity and mortality due to patient and system barriers. Implementation of telemedicine, early ECG referral networks and training can improve timely diagnosis, treatment access and patient outcomes.