2025

GME Resident Scholarly Activity Projects

Kaweah Health
Graduate Medical Education

FOREWORD

As Kaweah Health resident and fellow graduates, you cross the threshold into independent practice. You not only do so as clinicians, but as contributors to a much larger story – the story of medicine's progress. The research and scholarly work you and the faculty have pursued during your training are reflections of your curiosity, your drive to improve care, and your commitment to something greater than yourselves.

Let this be the beginning – not the end – of your scholarly journey. The best clinicians are those who stay curious, who share their insights, and who never stop seeking better ways to care for others. Scholarship is not confined to the lab or lecture hall; it lives in every question you ask, every outcome you examine, and every lesson you pass on.

Thank you for honoring the calling of medicine with your intellect and your heart. May you carry this spirit of inquiry forward into everything you do.

With deep respect,

Angel Smith, JD
Chief Medical Education Officer and Designated Institutional Official

Abdullah Alazzawi, DO

Transitional Year

Diagnosis and Management of Sacroiliac Joint Dysfunction in a Primary Care Setting from an Osteopathic Perspective: A Literature Review

INTRODUCTION/BACKGROUND:
Sacroiliac joint (SIJ) dysfunction is an often underdiagnosed source of low back pain, accounting for 15% to 30% of cases. Despite its clinical relevance, the osteopathic approach to diagnosis and treatment of SIJ dysfunction remains insufficiently highlighted in primary care literature. This review aims to synthesize current evidence on osteopathic diagnostic and therapeutic strategies for SIJ dysfunction applicable to the primary care setting.

DESCRIBE THE PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS:
A literature review was conducted using MeSH terms related to SIJ dysfunction diagnosis and treatment across databases including PubMed, CINAHL, EBSCO, and Google Scholar. The review emphasized osteopathic models and techniques, particularly those involving osteopathic manipulative treatment (OMT).

DISCUSS PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:
The review identified that SIJ dysfunction diagnosis relies on comprehensive clinical evaluation including pain provocation and mobility testing. The Mitchell Model was emphasized for osteopathic diagnosis. Treatment with OMT, including muscle energy techniques and myofascial release, demonstrated benefits in symptom relief and functional improvement. However, literature specific to osteopathic approaches remains limited.

IMPLICATIONS FOR PRACTICE:
This review supports the integration of osteopathic principles and OMT into primary care practice for managing SIJ dysfunction. Enhanced recognition and treatment of SIJ dysfunction using osteopathic methods can improve outcomes in patients with low back pain and reduce unnecessary interventions.

Ryan Bennion, DO

Emergency Medicine

Rapid Identification of Hemorrhagic Strokes

INTRODUCTION/BACKGROUND:
Hemorrhagic strokes are less common but more fatal than ischemic strokes. Delayed imaging in patients who do not present with typical stroke symptoms can result in missed or late diagnoses. This study aimed to determine whether patient-level indicators such as age, gender, history of CVA, and systolic blood pressure (SBP) are associated with increased risk for hemorrhagic stroke to support earlier recognition and activation of stroke protocols.

DESCRIBE THE PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS:
This was a retrospective cross-sectional chart review of 58 de-identified adult patients with confirmed hemorrhagic strokes from 2019 to 2021 at Kaweah Health. Chi-square tests and Pearson correlation were used to analyze relationships among patient age, gender, SBP, and history of CVA. Patients with trauma-related bleeds or transfers were noted as limitations.

DISCUSS PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:
Pearson's correlation showed no significant correlation between age and SBP ($r=0.017$). Chi-square analysis revealed no statistically significant associations between SBP and history of CVA ($p=0.412$), SBP and gender ($p=0.409$), age and SBP ($p=0.801$), age and history of CVA ($p=0.555$), age and gender ($p=0.252$), or gender and history of CVA ($p=0.821$). The null hypothesis was not rejected in any category.

IMPLICATIONS FOR PRACTICE:
Although this study found no statistically significant patient-level predictors, it highlights the need for improved early detection protocols for hemorrhagic strokes. Future studies with larger sample sizes may help identify relevant indicators to prompt early imaging and improve patient outcomes.

Roberto Bonilla, MD

Family Medicine

A Diagnostic Odyssey: Huntington's Disease Unmasked After Psychiatric Admission

INTRODUCTION/BACKGROUND:
This case emphasizes the importance of considering neurodegenerative disorders in the differential diagnosis of psychiatric presentations, especially in younger adults with atypical symptoms and relevant family history.

PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS:
A 35-year-old male with a history of polysubstance abuse, traumatic brain injury, and previously suspected schizophrenia presented under a 5150 hold for grave disability. Initially treated for presumed substance-induced psychosis and latent syphilis, he demonstrated progressive behavioral dysregulation, choreiform movements, disinhibition, and gait instability. Family history was later found to be significant for Huntington's Disease.

PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:
Neurology consultation and genetic testing confirmed Huntington's Disease (CAG repeat of 47). Treatment included symptomatic management with tetrabenazine for chorea, antipsychotics for agitation, and mood stabilizers. As his condition progressed, he became catatonic and dysphagic, requiring palliative care. The patient passed away on April 11, 2025.

IMPLICATIONS FOR PRACTICE:
This case highlights the critical need to integrate neurologic evaluation in patients with atypical psychiatric presentations, especially when movement abnormalities and family history suggest a neurodegenerative process. Early recognition can guide more appropriate interventions and family counseling.

Jared Caballes, MD

Family Medicine

Improving Cervical Cancer Screening Rates at Kaweah Health Tulare Clinic

INTRODUCTION/BACKGROUND:
Cervical cancer remains a preventable disease with appropriate screening, yet screening rates at our community clinic were suboptimal. This project aimed to improve cervical cancer screening completion among eligible women at Kaweah Health Tulare Clinic by implementing a structured educational and workflow intervention.

DESCRIBE THE PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS:
The team conducted a pre/post-intervention quality improvement project. Prior to intervention, a didactic session was held to review cervical cancer screening guidelines and the identification process for patients in need of screening. Medical assistants were trained to check the Advisory section in Cerner during intake. Additional strategies included appointment cards, front desk messaging, and a workstation flyer outlining appropriate screening orders and ICD codes. Screening completion rates were then compared pre- and post-intervention.

DISCUSS PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:
In the pre-intervention group, 186 women (17.68%) completed recommended screening. In the post-intervention group, 229 women (15.70%) completed screening, reflecting an overall decrease of 1.98%. Subgroup analysis revealed a 0.29% decrease among women aged 21–29 and a 1.83% decrease among women aged 30–65. Statistical analysis yielded a p-value of 1.859, indicating no significant difference between groups.

IMPLICATIONS FOR PRACTICE:
Although our intervention did not result in a statistically significant increase in screening rates, it highlighted gaps in implementation and engagement. Future efforts should include enhanced workflow integration, increased staff accountability, and stronger patient outreach to improve screening adherence.

Yesenia Calderon Leon, MD

Brandy Truong, MD

Family Medicine

Implementing Wellness Through Leadership Groups in a Family Medicine Residency Program

INTRODUCTION/BACKGROUND:
Medical residency is associated with high levels of burnout and stress, especially in primary care. Occupational wellness—emphasizing career meaning and work satisfaction—has been shown to improve mental health and overall functioning. This study evaluated whether protected time for therapist-led wellness sessions could improve family medicine residents' occupational wellness.

PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS:
Twenty family medicine residents at Kaweah Health participated in seven 1-hour monthly wellness sessions from November 2023 to May 2024, led by a licensed therapist. Topics included trauma-informed care, leadership, mindfulness, stress management, resiliency, and self-care. Pre- and post-intervention data were collected using the Physician Wellness Inventory (PWI) and the Quality of Life Linear Analog Scale Self-Assessment (LASA). Data were analyzed using paired t-tests and hierarchical linear models.

PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:
No significant differences were found in pre-post paired tests. However, hierarchical regression models showed that attending 5–6 sessions was associated with a 1-point improvement in emotional well-being (QOL2). Distress scores also decreased modestly. Projected data suggest 12–13 sessions could lead to a 1-point decrease in distress.

IMPLICATIONS FOR PRACTICE:
Protected wellness sessions during residency may enhance emotional well-being and reduce distress when participation is consistent. Incorporating structured, therapist-led wellness programs into residency training could support resident well-being and improve resilience. The therapist's facilitation style may influence effectiveness and should be carefully considered in future programs.

**Shared project*

Jessica Chan, DO

Anesthesiology

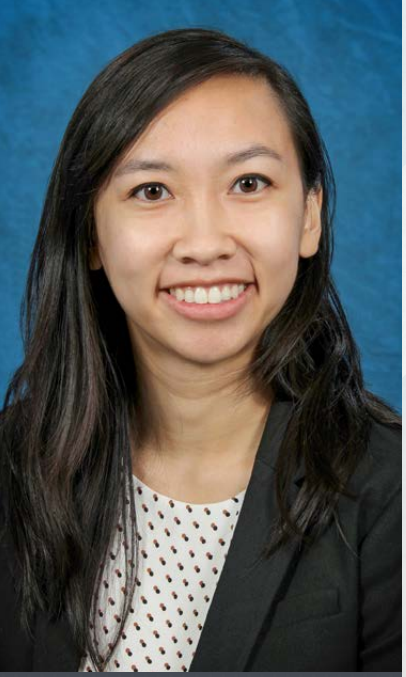
Acute Right Ventricular Failure From CO_2 Embolism During Endoscopic Vein Harvesting

INTRODUCTION/BACKGROUND:
Carbon dioxide (CO_2) embolism is a rare but potentially fatal complication of laparoscopic procedures, including endoscopic vein harvesting (EVH) for coronary artery bypass grafting (CABG). While most CO_2 emboli are asymptomatic, massive embolism can result in cardiovascular collapse. Prompt recognition and management are critical for patient survival.

METHODS/RESULTS:
A 61-year-old woman with severe multi-vessel coronary artery disease and multiple comorbidities underwent elective on-pump CABG. During EVH, there was an abrupt drop in end-tidal CO_2 ($ETCO_2$) from 35 to 20 mmHg and a sudden decrease in systolic blood pressure from 110 to 60 mmHg. Transesophageal echocardiography (TEE) revealed gas bubbles in the right ventricle, consistent with a diagnosis of massive CO_2 embolism.

RESULTS:
The diagnosis of CO_2 embolism was confirmed intraoperatively via TEE. Hemodynamic instability was managed with an epinephrine bolus and fluid resuscitation. CO_2 insufflation was immediately discontinued. The patient stabilized and surgery proceeded without further incident. She was discharged home on postoperative day six without neurologic deficits and had no complications at one-year follow-up.

IMPLICATIONS FOR PRACTICE:
This case underscores the importance of real-time monitoring and the use of intraoperative TEE for early detection of gas embolism. Rapid intervention and cessation of CO_2 insufflation can prevent escalation and improve outcomes. Clinicians should maintain a high index of suspicion for CO_2 embolism during EVH and be prepared with protocols for prompt management.



Christine Do, DO

Emergency Medicine

A Fatal Case of Gadolinium Contrast-Induced Anaphylactic Shock

INTRODUCTION/BACKGROUND:
Anaphylaxis is a rare but life-threatening hypersensitivity reaction that can occur following exposure to allergens such as medications, foods, or contrast media. Gadolinium-based contrast agents, typically used in MRI imaging, have a low incidence of severe allergic reactions. Nonetheless, when such reactions occur, they can progress rapidly to cardiopulmonary collapse and death despite immediate intervention.

METHODS/RESULTS:
A previously healthy 14-year-old male presented for an elective MRI with contrast to evaluate recent vision changes, fatigue, joint pain, and hormonal abnormalities. He received 9 mL of IV gadavist and collapsed two hours later with profound hypoxia and hypotension. Despite aggressive resuscitation and extracorporeal membrane oxygenation (ECMO), the patient developed severe cerebral edema and was later declared brain-dead.

RESULTS:
The patient was diagnosed with anaphylactic shock likely secondary to gadolinium-based contrast exposure. Initial interventions included intubation, ventilatory support, multiple doses of epinephrine, and ECMO. Despite these efforts, the patient sustained irreversible neurological damage and was declared brain dead on day six of hospitalization.

IMPLICATIONS FOR PRACTICE:
Although gadolinium contrast is considered relatively safe, this case highlights the need for heightened awareness of the rare but devastating potential for anaphylaxis. Clinicians should remain vigilant and consider pre-screening strategies or alternatives in patients with autoimmune symptoms or previous allergic responses. Prompt recognition and management remain critical, but some reactions may progress beyond the point of reversibility.

Charles Gaccione, MD

Family Medicine

Sliding Scale Insulin Non-Glucommander Order Set Effectiveness

INTRODUCTION/BACKGROUND:
Glucommander is a software-based insulin management system used in hospitals to regulate blood glucose levels. However, its rigid algorithm can result in hypoglycemic or hyperglycemic events due to lack of individualization. This quality improvement project aimed to implement a manually managed, Non-Glucommander (Non-GM) sliding scale insulin order set to improve glycemic control, reduce hypoglycemic events, and foster critical thinking among clinicians.

METHODS:
A retrospective cohort study was conducted on 25 patients before and after the implementation of the Non-GM sliding scale insulin order set. Primary outcomes included fasting blood glucose levels and frequency of hypoglycemic events. Statistical analysis was performed using the Wilcoxon Signed-Rank test. Clinician feedback was also qualitatively assessed to evaluate satisfaction and perceived clinical utility.

RESULTS:
The median number of hypoglycemic events decreased from 8 to 5 ($p = 0.289$). Fasting blood glucose levels showed a trend toward improvement ($p = 0.093$), although not statistically significant. Clinicians reported increased satisfaction with the flexibility and personalization of care enabled by the Non-GM order set.

IMPLICATIONS FOR PRACTICE:
The Non-GM insulin order set appears to offer a valuable alternative to algorithmic insulin management systems, promoting patient-centered care and enhanced clinical decision-making. These findings support broader implementation and future validation in larger cohorts. Additional initiatives may include formal training in manual insulin management and evaluation of cost-effectiveness.

Nima S. Ghorashi, MD

Transitional Year

A Conceptual Neuroimaging-Focused Color Surface-Labeled 3D Printed Model and First-Person Shooter 3D Serious Game of the Skull Base

INTRODUCTION/BACKGROUND:
Understanding the skull base anatomy is complex due to its intricate three-dimensional relationships and small structures. Traditional teaching methods—cadavers, 2D atlases, and imaging—fail to adequately convey these relationships. There is a need for innovative tools that enhance spatial understanding, particularly for radiology, neurosurgery, and otolaryngology education.

METHODS:
A conceptual model was developed using Autodesk 3D Studio Max and Blender to depict skull base structures as rooms and hallways in a three-story layout. The design was 3D printed using MultiJet Fusion technology with color-coded surface labels and a QR code linking to online educational resources, including an interactive Unity-based first-person shooter video game compatible with multiple platforms.

RESULTS:
The final model, measuring 42 x 24 x 18 cm, successfully included over 130 labeled structures, with legible text as small as 2 mm and nerve structures as thin as 1 mm. The accompanying game allows for multi-interface access, including VR, PC, mobile, and web platforms, and promotes user engagement with the anatomical material through gameplay.

IMPLICATIONS FOR PRACTICE:
This project demonstrates the utility of 3D printing and serious gaming in medical education. The model provides a highly customizable, interactive, and engaging tool for teaching complex neuroanatomy, especially beneficial for radiologists and surgical trainees. It also illustrates the potential for broader applications of advanced 3D printing in clinical education and pre-operative planning.

Saina Gill, DO

Psychiatry

Psychiatric Complications Post COVID-19 in a 65-Year-Old Patient with a History of Hashimoto's Disease

INTRODUCTION/BACKGROUND:
COVID-19 has been associated with a wide spectrum of neuropsychiatric complications, including new-onset psychosis. Individuals with autoimmune conditions like Hashimoto's Thyroiditis may be at increased risk due to dysregulated immune responses. This case report presents a 65-year-old woman with Hashimoto's Thyroiditis who developed late-onset psychosis following COVID-19 infection, despite no prior history of psychotic illness.

METHODS:
The patient initially presented with severe insomnia following COVID-19 vaccination, which progressed to auditory hallucinations, bizarre behavior, suicidal ideation, and functional decline after contracting COVID-19. Clinical workup including imaging and labs was unremarkable aside from thyroid dysfunction.

RESULTS:
Diagnosed with new-onset psychosis in the context of autoimmune thyroid disease and recent COVID-19 infection. Treatment included antipsychotics (Quetiapine, Olanzapine), antidepressants (Mirtazapine, Venlafaxine), sleep aids (Melatonin, Trazodone), and Gabapentin. Although the patient responded to pharmacologic therapy, she did not return to baseline functioning and experienced repeated psychiatric hospitalizations.

IMPLICATIONS FOR PRACTICE:
This case highlights the need for heightened vigilance regarding neuropsychiatric sequelae of COVID-19 in older adults, particularly those with autoimmune diseases. It underscores the importance of early psychiatric evaluation and intervention, and calls for further research into the pathophysiology and long-term outcomes of post-COVID-19 psychiatric complications.

Kristel Hallsson, MD

Emergency Medicine

Incidental Left Ventricular Aneurysm on CT

INTRODUCTION/BACKGROUND:
Left ventricular aneurysms (LVAs) are rare but potentially life-threatening cardiac abnormalities often associated with myocardial infarction. They are typically diagnosed through echocardiography but may occasionally be discovered incidentally on imaging performed for unrelated symptoms. Early identification is critical for effective management, especially in patients without classic cardiac presentations.

METHODS:
A 57-year-old male with a history of multiple abdominal surgeries and small bowel obstruction presented to the Emergency Department with 10 hours of abdominal pain, nausea, and vomiting. He denied any cardiopulmonary symptoms. A CT abdomen and pelvis with IV contrast, performed to evaluate his abdominal complaints, incidentally revealed a left ventricular aneurysm.

RESULTS:
Echocardiography confirmed global left ventricular systolic dysfunction and diastolic dysfunction. Cardiac catheterization revealed iatrogenic occlusion of the right coronary artery. The patient underwent urgent coronary artery bypass grafting and aneurysm resection/repair. Follow-up included RCA angioplasty and stenting. He was discharged and reported improved stamina and ambulation one week later.

IMPLICATIONS FOR PRACTICE:
This case highlights the importance of recognizing atypical presentations of cardiac pathology. Emergency providers should be aware of the potential for serious cardiac findings in patients presenting with non-cardiac symptoms. Point-of-care ultrasound (POCUS) and appropriate imaging modalities remain essential tools for timely diagnosis. Incidental findings on non-cardiac imaging can have significant clinical implications and should prompt appropriate follow-up.

Andrew Hanalla, DO

Emergency Medicine

Severe Acute Asthma: A Case of Life-Threatening Exacerbation with Complicating Substance Use

INTRODUCTION/BACKGROUND:
Severe acute asthma, formerly termed status asthmaticus, is a life-threatening exacerbation unresponsive to initial therapy. It accounts for approximately 2 million ED visits annually in the U.S., with over 10% requiring ICU care and over 2% requiring intubation. Timely recognition and escalation of care are essential for survival.

METHODS:
A 32-year-old male with a self-diagnosed history of asthma presented with severe shortness of breath after polysubstance use (marijuana, Percocet, codeine, and alcohol) the night prior. He exhibited diaphoresis, near-syncope, emesis, and hypoxia (SpO_2 in the 80s). Imaging revealed pneumomediastinum and small pneumothorax. Urine drug screen was positive for marijuana, opiates, and benzodiazepines.

RESULTS:
Diagnosed with life-threatening asthma exacerbation complicated by polysubstance use, pneumomediastinum, and possible pulmonary embolism. Interventions included high-dose bronchodilators, corticosteroids, magnesium sulfate, epinephrine, BiPAP, and eventual intubation for worsening mental status and respiratory failure. Hospital course included an ICU stay of 9 days (intubated 8 days), with full recovery and discharge on day 11.

IMPLICATIONS FOR PRACTICE:
This case highlights the need for early recognition of severe asthma exacerbations, especially in the context of substance use. Clinicians should consider toxicology screening for unresponsive patients and be prepared to escalate care quickly. Airway management must balance bronchodilator delivery with strategies to avoid barotrauma. A multidisciplinary approach is essential for optimal outcomes.

Niaree Hopelian, MD

Emergency Medicine

Impact of BE-FAST Implementation on Emergency Department Stroke Alert Process Metrics: A Retrospective Review

INTRODUCTION/BACKGROUND:
Stroke is a time-sensitive medical emergency and a leading cause of disability and death globally. The commonly used FAST screening tool may miss up to 40% of posterior circulation strokes. BE-FAST, which adds “Balance” and “Eyes” to the traditional FAST mnemonic, may enhance stroke detection. However, limited data exists on how this impacts Emergency Department (ED) stroke alert processes. This study aimed to compare ED stroke alert process metrics before and after implementing BE-FAST as the primary screening tool.

METHODS:
This was a retrospective chart review of adult patients (≥18 years) with documented positive ED stroke alerts at a single high-volume ED (Kaweah Health). Two time periods were compared: FAST period (April 1, 2021–March 31, 2022) and BE-FAST period (April 1, 2022–March 31, 2023). Metrics included: alert volume, median arrival-to-CT completion time, door-to-needle (D2N) time for tPA recipients, percent receiving tPA, percent transferred, and door-to-transfer time.

RESULTS:
Among positive screens, median arrival-to-CT time remained the same (28.0 min) in both periods. Median D2N time improved from 86.0 min (FAST) to 82.0 min (BE-FAST). tPA administration rates were similar: 4.78% (FAST) vs. 4.46% (BE-FAST). Patient transfer rates (3.08% vs. 3.23%) and median door-to-transfer times (202.0 vs. 213.0 min) were comparable.

IMPLICATIONS FOR PRACTICE:
The implementation of BE-FAST did not negatively impact key ED stroke alert process metrics and was associated with a slight improvement in door-to-needle time. These findings support continued use and further evaluation of BE-FAST as a potentially more sensitive screening tool. Future studies should include diagnostic accuracy comparisons using final stroke diagnoses.

Matthew Ishiki, MD

Emergency Medicine

Incidental Finding of Cement Embolization Following Kyphoplasty: A Case Report

INTRODUCTION/BACKGROUND:
Kyphoplasty is a minimally invasive procedure used to treat vertebral compression fractures. While generally safe, it carries a rare but potentially serious complication—cement embolization (CE). CE is underreported due to its often asymptomatic presentation, yet it can result in significant cardiopulmonary consequences.

METHODS:
A 46-year-old female with a history of chronic non-traumatic back pain underwent kyphoplasty at T10 after failing conservative treatments. Three years later, she presented with shortness of breath to an outpatient clinic. A chest X-ray revealed linear markings in the lung fields, prompting a referral to the emergency department. CT angiography confirmed cement embolization in the pulmonary vasculature.

RESULTS:
The primary diagnosis was pulmonary cement embolization as a delayed complication of kyphoplasty. No emergent intervention was necessary at the time of diagnosis. The patient remained hemodynamically stable, and further management was conducted on an outpatient basis.

IMPLICATIONS FOR PRACTICE:
This case emphasizes the importance of long-term follow-up and vigilance for late complications of kyphoplasty. It highlights the need for clinicians to be aware of the potential for asymptomatic yet clinically significant cement embolization, particularly when patients present with unexplained respiratory symptoms years after the procedure.

Mitra Jefic, DO

Emergency Medicine

RSV is Back and with a Vengeance: Changes to RSV-related ED Utilization and RSV Severity Following the COVID-19 Pandemic

INTRODUCTION:
Respiratory Syncytial Virus (RSV) is a major cause of respiratory illness in pediatric and elderly populations. During the COVID-19 pandemic, non-pharmaceutical interventions reduced RSV cases. With the easing of these interventions, a resurgence of RSV was observed. This study investigated changes in both the number and severity of RSV-related emergency department (ED) encounters in 2022 compared to 2021.

PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS:
This retrospective, observational, cross-sectional study analyzed ICD-10 coded data from 138 EDs across 15 U.S. states, comparing RSV-related encounters between October 1 and December 31 of 2021 and 2022. “High acuity” RSV cases were defined as those involving respiratory failure or resulting in admission/transfer. Chi-square tests and logistic regression were used to evaluate differences.

PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:
RSV-related ED encounters rose from 8,604 in Q4 2021 (0.31% of total) to 23,416 in Q4 2022 (0.75%). High acuity RSV cases also increased: those transferred rose from 4.2% to 5.3%, and those co-diagnosed with respiratory failure rose from 1.1% to 2.1%. The odds of an RSV encounter in 2022 were significantly greater than in 2021 (OR = 1.89, 95% CI = 1.84–1.94).

IMPLICATIONS FOR PRACTICE:
The findings suggest a significant increase in both the volume and severity of RSV cases post-COVID. This underscores the need for heightened preparedness in EDs during RSV season and supports proactive planning for resource allocation, RSV vaccination implementation, and monitoring of at-risk populations.

Elise Kahn, DO

Emergency Medicine

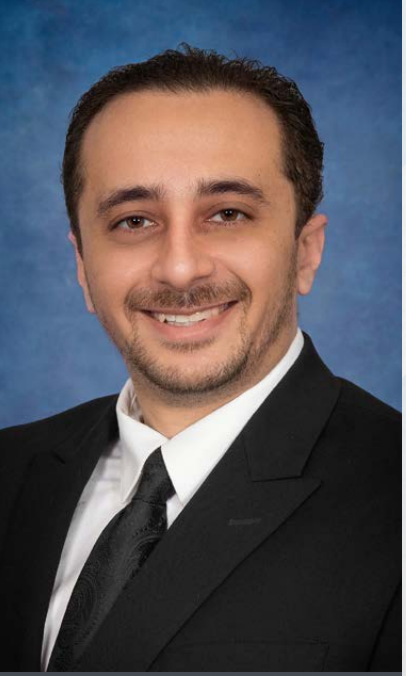
Pityriasis Rubra Pilaris: A Case Report

INTRODUCTION/BACKGROUND:
Pityriasis Rubra Pilaris (PRP) is a rare, chronic inflammatory skin condition that often presents diagnostic and therapeutic challenges due to its rarity, variable presentation, and resemblance to more common dermatoses.

METHODS:
A 17-year-old healthy female presented with a 2-week history of a diffuse, pruritic rash spreading in a cephalocaudal pattern. Clinical features included salmon-colored scaly plaques, erythroderma, palmar/plantar thickening, fissuring, scalp peeling, fever, fatigue, and arthralgia. Vital signs were notable for hypertension and tachycardia. Initial workup was largely unremarkable.

RESULTS:
After a broad differential diagnosis including psoriasis, drug eruption, and cutaneous lymphoma, dermatologic pathology confirmed PRP. The patient failed outpatient management and required urgent transfer to a tertiary center for systemic biologic treatment. Rapid improvement of lesions was noted within days of initiation.

IMPLICATIONS FOR PRACTICE:
This case emphasizes the importance of maintaining a broad differential for diffuse erythrodermic presentations in young patients. Early dermatologic evaluation and access to systemic therapies can significantly improve outcomes in rare conditions like PRP. Clinicians should be aware of diagnostic pitfalls and the need for biopsy in unclear cutaneous eruptions..



Daniel Khalil, MD

Psychiatry

Paranoia and Psychosis in Poorly Controlled Hashimoto's Disease: A Case Report on Myxedema Madness

INTRODUCTION/BACKGROUND:
Hypothyroidism commonly presents with neuropsychiatric symptoms such as fatigue, apathy, and depression. However, a rare but treatable manifestation known as "myxedema madness" can lead to severe psychosis in cases of significantly uncontrolled hypothyroidism.

METHODS:
A 42-year-old Hispanic female with a history of hypothyroidism and menorrhagia presented with a two-week history of paranoia, auditory hallucinations, refusal to eat or drink except for ice, cold intolerance, fatigue, paresthesia, and tangential, guarded behavior. She was responsive to internal stimuli and demonstrated paranoid delusions. Labs revealed severe hypothyroidism (TSH >150, free T4 0.37, T3 0.33), anemia (Hgb 7.0), and hypokalemia (K 2.9). MRI brain was unremarkable. Thyroid antibodies confirmed Hashimoto's thyroiditis.

RESULTS:
Diagnoses: Myxedema Madness secondary to Hashimoto's thyroiditis and iron-deficiency anemia.

Interventions: IV levothyroxine, risperidone for psychosis, mirtazapine for depression/sleep, iron supplementation, and transfusion of 1 unit pRBC.

Outcomes: After seven days of IV thyroid hormone therapy, free T4 normalized, psychotic symptoms improved, and the patient was safely transitioned to oral medications and discharged with outpatient follow-up.

IMPLICATIONS FOR PRACTICE:
This case highlights the critical importance of considering hypothyroidism in the differential diagnosis for new-onset psychosis. Timely diagnosis and thyroid hormone replacement can lead to full psychiatric and physiological recovery, underlining the need for thyroid screening in psychiatric presentations.

Amanda J. Khouri, MD
Surgery

Ferdinand Perez-Rodriguez, MD
Surgery

Steering Wheel Aftermarket Rhinestone Emblem Projectile Injury in a Motor Vehicle Collision: A Case Report

INTRODUCTION/BACKGROUND:
Motor vehicle collisions remain a leading cause of injury and death in the U.S. While safety devices such as airbags and seatbelts reduce morbidity, aftermarket modifications like rhinestone steering wheel emblems may pose unrecognized hazards. This case presents a penetrating facial and neck injury caused by the projection of such an emblem during airbag deployment.

PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS:
A 43-year-old woman was brought to the trauma center following a low-speed motor vehicle collision. On evaluation, she was hemodynamically stable but had two small penetrating wounds to the face and neck. CT imaging identified two embedded metallic fragments—one in the anterior neck and one in the right cheek—traced back to a rhinestone steering wheel emblem dislodged by airbag deployment.

PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:
Diagnoses: Penetrating soft tissue injuries to the face and neck from a metallic foreign body.

Interventions: The neck fragment was removed at bedside; the facial fragment required operative removal under general anesthesia.

Outcomes: The patient recovered uneventfully and was discharged the same day with a short course of oral antibiotics and outpatient follow-up.

IMPLICATIONS FOR PRACTICE:
This case underscores the risks posed by non-standard vehicle modifications such as rhinestone emblems, which can act as projectiles during airbag deployment. The authors recommend increased public awareness and consideration of regulatory action to reduce such preventable injuries.

**Shared project*

Max Klahr, MD

Emergency Medicine

The Viscous Enigma: Unraveling IgA Hyperviscosity Syndrome

INTRODUCTION/BACKGROUND:
Hyperviscosity syndrome (HVS) is a rare but life-threatening complication of multiple myeloma (MM), most commonly associated with IgA or IgM subtypes. Prompt recognition and early therapeutic intervention are essential for optimal outcomes. This case highlights the fulminant progression of IgA lambda MM complicated by hyperviscosity and the challenges of managing severe systemic complications.

METHODS:
A 65-year-old patient presented with progressive confusion and multiple failed blood draws due to clotting. Labs showed markedly elevated serum IgA (>3000 mg/dL), kappa/lambda ratio <0.1, and hypercalcemia (>16 mg/dL). A bone marrow biopsy confirmed 100% CD138+ plasma cells, and a PET scan revealed diffuse skeletal tumor burden. The patient was diagnosed with IgA lambda MM complicated by HVS.

RESULTS:
Diagnosis: IgA lambda multiple myeloma with symptomatic hyperviscosity syndrome.

Initial interventions included aggressive IV fluids, calcitonin, pamidronate, and chemotherapy (dexamethasone + bortezomib), resulting in clinical improvement and discharge. However, rapid relapse occurred within 10 days. The patient developed acute neurologic decline and multi-organ dysfunction requiring ICU care and plasmapheresis (IgA reduced from 4000 to 900 mg/dL). Despite intensive management, the patient failed extubation, and transitioned to comfort care, passing on hospital day 28.

IMPLICATIONS FOR PRACTICE:
This case emphasizes the importance of early recognition and prompt plasmapheresis in IgA-related HVS. Even with guideline-directed therapy, some patients may experience a catastrophic course. A high index of suspicion and early initiation of plasmapheresis in symptomatic patients may improve outcomes. Providers should monitor for rapid deterioration and multi-system complications despite initial improvement.

Eric Kuehne, MD

Family Medicine

Huntington's Disease: A Case Report of Diagnostic Delays in a Psychiatric Patient

INTRODUCTION/BACKGROUND:
Huntington's Disease (HD) is a progressive, autosomal dominant neurodegenerative disorder characterized by motor dysfunction, cognitive decline, and psychiatric disturbances. Diagnosis can be delayed or missed in patients with overlapping psychiatric or substance use disorders.

DESCRIBE THE PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS:
A 35-year-old male with prior diagnoses of schizophrenia, traumatic brain injury, and polysubstance use presented on a 5150 hold for grave disability. Initial assessment at a psychiatric facility showed disorganized behavior, disinhibition, hyperphagia, and unsteady gait. Neurology consult noted chorea. Collateral history revealed a paternal history of Huntington's Disease.

DISCUSS PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:
Genetic testing confirmed a CAG repeat expansion (47 repeats), indicating Huntington's Disease. MRI showed focal encephalomalacia. Treatment included tetrabenazine for chorea, antipsychotics (Risperdal, Seroquel), guanfacine, Depakote, and Ativan. The patient became catatonic and dysphagic; palliative care was consulted and comfort care was initiated. The patient passed away shortly thereafter.

IMPLICATIONS FOR PRACTICE:
This case illustrates the need for heightened clinical suspicion of Huntington's Disease in psychiatric populations, particularly when behavioral symptoms are atypical or progressive, and family history suggests a genetic disorder. Timely diagnosis is critical for appropriate management and palliative planning.

Joseph Lewis, MD

Emergency Medicine

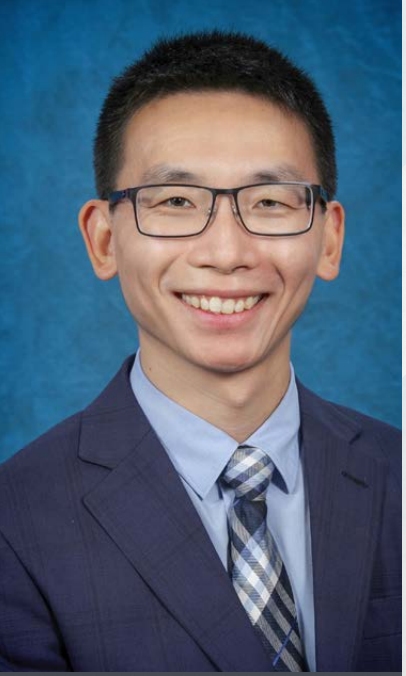
Factors Correlating with Emergency Department Provider Retention: A Comprehensive Analysis Across US Emergency Rooms

INTRODUCTION/BACKGROUND:
Retention of providers in Emergency Departments (EDs) is critical for optimizing patient outcomes, satisfaction, and cost-efficiency. The high-stress and fast-paced environment of EDs contributes to high turnover, yet limited data exist on the factors that influence the long-term retention of physicians and advanced practice providers (APPs).

DESCRIBE THE PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS:
This study analyzed data from 112 ED sites across the United States during 2021–2022. Retention was defined as providers working clinically across both years. Factors examined included hospital characteristics such as size, volume, inpatient and ICU bed counts, payer mix, trauma designation, and urban versus rural setting. Statistical analysis was conducted using chi-square tests and t-tests.

DISCUSS PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:
Higher provider retention was significantly associated with greater numbers of staffed inpatient and ICU beds and a higher percentage of Medicare admissions. No significant association was found with ED throughput metrics or trauma center designation. APPs were more likely to be retained at larger sites, whereas physicians had higher retention rates in urban environments.

IMPLICATIONS FOR PRACTICE:
Understanding that hospital resources and environment impact provider retention offers actionable strategies: investing in inpatient and ICU capacities and tailoring retention efforts to meet the specific needs of different provider types. These findings support institutional initiatives to enhance provider satisfaction and long-term workforce stability in EDs. Future research should include broader populations and investigate modifiable retention factors.



Alvin Li, DO

Emergency Medicine

Effect of Introducing a Link to Google Reviews on a Site's Google Score

INTRODUCTION/BACKGROUND:
Online reviews significantly influence public perception of healthcare facilities. Vituity sites utilize a patient experience survey known as eQI. This study aimed to determine whether including a direct link to the site's Google review page within the eQI survey would increase the number of submitted reviews and improve average Google scores.

METHODS:
A Google review link was embedded at the end of the eQI survey beginning in September 2022. Review data was collected for five months prior and six months following this implementation. Pre- and post-intervention data were analyzed using a t-test to evaluate changes in both the number of Google reviews and average star ratings.

RESULTS:
Following implementation, the average number of monthly Google reviews increased from 2.8 to 42.33. Additionally, the average Google star rating improved from 2.2 to 3.2. A t-test showed a statistically significant increase in the number of reviews ($p < .0001$).

IMPLICATIONS FOR PRACTICE:
Adding a direct link to a Google review page within patient experience surveys can dramatically increase review volume and improve ratings, potentially enhancing the public image of healthcare facilities. This simple intervention may be a valuable tool for improving online reputation and patient engagement.

Jihoon Lim, MD

Transitional Year

Acute Adrenal Hemorrhage

INTRODUCTION/BACKGROUND:
Adrenal hemorrhage is an uncommon but potentially life-threatening condition that may arise spontaneously or secondary to trauma, infection, anticoagulation, or underlying neoplasm. Prompt diagnosis and treatment are essential, as presentation can be vague and nonspecific.

METHODS/RESULTS:
An elderly patient with multiple cardiovascular comorbidities presented with acute right-sided chest and upper abdominal pain while operating heavy machinery. Clinical findings included diaphoresis, hypotension (BP 67/52), and right upper quadrant tenderness.

RESULTS:
The patient was diagnosed with acute adrenal hemorrhage with a pseudoaneurysm. Imaging via CT and abdominal aortography identified a hemorrhagic adrenal mass and active extravasation from the middle adrenal artery. Coil embolization was successfully performed to control the bleeding.

IMPLICATIONS FOR PRACTICE:
This case highlights the importance of considering adrenal hemorrhage in the differential diagnosis for patients with unexplained abdominal pain and hypotension, especially with relevant risk factors. Rapid imaging and interventional radiologic management can be life-saving. Increased clinical suspicion can improve timely diagnosis and outcomes in such rare presentations.

Curtis Mar, DO

Transitional Year

Rare Complications Associated with Use of Bovine Pericardium

INTRODUCTION/BACKGROUND:
Bovine pericardium (BP) is widely used in congenital cardiac surgery due to its favorable properties such as biocompatibility and ease of handling. Although considered safe, limited data exists on rare complications, particularly in pediatric patients receiving photo-oxidized BP patches.

METHODS/RESULTS:
Two asymptomatic pediatric patients were found on routine follow-up imaging to have concerning intracardiac masses and fluid collections.

Case 1: A 14-month-old boy with trisomy 21 and prior AV canal repair presented with a large echodense mass adherent to the left atrioventricular valve leaflet.

Case 2: An 11-month-old girl with mosaic trisomy 9 and prior Tetralogy of Fallot repair had a fluid collection compressing the right ventricular outflow tract (RVOT).

RESULTS:
Case 1: Diagnosis of thrombus associated with the ASD bovine pericardial patch. After no improvement with anticoagulation, surgical resection was performed. Histopathology confirmed fibrin thrombus with chronic inflammation.

Case 2: Diagnosis of intramural hematoma and suspected abscess over RVOT. Surgical drainage and patch replacement with a pulmonary hemi-allograft were successfully performed. Both patients had uneventful recoveries with sterile cultures and pathology suggesting inflammatory response.

IMPLICATIONS FOR PRACTICE:
These cases emphasize the need for heightened surveillance and broader use of advanced imaging in post-operative monitoring of patients with BP patches. While rare, complications such as thrombus formation and inflammatory masses can occur. Standardized follow-up protocols and further research into immunologic mechanisms are warranted to guide management and improve patient outcomes.

Lynh McCloskey, MD

Transitional Year

The Effect of Propofol on the Grading of Diastolic Function: A Prospective Observational Trial

INTRODUCTION/BACKGROUND:
Diastolic dysfunction (DD) is a prevalent condition that increases perioperative risk, yet is often undiagnosed prior to surgery. While transthoracic echocardiography (TTE) can assess DD, it is unclear whether general anesthesia—specifically propofol—alters the echocardiographic grading of DD. This study investigates whether propofol administration affects DD grading to determine the reliability of intraoperative assessments.

PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS:
This single-center, prospective observational study involved 113 adult patients undergoing elective non-cardiac surgery with general anesthesia. Pre-induction and post-induction TTE assessments of diastolic function (e', E, A, E/e', E/A) were conducted before and after administration of propofol. Diastolic function was graded using the Swaminathan algorithm. Echocardiographic changes were analyzed using appropriate statistical tests.

PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:
Following induction with propofol, significant decreases were observed in e', E, and A velocities. The E/A ratio increased significantly, while E/e' did not change significantly. Diastolic function grade changed in 43.4% of patients post-induction—17.8% improved, 25.6% worsened. Changes were associated with pre-induction echocardiographic parameters and age.

IMPLICATIONS FOR PRACTICE:
Propofol can significantly alter the grading of diastolic function on echocardiography. Anesthesia providers should consider pre-induction TTE assessments when evaluating DD, as intraoperative measurements may not accurately reflect baseline diastolic function. This has important implications for perioperative risk stratification and individualized anesthetic management.

Katerina Meassick, DO

Emergency Medicine

Aortic Arch Thrombus Found in Anticoagulated Patient Presenting with Transient Ischemic Attack

INTRODUCTION/BACKGROUND:
Aortic arch thrombi are rarely detected in clinical practice and are even less commonly diagnosed before causing embolic events. Their pathogenesis is multifactorial, involving endothelial injury, blood stasis, and hypercoagulable states. Currently, there are no standardized diagnostic or treatment guidelines, and reported cases vary in management from conservative to surgical interventions.

DESCRIBE THE PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS :
An 81-year-old female with atrial fibrillation on apixaban presented with acute-onset left arm numbness and weakness, which resolved by the time of evaluation. Imaging revealed no acute stroke but incidentally identified a mural thrombus in the aortic arch. She was hemodynamically stable and denied chest pain, dyspnea, or leg symptoms.

DISCUSS PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:
The patient was diagnosed with a non-obstructive mural thrombus of the aortic arch. She was admitted for initiation of a heparin drip and further vascular evaluation. Surgical or endovascular intervention was not indicated. Anticoagulation with apixaban was resumed, and the patient was discharged with outpatient follow-up.

IMPLICATIONS FOR PRACTICE:
This case illustrates a rare but clinically important cause of embolic events and demonstrates the potential for conservative management in stable patients. It also emphasizes the importance of individualized treatment plans and vigilant follow-up, particularly in patients who develop thrombi despite anticoagulation therapy.

Benjamin P. Nguyen, MD

Surgery

Relation of Malnutrition on Septic Older Adults in Emergency Gastrointestinal Surgery: A Modified Global Leadership Initiative on Malnutrition Analysis

INTRODUCTION/BACKGROUND:
Malnutrition is prevalent among older surgical patients and is associated with worse outcomes. In emergency gastrointestinal surgery (EGS), malnutrition may significantly impact mortality and complications, particularly in patients with preoperative sepsis or septic shock. The study applies modified GLIM (mGLIM) criteria to evaluate how malnutrition correlates with outcomes in this vulnerable population.

PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS:
This retrospective cohort study analyzed NSQIP data from 2011 to 2020, including patients ≥65 years old undergoing EGS with preoperative sepsis or septic shock. The mGLIM criteria were applied to identify malnutrition based on BMI, weight loss, albumin levels, and acute disease burden. Multivariate regression evaluated the association of malnutrition with mortality, length of stay (LOS), and complications.

PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:
Among 26,801 patients, 1.8% met mGLIM-defined malnutrition criteria. Malnourished patients had significantly higher odds of mortality for small bowel (OR 1.89, 95% CI 1.31–2.69) and colorectal surgeries (OR 1.89, 95% CI 1.47–2.39). Complications were significantly higher in colorectal surgery patients with malnutrition (OR 1.86, 95% CI 1.31–2.65), but no significant association was found with LOS.

IMPLICATIONS FOR PRACTICE:
mGLIM-based malnutrition screening could help identify high-risk older adults undergoing EGS. Recognizing malnutrition early may allow for tailored perioperative strategies to mitigate complications and mortality. The findings support incorporating nutrition-based risk assessment into surgical workflows for geriatric septic patients.

Calvin Nguyen-Ho, MD

Anesthesiology

Pneumothorax in Patient Spontaneously Ventilating with Supraglottic Airway

INTRODUCTION/BACKGROUND:
Pneumothorax is a known complication of general anesthesia, particularly with the use of positive pressure ventilation. However, it is rarely reported in spontaneously ventilating patients using supraglottic airway devices. Prompt recognition and management are crucial, especially in anesthetized patients who cannot express symptoms.

METHODS:
A 69-year-old male undergoing elective cystoscopy with ureteral stent placement developed acute hypoxemia and absent breath sounds on the left side while spontaneously ventilating under general anesthesia with a laryngeal mask airway (LMA). Lung ultrasound showed absent lung sliding and lung pulse on the left side, and chest X-ray confirmed left-sided apical pneumothorax with tracheal deviation.

RESULTS:
The patient was diagnosed intraoperatively with a spontaneous pneumothorax. Emergency endotracheal intubation and chest tube placement were performed, leading to rapid improvement in oxygen saturation. The patient was extubated the following day and discharged on postoperative day 4 with a new diagnosis of mild COPD and prescribed inhaler therapy.

IMPLICATIONS FOR PRACTICE:
This case highlights that pneumothorax can occur in spontaneously ventilating patients using supraglottic airways. Intraoperative use of point-of-care ultrasound (POCUS) enabled rapid diagnosis. Anesthesiologists should maintain a high index of suspicion and proficiency with POCUS for timely management of unexpected hypoxemia.

Eli Palaganas, MD

Transitional Year

Intracranial Control in Targeted Therapies and Immunotherapies for Brain Metastases in Non-Small Cell Lung Cancer: A Literature Review

INTRODUCTION/BACKGROUND:
Non-small cell lung cancer (NSCLC) frequently metastasizes to the brain, affecting up to 40% of patients. Traditional treatments include whole-brain radiotherapy and surgery. The rise of molecular profiling has led to increased use of targeted therapies and immunotherapies, which may offer improved intracranial disease control, particularly in patients with actionable mutations or who are not candidates for surgery or radiation.

PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS:
This literature review synthesized recent studies evaluating the efficacy of targeted therapies and immune checkpoint inhibitors (ICIs) in treating brain metastases in NSCLC. Clinical trials and meta-analyses were reviewed to compare intracranial outcomes of various systemic treatments.

PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:
Targeted therapies, especially tyrosine kinase inhibitors like osimertinib and alectinib, showed high intracranial objective response rates and prolonged CNS progression-free survival in patients with EGFR or ALK mutations. Immunotherapies demonstrated lower intracranial response rates (20–40%) and were influenced by PD-L1 status and adjunctive treatments. Combination approaches, such as SRS with ICIs, may enhance CNS efficacy.

IMPLICATIONS FOR PRACTICE:
Targeted therapies should be prioritized for NSCLC patients with brain metastases and actionable mutations due to their superior CNS control. For patients without targetable mutations, immunotherapy—especially when combined with local therapies—remains valuable. Personalized treatment plans based on molecular profiling and CNS involvement are essential to improving outcomes.

Katherine Plampton, MD

Transitional Year

Reporting Rates of Chemoprevention Agent Use in Individuals With Cutaneous Field Cancerization

INTRODUCTION/BACKGROUND:
Patients with cutaneous field cancerization (FC), a condition associated with chronic sun exposure and multiple keratinocyte carcinomas (KCs), are at high risk of developing additional skin cancers. While chemoprevention may reduce the incidence of new KCs, actual utilization rates of such preventive measures among this population are unknown.

PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS:
A retrospective cohort study surveyed 313 patients from a Mohs surgery clinic with a history of ≥1 KC and clinical evidence of FC. Subjects self-reported chemoprevention agent use over the past 6 months. Immunosuppression status was confirmed via chart review. Statistical analysis included chi-squared tests and logistic regression.

PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:
Among all patients, 27.2% reported using at least one chemoprevention agent. Patients with ≥5 lifetime KCs were significantly more likely to use chemoprevention compared to those with 1–4 KCs (36.5% vs. 19.9%, $p = .0013$). Use of 5-fluorouracil (15.3%) and niacinamide (11.9%) were most common. Older age was associated with increased likelihood of use (OR = 1.17 per 5-year age increase, $p = .010$).

IMPLICATIONS FOR PRACTICE:
This study highlights underutilization of chemoprevention in a high-risk population and suggests that age and KC burden influence uptake more than visit frequency or immunosuppression. Tailored recommendations and standardized protocols may improve adoption of chemoprevention strategies in dermatology practices.

Elisa Quince, MD

Emergency Medicine

Effect of Pelvic Fixation on Ambulation in Children with Neuromuscular Scoliosis

INTRODUCTION/BACKGROUND:
Pelvic fixation in posterior spinal fusion (PSF) is commonly used in children with neuromuscular scoliosis (NMS), yet its effect on postoperative ambulation remains controversial. The study aims to evaluate whether extending spinal fusion to the pelvis using iliac or sacral alar-iliac (SAI) screws impacts the ability to ambulate postoperatively.

METHODS:
This retrospective review included all NMS patients who underwent PSF between January 1, 2012, and February 29, 2019, at a single academic children's hospital. Among 169 initial cases, 118 patients whose fusions included pelvic fixation were analyzed. The primary outcome was maintenance of ambulatory status after surgery. Secondary outcomes included changes in spinal curve magnitude, pelvic obliquity, and postoperative complications such as infection, instrumentation failure, and unplanned returns to the operating room. Statistical analysis employed Pearson's Chi-Square and Levene's test with a significance threshold of $p<0.05$.

RESULTS:
Postoperative maintenance of ambulation was preserved in the majority of patients who were ambulatory preoperatively. Significant improvement was noted in spinal curve correction and pelvic obliquity. The rates of complications such as infection and UPRORs were within expected ranges and did not significantly impact the primary outcome.

IMPLICATIONS FOR PRACTICE:
The findings suggest that pelvic fixation in PSF for NMS does not compromise postoperative ambulation in previously ambulatory patients. These results support the continued use of pelvic instrumentation in surgical planning for optimal curve correction and pelvic balance without sacrificing functional mobility.

Scott Riccomini, DO

Anesthesiology

Narcotic-Free Anesthetic Management in a Patient with Polysubstance Abuse Undergoing Aorto-bifemoral Bypass Graft Surgery

PURPOSE OF THIS CASE REPORT, WHAT DOES IT CONTRIBUTE TO SCIENTIFIC LITERATURE?:
Opioid-free anesthesia (OFA) is an emerging strategy for perioperative pain management, particularly useful in patients with a history of substance abuse. This case highlights the successful use of OFA in a high-risk vascular surgery patient, emphasizing the value of multimodal analgesia and individualized anesthetic planning.

PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS:
The patient had a significant history of polysubstance abuse and expressed a strong preference to avoid opioids during the perioperative period to prevent relapse. This necessitated a carefully constructed anesthetic plan that respected the patient's wishes while ensuring safe and effective pain management.

PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:
The patient underwent aorto-bifemoral bypass graft surgery. An opioid-free anesthetic plan was implemented, including a neuraxial block with isobaric tetracaine and epinephrine, general anesthesia with sevoflurane, and intravenous infusions of ketamine, dexmedetomidine, and lidocaine. Postoperative analgesia included continued ketamine infusion along with NSAIDs, acetaminophen, magnesium sulfate, and methocarbamol. Although the patient did receive opioids postoperatively due to a communication lapse, the overall opioid use was markedly reduced, and pain control was adequate throughout the perioperative period.

IMPLICATIONS FOR PRACTICE:
This case demonstrates the feasibility and benefits of opioid-free anesthesia in patients with substance use disorders undergoing major surgery. It underscores the importance of multimodal analgesia, individualized care, and clear interprofessional communication to maintain adherence to patient preferences and improve surgical outcomes while minimizing opioid exposure.

Joseph Seuferling, MD

Transitional Year

A Systematic Review: Nonpharmacologic Smoking Cessation Interventions in Preoperative Patients

INTRODUCTION/BACKGROUND:
Tobacco smoking is associated with negative surgical outcomes, and pharmacologic cessation interventions may be contraindicated for some patients. There is limited evidence evaluating the efficacy of nonpharmacological behavioral interventions for smoking cessation in preoperative patients.

METHODS:
A systematic review was conducted following PRISMA guidelines using PubMed. Search terms included smoking cessation, behavioral or nonpharmacological intervention, and surgery. Only randomized controlled trials (RCTs) that initiated nonpharmacological interventions preoperatively were included. Data on intervention types, smoking abstinence rates, and postoperative complications were extracted and synthesized.

RESULTS:
Out of 876 studies identified, 18 RCTs involving 4,276 patients met inclusion criteria. Fourteen studies showed improved smoking cessation rates with interventions such as decisional aids, counseling, educational materials, smartphone apps, and behavior modification programs. Only one study reported reduced postoperative wound complications; most others did not assess surgical outcomes.

IMPLICATIONS FOR PRACTICE:
Nonpharmacologic interventions are effective for smoking cessation in surgical patients and can be implemented in resource-limited settings. They are especially valuable for patients unable to tolerate pharmacotherapy. Integration of brief, evidence-based behavioral interventions by surgical teams may enhance perioperative outcomes.

Madhuri Sudan, DO

Psychiatry

International Study of Childhood Leukemia in Residences Near Electrical Transformer Rooms

INTRODUCTION/BACKGROUND:
Extremely low frequency magnetic fields (ELF-MF) have been linked to an increased risk of childhood leukemia (CL), though uncertainty remains due to potential biases in prior research. This international study (TransExpo) investigated the association between childhood leukemia and proximity to built-in electrical transformer rooms in residential buildings, a source of elevated ELF-MF exposure.

METHODS:
This registry-based, matched case-control study was conducted across five countries (Finland, Israel, Hungary, The Netherlands, and Switzerland). Cases of childhood leukemia (ICD-10 C91–C95, under age 15) were matched to controls from the same birth year and transformer-containing building. Exposure was categorized as high, intermediate, or unexposed based on apartment proximity to transformer rooms. Conditional and mixed logistic regression analyses were performed on pooled data to estimate relative risk.

RESULTS:
In pooled analysis, risk ratios (RRs) for intermediate and high ELF-MF exposure were not significantly elevated compared to unexposed apartments. Conditional logistic regression yielded RRs of 1.02 (95% CI: 0.54–1.91) for intermediate and 1.09 (0.32–3.76) for high exposure. Mixed logistic models produced slightly higher but non-significant RRs: 1.39 (0.77–2.52) and 1.32 (0.39–4.42), respectively. Sensitivity analyses confirmed robustness of these results despite small numbers and wide confidence intervals.

IMPLICATIONS FOR PRACTICE:
The study found no consistent evidence linking residential proximity to built-in transformer rooms with childhood leukemia. While a modest risk cannot be excluded, the findings suggest that current housing proximity to transformer rooms may not necessitate changes in residential planning or public health policy. Future studies using similar bias-minimizing methods in larger populations are warranted.

Quan Tran, DO

Family Medicine

Thiamine Deficiency Presenting with Horizontal Gaze-Evoked Nystagmus: A Case Report

INTRODUCTION/BACKGROUND:
Thiamine deficiency is uncommon in food-secure populations but may occur in individuals with chronic alcohol use. Its nonspecific presentation can delay diagnosis, risking permanent neurological damage. This case highlights horizontal gaze-evoked nystagmus as an early, reversible sign of thiamine deficiency.

METHODS:
A 59-year-old woman with chronic heavy alcohol use presented with acute dizziness and vomiting. She exhibited bilateral horizontal nystagmus both at rest and with lateral gaze. Vital signs showed elevated blood pressure; labs were notable for mild transaminitis. Imaging (CT and MRI) of the head was unremarkable.

RESULTS:
Thiamine deficiency was suspected based on clinical history and presentation. The patient received empiric thiamine therapy with symptom improvement noted shortly after. Despite incomplete treatment and lack of definitive thiamine level measurement, her clinical course supported the diagnosis.

IMPLICATIONS FOR PRACTICE:
Prompt recognition of horizontal gaze-evoked nystagmus in patients at risk for thiamine deficiency, especially those with chronic alcohol use, is critical. Empiric treatment can lead to rapid improvement and may prevent irreversible neurologic sequelae. Clinicians should maintain a low threshold for thiamine administration in similar presentations.

Christian Vazquez, MD

Emergency Medicine

Non-Convulsive Status Epilepticus Secondary to Hyponatremia in a Young Male

INTRODUCTION/BACKGROUND:
Non-convulsive status epilepticus (NCSE) is a neurologic emergency characterized by altered mental status and seizure activity on EEG without convulsive movements. It can be difficult to diagnose and may be triggered by metabolic disturbances such as hyponatremia.

PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS:
A 28-year-old male presented to the emergency department with confusion, agitation, and recent memory loss. He had no seizure-like motor activity but was noted to have disorganized speech and uncooperative behavior. Notable findings included a serum sodium of 114 mEq/L and EEG showing epileptiform discharges consistent with NCSE.

PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:
The primary diagnosis was NCSE secondary to severe hyponatremia. Management included aggressive sodium correction with hypertonic saline and administration of antiepileptic medications (levetiracetam). The patient's mental status gradually improved over several days with resolution of seizure activity on repeat EEG.

IMPLICATIONS FOR PRACTICE:
This case underscores the importance of considering NCSE in patients with altered mental status and no overt seizure activity, particularly in the setting of severe electrolyte disturbances. Prompt EEG and appropriate treatment are essential to prevent long-term neurological deficits.

Andreea Vorobchevici, MD

Transitional Year

Large Ovarian Mass Misdiagnosed as Bladder Obstruction due to Bladder Malignancy

INTRODUCTION/BACKGROUND:
Ovarian cancer is one of the most frequent gynecologic malignancies and a leading cause of cancer-related death in women. Ultrasound is typically the initial imaging modality used to evaluate pelvic masses due to its accessibility and safety profile. However, its limited sensitivity and specificity can lead to diagnostic challenges, necessitating further imaging such as CT or MRI for accurate diagnosis.

METHODS:
A 30-year-old female with no significant medical history presented to the Emergency Department with complaints of abdominal pain, low back pain, nausea, and vomiting persisting for two months. Physical examination showed suprapubic tenderness. Bedside ultrasound revealed a large fluid-filled mass initially interpreted as bladder malignancy with urinary retention. However, foley catheter placement produced minimal urine return, prompting CT imaging.

RESULTS:
CT imaging revealed a large right ovarian complex cystic lesion (19.7 × 19.5 × 13.0 cm) concerning for malignancy and possible torsion. OB/GYN recommended transfer to gynecologic oncology. The patient was discharged with outpatient follow-up for potential surgical intervention. Final diagnosis was a complex ovarian cystic lesion, not bladder malignancy.

IMPLICATIONS FOR PRACTICE:
This case underscores the limitations of ultrasound in differentiating pelvic masses and the importance of follow-up imaging in cases of diagnostic uncertainty. Accurate diagnosis is critical in guiding appropriate specialist referral and intervention. Enhanced awareness can prevent misdiagnosis and optimize patient outcomes, particularly in reproductive-age women presenting with non-specific abdominal symptoms.

Nicholas Washburn, DO

Anesthesiology

Epidural Analgesia in a Parturient for Labor Analgesia After Surgical Correction of Spina Bifida

INTRODUCTION/BACKGROUND:
Spina bifida occurs in approximately 0.5–1% of the population and often complicates pregnancy and delivery. Neuraxial anesthesia in patients with a history of spina bifida and extensive surgical correction is traditionally avoided due to perceived high complication rates and anatomic distortion. However, with increasing patient autonomy and improved imaging modalities, careful individualized assessment can guide safe anesthetic management.

DESCRIBE THE PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS:
A 22-year-old gravida 2 para 0 woman with a history of surgically repaired spina bifida and tethered cord syndrome presented in labor at term and requested epidural analgesia. She had no prior neuraxial anesthesia. Physical exam revealed extensive scarring and an absence of palpable lumbar landmarks. A bony prominence presumed to be at the T12 level was identified. She had no motor or sensory deficits.

DISCUSS PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:
Diagnosis: History of surgically repaired spina bifida and term pregnancy with preeclampsia.

Intervention: Epidural catheter placement using a 17-gauge Tuohy needle at the estimated T12-L1 level in the sitting position. Loss of resistance at 5 cm with catheter threaded 3 cm into the epidural space. No bolus given.

Outcome: Pain was well controlled throughout labor. The patient delivered vaginally after 17 hours with no complications.

IMPLICATIONS FOR PRACTICE:
This case illustrates that epidural analgesia may be feasible in patients with prior complex spinal surgery for spina bifida. Despite the absence of imaging and distorted anatomy, the procedure was successful and complication-free. Multidisciplinary collaboration and consideration of image-guided techniques may enhance safety and outcomes in similar cases.

Sterling Wong, MD

Transitional Year

Severe Disseminated Coccidioidomycosis in Late Pregnancy/Early Postpartum: A Case Report

INTRODUCTION/BACKGROUND:
Coccidioidomycosis, or Valley Fever, is an endemic fungal infection in the southwestern U.S. Pregnant women, especially in the third trimester and postpartum, are at elevated risk for severe and disseminated disease. This case report highlights a severe presentation in a young, otherwise healthy woman during late pregnancy and her postpartum period.

PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS:
A 27-year-old pregnant woman at 35 weeks gestation presented with flu-like symptoms, shortness of breath, and premature rupture of membranes. Clinical findings included hypoxemic respiratory failure, bilateral reticulonodular infiltrates, and interstitial pulmonary edema. Diagnosis of systemic coccidioidomycosis was confirmed via serology and bronchoalveolar lavage, with placental pathology revealing cocci spherules.

PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:
Primary diagnosis: Disseminated coccidioidomycosis with pulmonary and placental involvement. Initial treatment with fluconazole failed. Interventions included escalation to liposomal amphotericin B (AmBisome), posaconazole, steroids, and supportive care including oxygen and chest tubes for bilateral pneumothoraces. The patient required multiple hospitalizations and was considered for ECMO and lung transplant. Despite complications, vertical transmission was avoided, and the patient was discharged on long-term antifungal therapy.

IMPLICATIONS FOR PRACTICE:
This case emphasizes the need for early recognition of coccidioidomycosis in pregnant patients presenting with respiratory symptoms in endemic areas. Delays in diagnosis can lead to severe disease requiring intensive therapy. Pregnant and postpartum women should be closely monitored, and early antifungal treatment should be considered to mitigate severe maternal outcomes.