

# Research Day Abstracts Booklet

MAY 4, 2024



## Welcome Attendees and Presenters,

On behalf of the Research and Scholar Committee and the Student Government Research Committee we extend our sincere gratitude for your attendance at the annual CHSU Research Day. We welcome you to enjoy all the research showcased today. This research comes from researchers located throughout the Central Valley, many of which are faculty and students from CHSU. Another large group of researchers are our friends in residency locally.

This year's CHSU Research Day program promises to be an enriching experience, boasting a distinguished keynote speaker and over 75 poster presentations for your perusal.

We are honored to feature Marina Roytman, MD, FACP, a renowned physician and professor from UCSF Fresno, as our keynote speaker. Dr. Roytman has been the UCSF Clinical Professor and Liver Program Director at UCSF Fresno since 2017 and teaches hepatology.

During the subsequent poster presentations, we invite you to explore the breadth of research topics outlined in the program booklet, at your leisure. There are two sessions for you to view posters based on if the poster is odd or even. Even numbered posters will have the primary author for you to speak to in the early, 10:15 to 11am, session. The 11 to 11:45am session will be the odd posters.

Following the poster presentation we look forward to seeing talks of select poster presentations and the award ceremony. Please enjoy refreshments and appetizers, before proceeding to the presentation of awards for the poster competition winners in each category: Faculty, Resident Physician/Pharmacist, and Student.

We are eager to engage with you throughout this auspicious occasion and express our sincere appreciation for your invaluable support in ensuring the success of CHSU Research Day

### **Research and Scholar Committee:**

Dr. Merino (Chair);  
Dr. Mohaddes;  
Dr. Pattipati (ex-officio);  
Dr. Pemminati;  
Dr. Perryment;  
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Deena Khoury; Michael Petro;  
Chesna Pokharel; Vidushi Razdan;  
Emily Yan

# Research Day Agenda

## May 4, 2024

8:30 – 9:00 AM	<b>Registration</b> Breakfast
9:00 – 9:15 AM	<b>Welcome Address</b>
9:15 – 10:00 AM	<b>Keynote Address:</b> <i>The Central Valley's Rise in Alcoholic Hepatitis During the Pandemic – Marina Roytman, MD, FACP, Health Sciences Clinical Professor, UCSF and Liver Program Director at UCSF Fresno</i>
10:00 – 10:15 AM	<b>Break</b>
10:15 – 11:00 AM	<b>Poster Session 1 (Even numbers)</b>
10:15 – 11:00 AM	<b>Poster Session 2 (Odd numbers)</b> Lunch
11:45 – 12:00 PM	<b>Break</b>
12:00 – 12:45 PM	<b>Excellence in Public Health Award</b> <b>Podium Presentations</b>
12:45 – 1:00 PM	<b>Research Day</b> <b>Award Ceremony</b>

## **The Central Valley's Rise in Alcoholic Hepatitis During the Pandemic**



Presented by:

Marina Roytman, MD, FACP, Health Sciences Clinical Professor,  
UCSF and Liver Program Director at UCSF Fresno

Dr. Roytman trained at Oregon Health Science University and at Mount Sinai Hospital in New York City. She has been a UCSF Clinical Professor and Liver Program Director at UCSF Fresno since 2017, where she teaches hepatology to Gastroenterology fellows, Internal Medicine residents, medical students, and advanced practice providers.

Her academic interests include non-alcoholic fatty liver disease, drug-induced liver injury, viral hepatitis, and alcohol-related liver disease, as documented by her publications and her role as a principal investigator in multiple clinical trials.

More recently, she has been involved in research on alcohol-related liver disease, given the dramatic rise of it during the COVID-19 pandemic. She continues to be actively involved in nonalcoholic fatty liver disease research given that epidemic proportions of this condition is in the United States.



# Poster #1: Watch your Step : Acral lentiginous Melanoma masquerading as Fungating Mass

Ghufran Quresh MD; Pauldeep Mann DO; Jasvir Singh MD; Mustafa AlSharafi, MD; Umer Hayyat MD

Sierra View Medical Center GME

## Abstract:

Aral lentiginous melanoma is the least common subtype of melanoma, comprising only 2-3% of all melanomas. ALM has a higher rate of occurrence in non-white populations who are less prone to UV-induced melanomas. ALM typically presents on the palms, soles, fingers, toes, and nail units. ALM typically presents as a pigmented papule with irregular borders with variegated pigment, which may become large, exophytic and nodular with black-blue pigmented areas. Thus, ALM may be mistaken for other dermatologic conditions including warts, fungal infection, traumatic wounds, pyogenic granulomas, and hematomas.

In terms of site distribution, case series in skin of color populations report predominance of plantar over palmar melanoma (approximate ratio, 17:1) and of palmoplantar lesions over subungual lesions (approximate ratio, 4:1) ALM's are distinguished from cutaneous malignant melanomas based on their strong association with nevi on the soles, prior penetrating injury, exposure to agriculture chemicals, and inverse association with smoking Because acral melanoma is not caused by UV radiation, and due to the disproportionate distribution of the incidence of acral melanoma among people of color.

Because of the challenging nature of ALM, "CUBED" acronym for foot melanoma;

**C** Coloured lesions where any part is not skin colour.

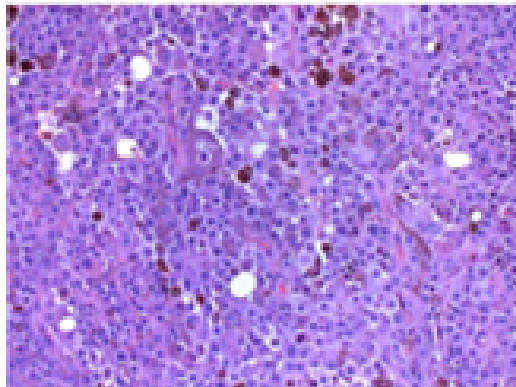
**U** Uncertain diagnosis.

**B** Bleeding lesions on the foot or under the nail, whether the bleeding is direct bleeding or oozing of fluid. This includes chronic "granulation tissue".

**E** Enlargement of a lesion or ulcer despite therapy

**D** Delay in healing of any lesion beyond 2 months.

For that reason, physician's diagnostic skepticism should be on high alert to use the CUBED criteria for early referral of ALM cases to avoid any delay that can result in progression of the condition and metastasis. Given the challenges of early detection and the relatively worse prognosis, this case report highlights the importance of early screening and treating of ALM. We present a case of a 61 yr old male who presented with a fungating mass on his right heel, pathology confirmed malignant acral melanoma.



## Poster 2: Polatuzumab-vedotin and Advanced Stage 3 Diffuse Large B Cell Lymphoma

Samantha Limvalencia, MD; Dennis Turnbull, DO; Nashwan Obad, MD

Department of Internal Medicine GME, Sierra View Medical Center, California

### Abstract

**Introduction:** Diffuse large B-cell lymphoma (DLBCL) is the most prevalent aggressive non-Hodgkin lymphoma, typically managed with R-CHOP (rituximab, cyclophosphamide, doxorubicin, vincristine, and prednisolone), boasting a 60% cure rate. Pola-R-CHP, a modification substituting vincristine with polatuzumab-vedotin (Polivy), has emerged as a potential advancement, particularly with the recent FDA approval of Polivy in April 2023.

**Case Report:** A 70-year-old male with a past medical history of hypothyroidism was diagnosed with stage 3 DLBCL, manifesting as a solid mass in the left lateral mesentery measuring 8 x 8.6 x 9 cm. Histopathological analysis revealed DLBCL with positive BCL2 expression and negative BCL6 and MYC. Following surgical excision of the mass, the patient underwent 6 cycles of Pola-R-CHP adjuvant therapy. Subsequent PET scan showed diminished hypermetabolic activity, indicating a favorable response to treatment.

**Discussion:** Polatuzumab-vedotin, an antibody-drug conjugate targeting CD79b on malignant B-cells, facilitates apoptosis through the release of anti-mitotic monomethyl auristatin E (MMAE). Studies indicate that Pola-RCHP regimen offers superior outcomes in terms of disease progression, relapse, or mortality compared to standard R-CHOP therapy. In this case, the patient achieved complete radiographic response after 4 months of Pola-RCHP therapy, with the treatment regimen concluding with Rituximab monotherapy. This case underscores the promising efficacy of polatuzumab in advanced stage 3 DLBCL, highlighting its potential as a valuable addition to DLBCL treatment protocols.

## Poster 3: Advancing Diabetic Foot Exam Compliance in a Residency Clinic: A Quality Improvement Study

U Rashid, MD H Kaur, MD R Beddoe, MD

Adventist Health Hanford Family Medicine Residency

### Abstract

This quality improvement study targets the critical issue of annual diabetic foot exam compliance in a residency clinic, set against the backdrop of rising lower extremity amputations among diabetic patients nationally. In California alone, the rate of diabetes-related amputations surged by over 40% from 2009 to 2016, with a corresponding increase from 1,081 to 1,552 cases per 100,000 diabetes related hospitalizations. Despite the reported statewide foot exam compliance rate of 72.1% between 2013 and 2016, falling short of the CMS national benchmark of 76.17%, our clinic has historically recorded even lower rates. The study introduced a comprehensive intervention strategy, aiming to not only meet but exceed the national compliance figures. The multifaceted approach included educational initiatives for residents in didactics sessions, EHR (Cerner) protocol integration, and a dual reminder system for both healthcare providers sent out as monthly texts and patients in every visit. The impact of these interventions was measured over a six-month period. Post-intervention data revealed a substantial increase in compliance rates, rising to 79.2%, and a significant improvement in the documentation accuracy of foot exams in the ad hoc section of Cerner. Patients who already had established care with a podiatrist and medical providers not logging the exam details in EMR (Electronic Medical Records) were limiting factors in further improvement. The study advocates for the replication of such interventions in similar healthcare settings, emphasizing the role of education, reminders, EHR optimization, and proactive patient engagement in improving diabetic foot care and reducing the risk of amputations.

## Poster 4: Emphysematous gastritis or gastric emphysema? A conservative approach in a high-mortality condition

Akash Khahera, MD; Samantha Limvalencia, MD; Tiffany Barham, MD; Preeth Nair, MD, Aram Gabrielyan, MD

Sierra View Medical Center, GME

### Abstract:

**Introduction:** Emphysematous gastritis, characterized by air within the stomach wall due to gas-producing organisms, presents with symptoms of abdominal distention, tenderness, and acute abdomen bearing a high mortality rate of 60-80%. Conversely, gastric emphysema is a benign non-infectious gastric pneumatosis that can resemble emphysematous gastritis, posing diagnostic challenges.

**Case Presentation:** Patient is an 87-year-old female with diabetes admitted to the emergency room for hypoglycemia and decreased oral intake. Physical examination revealed a soft, mildly distended abdomen without tenderness. Laboratory findings indicated leukocytosis (WBC 11.1) and severe hypoglycemia (glucose 32 mg/dL). CT imaging showed severe emphysematous gastritis with air within the stomach wall and droplets outside, accompanied by pneumoperitoneum, severe gastric wall edema, pneumobilia, and air in the pancreatic duct.

The patient was admitted for emphysematous gastritis.

Consultation with general surgery and gastroenterology favored conservative management. The patient received IV fluids (Zosyn), bowel rest, pantoprazole. After 48 hours, diet was reintroduced. Patient had overall significant improvement and was discharged without complication.

**Discussion:** Despite this patient's benign hospital course, the possibility of emphysematous gastritis remained significant given the mortality risk associated with it. Literature review supports conservative management for emphysematous gastritis with IV fluids, bowel rest, and broad-spectrum antibiotics unless complications such as perforation arise, necessitating surgical intervention. Various factors predispose to disrupted gastric integrity and subsequent gas-forming infection, including NSAID use, uncontrolled diabetes mellitus, malignancy, gastroenteritis, recent abdominal surgery, and steroid use. In this case, diabetic gastroparesis might have heightened the risk of bacterial translocation and gastrointestinal infection.

Although the patient lacked fever, acute abdomen, or bacteremia, the diagnosis of emphysematous gastritis couldn't be ruled out definitively. The high mortality of emphysematous gastritis underscores the importance of early identification for prompt intervention with aggressive conservative treatment, despite the possibility of a less severe condition like gastric emphysema.



## Poster #5: Disseminated Coccidioidomycosis in an Immunocompromised Patient

Tiffany Yu, MD; Chris Dy, MD; Aseem Singh, MD; Babak Jamasian, MD

Adventist Health Central Valley Network

### Abstract:

Coccidioidomycosis is endemic in the western hemisphere, commonly occurring through inhalation of arthroconidia. Sixty percent are asymptomatic, while 40% have pneumonia-like symptoms. Extra-thoracic coccidioidomycosis has an overall incidence of 0.2%. We present a very unusual case of coccidioidomycosis initially testing negative twice for antibodies, later diagnosed through bronchoalveolar lavage (BAL) culture. Additionally, a new-onset thrombocytopenia led to bone marrow biopsy revealing disseminated disease. In highly endemic areas, such as this case occurring in the Central Valley of California, it is vital to have low threshold for performing definitive diagnostic tests regardless of negative serology.

A 62F with ESRD presented due to headaches. Sepsis criteria was met with vitals and leukocytosis. Rales were noted on examination, while chest CT showed left lobe consolidation and scattered small nodules. Patient's community-acquired pneumonia (CAP) was managed with empiric antibiotics while pending work-up. Treatment failure led to suspicion for coccidioidomycosis. Fluconazole was then started. Six days after admission, repeat chest CT revealed a miliary pattern. With worsening clinical picture, patient received amphotericin B despite testing negative twice for serum *Coccidioides* antibodies. Labs also became significant for thrombocytopenia. Heparin-induced thrombocytopenia (HIT) was ruled out and bone marrow biopsy incidentally revealed small, non-caseating granulomas with rare fungal spherules. Previously cultured BAL from bronchoscopy confirmed growth of *Coccidioides immitis*. Based on the patient's presentation and diagnostic findings, she was determined to have disseminated coccidioidomycosis.

Hematogenous dissemination of coccidiomycosis is commonly due to an immunocompromised state, such as ESRD. Oftentimes, antibody testing may be negative. The patient also worsened post-antibiotics. Once empiric therapy has failed, bronchoscopy and culture should be performed in CAP to obtain definitive diagnosis. Due to quick progression and high mortality of severe coccidioidomycosis, clinicians must have a high index of suspicion, especially in areas of high endemicity. Early treatment initiation is warranted for better outcomes.

# Poster #6: Navigating Complexity: A Case Study on Hemophagocytic Lymphohistiocytosis Diagnosis and Management Challenges

J. Nguyen<sup>1</sup>, N. Tun<sup>2</sup>, N. Burley<sup>2</sup>

<sup>1</sup>St. Joseph Medical Center, Stockton, CA

<sup>2</sup>UCLA Olive View Medical Center, Sylmar, CA

## Abstract:

**Introduction and Background:** Hemophagocytic lymphohistiocytosis (HLH) is a severe, life-threatening inflammatory disorder, with an estimated annual incidence of 1.5 per million, affecting multiple organ systems and carrying a high risk of mortality if untreated. This case report details the evaluation and management of an adult female presenting with atypical symptoms and focuses on the challenging diagnosis of HLH in the setting of overlapping differential diagnoses.

**Case Presentation:** A 69-year-old female initially presented with fever, respiratory distress, acute kidney injury, altered mental status, and a profound drop in platelet count, prompting an extensive differential diagnosis. Initial laboratory results indicated a microangiopathic process with 1+ schistocytes and a platelet count below 20,000. Elevated D-dimer, low fibrinogen, mild coagulopathies, and infectious symptoms initially suggested disseminated intravascular coagulation (DIC) in the context of sepsis. Thrombotic thrombocytopenic purpura (TTP) was also suspected, and ADAMTS13 testing was conducted on presentation. Despite platelet transfusion attempts, the patient's acute kidney injury and altered mental status worsened, raising suspicion of TTP. As plasma exchange was planned, worsening liver enzymes led to consideration of HLH. Workup results, including ferritin exceeding 10,000 and markedly elevated triglycerides, supported the suspicion of HLH. A bone marrow biopsy was conducted, and empirical steroids were initiated, resulting in immediate improvements in mental status, liver enzymes, and creatinine. The HLH diagnosis was formally confirmed with evidence of diffuse hemophagocytosis in the bone marrow and positive soluble interleukin-2. Etoposide was subsequently initiated, leading to continued symptom improvement. The patient later tested positive for Q-fever, *Rickettsia typhi*, and Epstein-barr virus, suggesting these infections likely triggered HLH. Following the initiation of etoposide and steroids, the patient's condition improved, and she was discharged for outpatient HLH treatment.

**Conclusion:** The case emphasizes the diagnostic intricacies in differentiating HLH amid overlapping conditions. By highlighting the complexities of patient presentation, diagnosis, and management, this case aims to enhance the recognition and understanding of this critical condition in the adult population and the urgency of timely diagnosis and intervention.

# Poster #7: Difficulty in Treatment of Inflammatory Arthritis in a Patient with Common Variable Immunodeficiency

T. Dang<sup>1</sup>, D. Dizon<sup>2</sup>

1. California Health Sciences University College of Osteopathic Medicine

2. Dizon Medicine

## **Abstract:**

**Introduction:** Common Variable Immunodeficiency CVID is the most common primary immunodeficiency in adults. It is defined as poor response to vaccines and low immunoglobulins, excluding other causes. Paradoxically, one of the most common complications of CVID is autoimmunity involving many systems. However, these usually resolve or improve with immunoglobulin injection. Here, we present a rare case of a patient with inflammatory arthritis that progressively worsened despite treatments.

**Method:** Case report with literature review

**Result:** A 55-year-old male with history of hypothyroidism, granuloma annulare, common variable immunodeficiency, and osteoporosis presented with arthralgia. The pain and swelling involved most of the hand joints, bilateral wrists, elbows, and knees. He has been receiving weekly subcutaneous immunoglobulin G without complications. The treatment regimen involved hydroxychloroquine, methotrexate that was replaced with leflunomide, and chronic use of low-dose oral prednisone that led to osteoporosis. Physical exam revealed mild synovitis and tenderness at all joints of the hand and wrists. Autoimmune markers are all negative except for positive ANA. Recent hand radiogram showed mild erosion of the right fifth proximal phalanx. The patient did not show improvement with the regimen, and discussion would be made with immunologists and rheumatologists to consider additional treatments.

**Conclusion:** Our case report showed a rare scenario where standard treatment regimen did not improve inflammatory arthritis symptoms. More clinical trials on the effect of medication on CVID complications are needed, and these patients require more careful monitoring with multiple specialty professionals.

## Poster #8: Optimal Design for Screw Implants on the Total Hip Arthroplasty using the Deep Learning-Finite Element Analysis Approach

Jacob Stroud<sup>1</sup>, Emily T Yan, MS<sup>2</sup>, Jacob Anthony, BSME<sup>1</sup>, Kyle Walker, MD<sup>3,4</sup>, Chung-Hyun Goh, PhD<sup>1\*</sup>

<sup>1</sup> Mechanical Engineering Department University of Texas, Tyler, TX, USA

<sup>2</sup> California Health Sciences University College of Osteopathic Medicine, Clovis, CA, USA

<sup>3</sup> Department of Orthopaedic Surgery, University of California-Davis, Sacramento, CA, USA

<sup>4</sup> Runatek, Dallas, TX, USA (Sponsor)

\* Faculty advisor (Corresponding author)

### Abstract:

Total hip arthroplasty (THA) involves the replacement of pathologic hip joints with prosthetic implants to restore functionality and alleviate pain. Current implants for replacing the acetabulum use a "press-fit" application with no screws; however, in cases of suboptimal bone quality, cup size issues, or other patient factors, additional fixation with screws is necessary. In this study, finite element analysis (FEA) and deep learning (DL) are novel methods applied to develop a screw configuration that would provide an optimized fixation between the bony pelvis and acetabular cup in THA. The objective of this study is to determine if a DL model can be developed to predict stress-strain across the implant construct. First, FEA was conducted using a CAD model in Ansys to simulate stress, strain, and deformation. Subsequently, the dataset was inputted into a DL surrogate model following neural network training. The mean squared error (MSE) was calculated to determine accuracy of the DL results. Results showed an adequate DL-FEA surrogate model predicting stress and strain distributions through the construct, but with an above-threshold MSE. It is expected that further training of the network and using a non-linear regression algorithm will improve accuracy of the model. This study is a promising step in the novel development of a standardized, computational protocol for acetabular cup fixation in THA to decrease the rate of revision and enhance patient outcomes.

## **Poster #9: Developing a Survey to Assess the Compliance of Omni-Health's Home Blood Pressure Monitoring Program for Patients with Hypertension**

Jordyn Brase MSTM, Josh Carter, Steven Chuh, Shirya Deshpande, Steven Frediani MBS, Du-O Lee, Layla Mazdeyasnan, Zian Shabbir MBS, David Waggoner MS, Avtar Nijjer-Sidhu, PhD, MS, RD, Sundeep Grewal, DO  
California Health Science University-College of Osteopathic Medicine, Clovis, California

### **Abstract:**

Hypertension in California's Central Valley has become a primary concern for healthcare providers. Underserved populations, including many in California's Central Valley, often face heightened complication rates due to limited healthcare access. The emergence of remote healthcare has expanded blood pressure monitoring beyond clinics, enabling patients to track and report their readings conveniently from home. Omni Healthcare has implemented a Home Blood Pressure Monitoring program (HBPM) where they distribute a blood pressure device. A program exit survey was developed to identify barriers and potential solutions to improve participation in the HBPM program among patients 18-85 years old with blood pressure greater than 140/90 mmHg. The Omni and CHSU survey pilot project successfully obtained information regarding patients' opinions and current attitudes about Omni's HBPM program and potential barriers to why patients dropped out. To improve the project, recommendations to include a nutrition plan in the program and plan calls around when patients are home or when the timing works better to take the survey should be prioritized to get the highest survey completion.



## Poster #10: Heparin-induced LUE DVT Compartment Syndrome in setting of Myelodysplastic Syndrome NSTEMI

Pauldeep Mann, DO1; Samantha Limvalencia, MD1; Mustafa Alsharafi, MD1; Kiran Wasiq, MD1  
1Sierra View Medical Center

### Abstract:

Myelodysplastic syndrome (MDS) represents neoplasms characterized by myelopoiesis with altered differentiation. Patients with MDS often present with cytopenias including anemia and thrombocytopenia. Here, we present a case of MDS in the setting of multivessel artery disease who developed left upper extremity (LUE) deep venous thrombosis (DVT) and subsequent compartment syndrome while on IV heparin and negative heparin-induced thrombocytopenia (HIT) antibodies. Patient is an 80-year-old male with a history of MDS, coronary artery disease s/p quadruple bypass surgery and stent placement, and HFmrEF (EF 45%) who presented with concerns of chest pain scaled 10/10. Found to have uptrending troponin 1.17 ng/mL. Angiogram was planned, however the course was complicated by hemoglobin of 7.4 g/dL and platelets of 32 thou/mm<sup>3</sup>. While undergoing IV heparin and pRBC transfusion, the patient developed DVT in the left brachial vein causing the arm to become firm with weakening pulses and signs of bullous eruption. Compartment syndrome was clinically diagnosed. Hematology/Oncology consulted, heparin switched to argatroban and eventually Eliquis despite negative HIT workup, symptoms subsequently improved. No signs of active bleeding on EGD, catheterization revealed severe multivessel disease, total occlusion of RCA and native left main coronary artery distal vessel, and all grafts patent. Patient received a total of 9 units pRBC during course yet hemoglobin remained mostly between 7-8 g/dL despite no evidence of active GI bleeding or hemolysis. The occurrence of DVT in the upper extremity and the subsequent development of compartment syndrome in the setting of IV heparin is also unusual. This case highlights the importance of recognizing clinical and laboratory changes while on IV heparin, particularly in those with history of MDS coupled with multivessel artery disease, and the urgency to switch to alternate anticoagulants despite negative HIT panels.

# Poster #11: Identification of Barriers to Physical Activity for Osteopathic Medical Students in California's Central Valley

M. Dragovic, E. Mallick, C. DeLisi, K. Edmiston, PhD, M. Rahman, PhD  
California Health Sciences University College of Osteopathic Medicine

## **Abstract:**

Medical students are under increased stress due to the rigorous curriculum, leading to a higher risk of burnout and poor mental health. Physical activity (PA) is a proven stress-reduction strategy that medical students may use to improve overall health and combat burnout. This study sought to identify PA habits, correlate perceived academic performance with PA levels, and identify barriers to PA for California Health Sciences University College of Osteopathic Medical School students. First and second-year students were invited to participate in an anonymous online survey. The survey consisted of seven questions and was disseminated electronically in person and via email. Cross-tabulation and chi-square analysis were employed to determine statistical significance across various questions. Of 161 students who participated in the survey, 93% reported decreased opportunities to participate in physical activity since starting medical school, and 87% felt exercise was related to their academic performance. Additionally, most students identified that their physical activity levels would improve with increased opportunities on campus or a gym membership reimbursement program. This study identified that a significant barrier to PA for medical students was a lack of accessible opportunities for exercise. Based on these findings, solutions can be implemented to increase the PA of medical students to improve mental health and decrease the risk of future physician burnout.

# Poster #12: A Unique Case of Cutaneous Coccidioidomycosis: Mimicking Other Cutaneous Diseases in an Immunocompetent Adult

John Cabrera, MD, Samantha Limvalencia, MD, Rohin Dhir, MD, Mustafa Alsharafi, MD  
Sierra View Medical Center

## **Abstract:**

Coccidioidomycosis, commonly known as Valley Fever, is a fungal infection endemic to the Central Valley, often manifesting as pneumonia. While disseminated forms of the disease are rare, they can present extra-pulmonary manifestations, including cutaneous involvement. Here, we present a unique case of disseminated Coccidioidomycosis in an 18-year-old male with history of pectus excavatum, currently residing on a ranch in the Central Valley.

The patient presented to the Emergency Department with symptoms of shortness of breath, fevers, weight loss, productive cough, and night sweats over a month. Vital signs indicated tachycardia at 130 BPM and elevated temperature (Tmax 103.3° Fahrenheit). Laboratory findings revealed eosinophilia, band neutrophils, normocytic anemia, and mildly elevated liver enzymes, along with positive Coccidioidomycosis IgM and IgG, confirmed at UC Davis Coccidioidomycosis Serology Lab. Imaging studies demonstrated diffuse bilateral pulmonary nodules in a military pattern and hepatosplenomegaly.

Initially, the patient was treated for community-acquired pneumonia with cefepime and azithromycin. Further investigations ruled out HIV, vasculitis, infectious hepatitis, and tuberculosis. A skin punch biopsy confirmed the presence of fungal spherules consistent with Coccidioidomycosis, highlighting the importance of considering this diagnosis in patients that live in, or have visited endemic regions.

Cutaneous involvement in disseminated Coccidioidomycosis, occurring in 15 to 67% of cases, can mimic other diseases such as hepatitis, vasculitis, HIV, and TB. Lesions can vary in appearance, from nodules to ulcers, and diagnosis is confirmed through serology, histology, and biopsy. Histological findings typically reveal chronic granulomas, although organization levels vary.

This case underscores the necessity of considering Coccidioidomycosis in patients residing in endemic areas presenting with cutaneous lesions, as it can masquerade as other diseases. With the increasing recognition of disseminated forms in immunocompetent individuals, it is crucial to include Coccidioidomycosis in the differential diagnosis, particularly in regions with high endemicity. This case serves as a valuable learning point, emphasizing the need for vigilance in diagnosing and managing fungal infections in at-risk populations.

# Poster #13: Provider Comfort in Assessing Pediatric Traumatic Brain Injury in Patients with Autism Spectrum Disorder

Cimini, T., Dhillon, S., Haghighat, B., Javidi, D., Jell, C., Kocharyan, M., Levy, I., Maher, B., Mallari, J., Ponce, K., Nijjer-Sidhu, A., PhD, RD

College of Osteopathic Medicine- California Health Sciences University- Clovis, CA

## Abstract:

Background: Autism spectrum disorder (ASD) and traumatic brain injury (TBI) each affect many children<sup>1</sup>, and the two conditions often have overlap in symptoms<sup>2</sup>. Lack of provider knowledge and comfort in treating TBI in ASD patients could be a barrier to effective care. We hypothesize that healthcare providers within the Central Valley exhibit baseline confidence and comfort levels capable of improvement in treating patients with a traumatic brain injury (TBI) who were previously diagnosed with autism spectrum disorder (ASD).

Objectives: To assess provider knowledge and comfort in treating TBI in pediatric ASD patients.

**Methods:** A survey was developed to assess provider knowledge and comfort using ten self-written questions on a 5-point Likert scale, followed by five additional optional open-ended questions specifically for providers who have previously treated TBI in patients with ASD. Demographic questions were added to investigate the potential effects of age, ethnicity, specialty, medical credentials, and/or years of training on provider knowledge and comfort.

Discussion/Next Steps: The survey is complete and ready to be sent to pediatric providers. The findings of this project offer the potential to illuminate a gap in care for patients with ASD being treated for TBI. Further research would be needed to explore what types of interventions might be useful to address this discrepancy.

## References:

1. Casanova MF. The Neuropathology of Autism. *Brain Pathology*. 2007;17(4):422-433. doi:<https://doi.org/10.1111/j.1750-3639.2007.00100.x>
2. Chen C, Peng J, Sribnick E, Zhu M, Xiang H. Trend of Age-Adjusted Rates of Pediatric Traumatic Brain Injury in U.S. Emergency Departments from 2006 to 2013. *International Journal of Environmental Research and Public Health*. 2018;15(6):1171. doi:<https://doi.org/10.3390/ijerph15061171>

# Poster #14: Perceptions of Psychedelic-Assisted Therapy among Hispanic Population in the United States

N. Birfer and SH. Keen Haskins,  
California School of Professional Psychology at Alliant International University

## **Abstract:**

Introduction and Background:

Research suggests that there are differences in how various cultural groups perceive psychedelic-assisted psychotherapy (PAT) following psychoeducation (Carter et al., 2023), highlighting the significance of tailoring psychedelic psychoeducation to specific cultural contexts. However, limited research has focused on attitudes and perceptions regarding psychedelic therapy, especially within the Hispanic population in the United States. This study aims to explore disparities in attitudes and perceptions toward psychedelic-assisted therapy before and after psychoeducation on its therapeutic benefits among Hispanic Americans.

## **Material and Methods:**

Participants will complete a demographic survey, the Beck Depression Inventory, the Perceived Barriers to Psychological Treatment Scale, and the Psychedelic Perceptions Survey.

Subsequently, they will be randomly allocated to one of two psychoeducation interventions:

Intervention 1 will deliver psychoeducation on PAT within a Western framework. In contrast,

Intervention 2 will contextualize the psychoeducation within Hispanic cultural perspectives. Post-intervention, participants will be reassessed using the Psychedelic Perceptions Survey.

## **Results and Conclusions:**

Comparative analysis of pre-and post-intervention attitudes within each group will be conducted. The survey data aims to determine whether exposure to information about the therapeutic or cultural aspects of psychedelics influences participants' attitudes and perceptions toward psychedelic therapeutic use. Additionally, sociodemographic variables, depressive symptomology, and perceived barriers to psychological treatment will be assessed as predictors of views and interest in PAT.



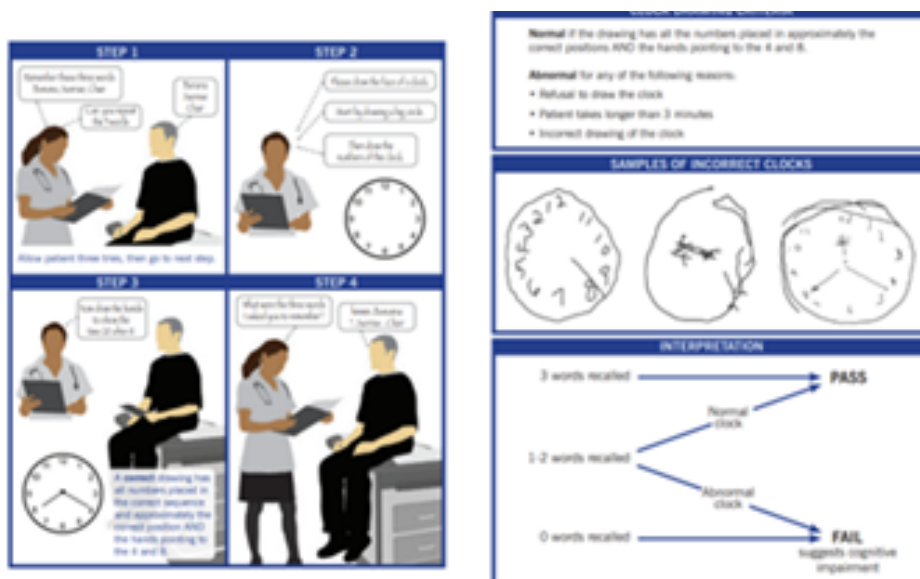
# Poster #15: Implementing Screening for Dementia in Primary Care Setting Using Mini-Cog Screening Tool

Linha Mazin Mohammed, MD, Youstina Morkos, MD, Khaing Win, MD, Joshua Strunk, DO  
Adventist Health Hanford-Family Medicine Residency

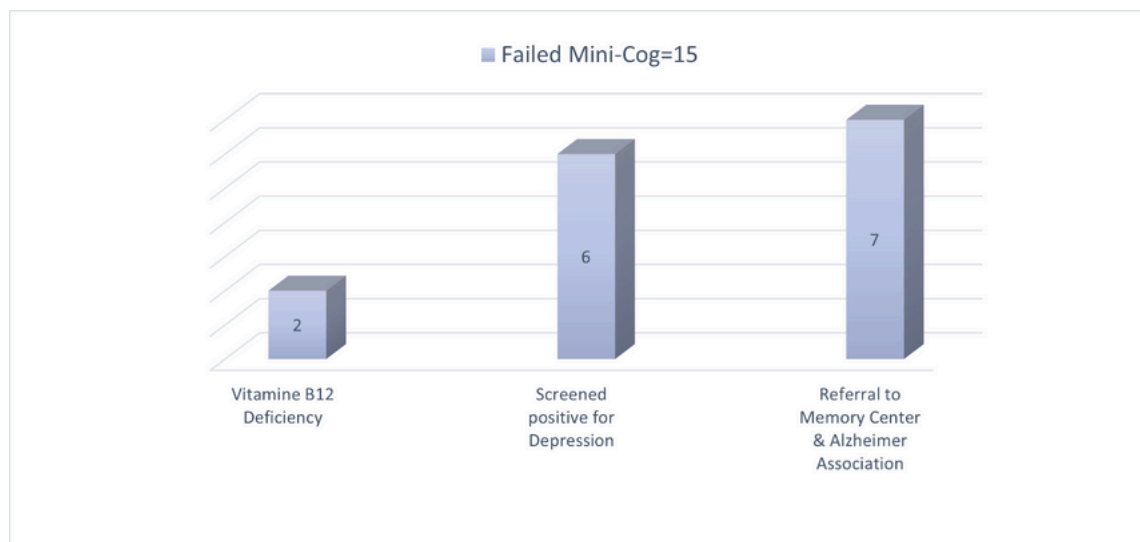
## Abstract:

**Introduction:** Alzheimer's dementia affects approximately 50 million people in the world and was the sixth leading cause of death in the United States in 2014 (Heron, 2016). The death rate due to Alzheimer's increased by 55% from 1999 to 2014 (Centers for Disease Control and Prevention, 2017). Several studies have shown that in primary care, the majority of older adults with dementia are undiagnosed. Mild dementia is particularly under-diagnosed. In 2014, the U.S. Preventive Services Task Force concluded current evidence was not sufficient to assess the benefits of screening for cognitive impairment. Routine dementia screening in primary care using cognitive screening tools appeared to improve dementia case detection rates (Eichler et al., 2015). Primary care providers were often not sure which cognitive screening tool to use, and some had expressed reluctance to do the screening and use the screening tools due to lack of knowledge. The purpose of this QI project is to use one dementia screening tool that was easy to administer in primary care clinic to initiate intervention early and connect patients and their caregivers to community resources.

**Methods:** Within Family medicine residency clinic, Mini-Cog was administered to 40 patients who are 65+ years with no previous history of dementia diagnosis during their standard annual wellness visit. Trained staff including Medical Assistants and Residents administered the test. The Mini-Cog is a brief screening tool that is currently used in practice to screen for cognitive impairment using memory recall and a clock drawing test. Any participants who scored poorly (score of 2 or below) underwent further work-up to rule out pseudodementia including (depression screen, RPR test, TSH, and Vitamin B12 Deficiency) in addition, a referral to neurology and Alzheimer Association were placed for those participants who failed the Mini-Cog and Pseudodementia has been ruled out.



**Results and Discussion:** After IRB approval, 100 elderly patients (65+years) had been identified and scheduled in our clinic from June 2023-December 2023. Only 58 patients were qualified to participate. 15 patients did not show up for their appointments. Residents asked the remaining 43 qualified patients if they wanted to participate. Only 3 refused and total of 40 agreed to participate in the project. 15 patients (37%) out of 40 patients failed and scored poorly on the Mini-Cog and underwent labs tests to rule out pseudodementia including (depression screen, RPR test, TSH, and Vitamin B12 Deficiency). 2 patients (13%) out of 15 tested positive for Vit B12 deficiency, and 6 patients (40%) out of 15 tested positive on PHQ-9 dementia screening. Only 7 patients (47%) out of 15 had negative pseudodementia screening and were referred to Memory Center and Alzheimer’s Association for more resources. This project also showed the providers in the primary care clinic indeed needed a dementia screening tool that was easy to use, practical, and sensitive in detecting cognitive impairment. Residents’ full participation in this project showed they were eager to learn more about dementia and implementing a quick and effective screening tool on dementia in their future practices.



**Conclusion:** We concluded that the Mini-Cog is an efficient and effective screening tool for cognitive impairment and helps patients and their families receive referrals, interventions, and community resources in a timely manner.

#### References:



## **Poster #16: Heartbreakers: lithotripsy in CAD-induced heart failure**

Kiran Wasiq, MD; Samantha Limvalencia, MD; Mustafa Alsharafi, MD; Pauldeep Mann, DO  
Sierra View Medical Center GME

### **Abstract:**

Intravascular lithotripsy (IVL) is a novel technique for the treatment of severely calcified plaque lesions that uses acoustic shockwaves in a balloon-based delivery system. Shockwaves induce calcium fractures, which facilitate stent expansion and luminal gain.

This case outlines the role of lithotripsy in severe coronary artery disease in a patient with acute NSTEMI and decompensated heart failure and tachy-brady arrhythmia.

## **Poster #17: Integration of Point-Of-Care Ultrasound in Vaccination Education and Training of Osteopathic Medical Students: a Pre-Post Intervention Study**

Charles Robert Lichtenstern<sup>1\*</sup>, Abel Thomas<sup>1\*</sup>, Lilian Reddivalam<sup>1\*</sup>, Brandon Book<sup>1</sup>, Emily Yan<sup>1</sup>, Patrick Bagumyan<sup>1</sup>, Mohammad Rahman<sup>1</sup>, PhD, Jonathan Terry<sup>1</sup>, DO, Sundeep Grewal<sup>1</sup>, DO.

<sup>1</sup>California Health Sciences University, College of Osteopathic Medicine, Clovis CA, U.S.A.

**\*These authors contributed equally to this work.**

### **Abstract:**

This pre-post intervention study examines the integration of Point-Of-Care Ultrasound (POCUS) in vaccination education and training of osteopathic medical students (OMS). Current vaccination training methods often lack precision, relying on approximations and instructor guidance. By incorporating POCUS, students can develop a more precise understanding of injection depths and patient-specific anatomy. This study aims to assess the impact of POCUS on students' confidence, comfort, and skills in administering intramuscular vaccinations. Pre- and post-intervention surveys were conducted with 48 OMS-I students at CHSU-COM. The findings reveal that the POCUS intervention significantly improved students' conceptualization of injection depth and enhanced their confidence, comfort, and skills in providing IM injections, highlighting its profound ability to enhance medical education and training.

# Poster #18: SDOH Identification in Central Valley DM Patients: A Quality Improvement Approach to Effective PRAPARE Tool Utilization

Anhadh Jassal<sup>1\*</sup>, Hrach Nalchajyan<sup>1\*</sup>, Darren Tom<sup>1\*</sup>, Helen Vuong<sup>1\*</sup>, Emily Yan<sup>1\*</sup>, Roza Manzo PhD<sup>1</sup>, Maria Torres MS RDN<sup>1</sup>

<sup>1</sup>California Health Sciences University College of Osteopathic Medicine

**\*The listed authors contributed equally to this work.**

## **Abstract:**

Background: Social determinants of health (SDOH), including socioeconomic status and education, significantly impact health outcomes and disparities. However, addressing SDOH in clinical practice remains challenging. Camarena Health utilizes the Protocol for Responding to & Assessing Patients' Assets, Risks & Experiences (PRAPARE) tool at health education visits to identify SDOH factors in diabetes mellitus (DM) patients and provide solutions, but its limited utilization persists due to time restraints and additional resources needed to facilitate the management of these patients.

**SMART Aim:** This quality improvement study seeks to investigate the factors hindering the effective utilization of the PRAPARE tool and propose changes to the health education workflow.

**Methods:** A survey was distributed to the health educators at Camarena Health to identify existing constraints. Subsequent adjustments were made to improve PRAPARE tool distribution, including extending appointment times to allow for more SDOH discussions with patients.

**Results:** Post-intervention, there was a notable increase in the ratio of patients scored to those who were not, initially attributed to extended time. However, since then, there has been a decreasing trend in the ratio of patients scored and total patients scored, secondary to inconsistent patient selection for screening and use of the PRAPARE tool. Conclusions: With the study ongoing, the current sample size is insufficient for conclusive findings. Nonetheless, the intervention demonstrates potential for enhancing the utilization of the PRAPARE tool; increased appointment times allow for addressing questions, language barriers, and resources distribution. Further data collection and analysis will provide a more comprehensive understanding of the long-term impact of these workflow changes.



# Poster #19: Acute Large Bowel Obstruction Post Umbilical Hernia Surgery: A Case Report

T. Dang<sup>1</sup>, S. Kay<sup>2</sup>

1. California Health Sciences University College of Osteopathic Medicine

2. Bakersfield Memorial

## **Abstract:**

**Introduction:** Large bowel obstruction (LBO) is a less common cause of bowel obstruction, but it has a broad range of differentials. The most common etiology in the United States is colorectal adenocarcinoma. Patient presentation includes diffuse abdominal pain, constipation, abdominal distension, and nausea. Abdominal X-rays can quickly assess bowel dilation, but CT scan is the gold standard to determine location and severity of blockage. Treatment can range from IV fluid to emergent colectomy.

**Method:** Case report with literature review

**Result:** A 41-year-old male with history of bronchitis and hypertension presented for surgical consult six days post-incarcerated umbilical hernia repair. Patient complained of nausea, diffuse abdominal distension and tenderness, and inability to pass gas. Physical examination revealed severely distended abdomen with rebound and guarding at the lower right quadrant. CT scan showed severely dilated ascending colon and cecum along with pneumatosis. There was also an obstructing mass at the sigmoid colon. A diagnosis of severe LBO with impending perforation was made, and patient underwent emergent exploratory laparotomy. Subtotal colectomy was done with anastomosis between ileum and sigmoid colon. Pathology report showed an 8.0 cm dilated cecum, necrosis of ascending colon, and diverticulitis with scar fibrosis along the wall of colonic membrane. Patient had ileus and kidney injury post-operation but was resolved.

**Conclusion:** Our case report showed a rare scenario where patient developed closed-loop bowel syndrome from acute diverticulitis post umbilical hernia surgery. With the rise of diverticulitis incidence in younger patients, it is important to educate patients on risk factors and monitor patients who had known diverticulosis before surgery.

# Poster #20: How the COVID-19 Pandemic Impacted Screenings for Depression at Federally Qualified Health Centers for Adolescent Populations in The Central Valley, CA.

Martin Garcia; Reid Miller; Dominic Rivera; David Seo; Joele Tueno-Scott;  
Geni Perryment, PhD.

California Health Sciences University College of Osteopathic Medicine

## **Abstract:**

Background: The COVID-19 pandemic has highlighted the significant mental health challenges faced by adolescents in regions with low socioeconomic status such as the Central Valley, CA. Measures like school closures and social distancing disrupt vital peer interactions. Given the limited research in the Central Valley, our study seeks to fill this gap by examining data from Federally Qualified Health Centers (FQHC) throughout the region. Our project aims to investigate the impact of COVID-19 on depression screening results at three different time periods; Pre-COVID, COVID, and Post-COVID. By raising awareness of this plight of vulnerable adolescents in the Central Valley, our research aims to supplement interventions and enhance community health outcomes.

**Hypothesis:** There was a statistically significant increase in the amount of adolescents who screened positive for depression in FQHCs as a result of COVID-19 in the Central Valley.

**Methods and Materials:** Our study comprises a cross-sectional data analysis derived from a retrospective chart review conducted on de-identified data obtained from United Health Centers (UHC) in Fresno, CA, and surrounding areas. The data, comprising 186,176 patient encounters spanning from December 2018 to October 2023, involves patients who underwent PHQ-2 or PHQ-9 depression screening surveys. Notably, we ensured compliance with HIPAA policies as the data provided by UHC was de-identified, precluding access to any personalized information.

The dataset encompasses various surveys and demographic variables, including Depression Screening Results, Result Guidelines, Gender Identity, Sex, Insurance Type, Race, and Ethnicity.

Presently, the data report is undergoing analysis by our faculty Data Analyst, with anticipated results and a comprehensive discussion expected by the conclusion of April 2024.

# Poster #21: Heyde Syndrome's vW Associated Coagulopathy, Simple and Fast Screening Test

Mustafa Alsharafi, MD1; Pauldeep Mann, DO1; Samantha Limvalencia MD1; Kiran Wasiq, MD1

1: Sierra View Medical Center GME, California

## Abstract:

Heyde Syndrome is reflected by a triad of aortic stenosis, acquired von Willebrand Syndrome, and recurrent gastrointestinal bleeding from intestinal angiodysplasia. Our case reflects a scenario of a patient with severe aortic stenosis and severe lower gastrointestinal bleeding that was difficult to stabilize with blood transfusions, in the setting of inconclusive von Willebrand syndrome work up.

Patient is an 85-year-old male with history of severe aortic stenosis, hypertension, gastric ulcers, diverticulosis, atrial fibrillation, HFrEF with EF 35-40%, CAD s/p cardiac stents x3 who presented to the ED for bright red blood per rectum associated with dyspnea, chest pain, and dizziness. Two weeks prior, patient had polypectomy from ascending colon resected. At time of admission, blood pressure was 96/51, with hemoglobin of 8.3 dL. CTA of abdomen/pelvis revealed contrast extravasation consistent with active bleeding in cecum. Home aspirin and clopidogrel were stopped. Hemoglobin continued to drop despite multiple blood transfusions.

Colonoscopy showed blood-tinged effluent in the transverse colon, ascending colon, and cecum. No active bleeding was noted, including from endoclips from previous polypectomy site. Three cherry red spots were noted without active bleed, and were coagulated. Von Willebrand syndrome type 2A workup initiated for Factor VIII activity, vW Ag, vWF multimeric antigen were found to be inconclusive after ~10 day result turnaround. Patient's condition eventually improved. Cardiology was consulted and advised patient to complete transcatheter aortic valve replacement (TAVR) outpatient. Hemoglobin levels was advised to keep > 9.0 dL. Clopidogrel was resumed due to greater risk of stent thrombosis than bleeding.

This patient met 2 of the 3 criteria for Heyde Syndrome: aortic stenosis and recurrent lower gastrointestinal GI bleeding with angiomatosis. Although workup for von Willebrand Syndrome Type 2A was inconclusive, the time for pending results may be reduced with alternate modalities. Furthermore, blood transfusions is associated with increased VWF and thus levels may be falsely elevated in our patient at the time of testing. Platelet function analyzer (PFA), for example are more sensitive and offer faster results when compared to confirming Von Willebrand Syndrome in Heyde Syndrome cases.

Researches suggest the repair of aortic stenosis is associated with higher rates of lower GI bleeding resolution in patients with Heyde Syndrome. This patient is to follow up outpatient for a TAVR with cardiology.

As evidenced in our case, utilizing approaches such as PFA may offer faster therapeutics to patients when compared other diagnostic modalities such as vW Ag, vWF multimeric antigen. As such, it is important to consider modalities such as PFA when treating patients who have aortic stenosis and anemia from GI bleeding that is unresolving with transfusions.

# Poster #22: Enhancing Gait and Balance in Parkinson's Disease through Immersive Virtual Reality Based Physical Therapy

Nupur Hajela, PT, DPT, PhD<sup>1</sup>; Veena Somareddy, MS<sup>2</sup>; Perminder Bhatia, MD<sup>3</sup>  
1: California State University, Fresno; 2: NeuroRehab VR; 3: Neuropain Medical Center

## Abstract:

**Background and Purpose:** Parkinson's disease (PD) is a neurodegenerative disorder that affects movement, balance, and gait. Virtual reality (VR) based exercises in conjunction with physical therapy can provide a safe and controlled environment for people with PD to practice motor skills in an engaging environment. The purpose of this study was to evaluate the effectiveness of multimodal VR based exercises on motor deficits, fall risk, balance, and gait related functional outcomes in PD patient who uses deep brain stimulation (DBS).

**Case Description:** In this case study a 76-year-old female (AB, synonym) with PD, reported to the neurorehab clinic with gait and balance impairments. AB lives in a single-story home with her husband. The patient is currently using the Four-Wheeled Walker (4WW) and exhibited initial hesitation during sit-to-stand movements. The initial evaluation identified high fall risk, motor deficits, impaired balance, and gait abnormalities. The plan of care included VR based Exercises along with traditional physical therapy. VR headset from neurorehab VR was used with specific games inbuilt such as 'Explore' is best utilized for Parkinson's patients when working on gait training, functional mobility and activity tolerance goals. Within this activity the patient is tasked with walking through a relaxing village and collecting coins. 'Rhythm Therapy' utilizes rhythmic auditory stimulation as part of exercise. 'Fowl Play' is a fun and engaging activity where PD patient worked on their postural stability through alternating positions as they dodge cannon balls being fired at them.

**Outcomes:** The patient was enrolled in 8-week rehabilitation program. Pretest values at initial evaluation indicated high fall risk as assessed through various clinical outcome measures such as FOGQ (Freezing of Gait Questionnaire) = 12/24; The activities specific balance confidence (ABC) scale = 17.5% , TUG ( time up and go) = 29.6 sec , mCTSIB = 33/120, Berg Balance Scale (BBS) = 17/56, Gait Speed= 0.20 m/s. Interestingly, the patient reported no falls just after three weeks of physical therapy integrated with VR in comparison to falling everyday prior to this therapy at the pretest evaluation. The patient provided positive feedback to VR and tolerated the exercises well with less rest breaks required. Post rehab patients' functional outcomes improved along with confidence in balance.

**Discussion:** Integrating VR exercises into the rehabilitation program revolutionized the approach to address motor deficits, fall risk, balance impairments, and gait abnormalities in a Parkinson's disease patient with Deep Brain Stimulation (DBS). The compelling results unequivocally demonstrate that VR interventions are highly effective in significantly enhancing motor performance and functional independence. By providing a controlled and repetitive environment, VR enables patients to engage in intensive and focused training, promoting the formation of new neural connections and thereby inducing neuroplasticity.

**Keywords:** Parkinson's disease, Deep Brain Stimulation, immersive virtual reality, motor rehabilitation, fall risk, gait mechanics.

## **Poster #23: Photobiomodulation - A highly efficacious, non-invasive, non-pharmacological treatment for acute and chronic health conditions. A narrative review of photobiomodulation**

Gopi C. Kasturi, MD<sup>1,2</sup>; Kunal Dudeja, BS<sup>2</sup>; Joshua A. Valenzuela, BA<sup>2</sup>

From the <sup>1</sup>Sierra Pacific Orthopedics Center, Fresno, CA; <sup>2</sup>

California Health Sciences University, Clovis, CA

### **Abstract:**

Photobiomodulation (PBM) is a non-invasive treatment modality that utilizes light to induce intracellular changes in target tissue, leading to therapeutic effects. The chromophore Cytochrome C Oxidase (CCO) plays a key role by absorbing light in the red to near-infrared range, effectively stimulating ATP production and facilitating tissue regeneration. Light's ability to pass through tissue harmlessly and induce intracellular changes is what makes it a unique and efficacious treatment option. For this reason, PBM therapy is generally very well-tolerated in addition to being non-invasive, low risk and potentially very cost-effective. Optimizing light's parameters such as wavelength and energy density or “fluence” is crucial for ensuring treatment efficacy and safety. While PBM has great potential to address numerous clinical conditions such as chronic pain, inflammation, wound healing, and osteoarthritis (OA)- its adoption as a therapeutic intervention has been relatively sluggish. This review therefore aims to outline PBM's various clinical indications, introduce recent advances in our understanding of its mechanism of action, and discuss exciting future therapeutic opportunities.



## Poster #24: Pediatric Immunization Rates at UHC Hanford

Haley Bennett<sup>1</sup>, Brandon Book<sup>1</sup>, Matinder Dhillon<sup>1</sup>, Curtis Ngo<sup>1</sup>, Stephanie Leung<sup>1</sup>,  
Aditya Gurbani<sup>1</sup>

<sup>1</sup>California Health Sciences University, Clovis, CA

### Abstract:

Immunization completion in the United States has been a topic discussed for decades, in part due to parents being misinformed or lacking knowledge regarding the basis of immunizations. Furthermore, due to the recent COVID-19 pandemic, there has been a reduction in the immunization administration rates in the pediatric population worldwide, especially in rural populations. This study aims to create a suitable flow chart designed to advise staff members of a foundational, transparent, and uniform workflow to ensure pediatric patients reach their appropriate immunization status, and to see how this workflow can improve immunization rates. The Federally Qualified Health Centers' (FQHC) Monthly Report Card allows observation of the change in percentage of patients aged 0-18 that are up to date on their immunizations at UHC Hanford from June 2023 to December 2023 after the implementation of an MA workflow. Our Quality Improvement (QI) study shows an increase in immunization rates, with a peak incidence in August 2023. June 2023 is when the MA workflow was initially implemented, and the immunization rate was 17%. August showed a peak incidence at 21%, when children received vaccines for their school requirements. December 2023 shows a rate at 19%, which is exceedingly higher than the initial start time for the MA workflow. This QI shows that it is important to implement standardized protocols to address and mitigate these reasons for patients not coming to the clinic for their vaccination appointments. Implementing enhanced and standardized staff protocols for patient follow-up can significantly boost patient compliance with immunizations. Improved communication and support from healthcare providers can foster a sense of trust and confidence in the immunization process, ultimately leading to higher vaccination rates and better public health outcomes.

## Poster #25: What are the best field-tested methods that can be used to prevent falls among neurodegenerative disease patients in hospice care?

Patrick Bagumyan, Bryce Dorflinger, Christopher Lee, Ikroop Miglani, Jillian Taylor Milliken, Arielle Radparvar, Dr. Mohammad Rahman  
California Health Sciences University College of Osteopathic Medicine, Clovie, CA

### Abstract

**Background:** Neurodegenerative diseases pose significant challenges in medicine, with falls being a prominent concern in hospice palliative care. Studies highlight the prevalence of falls among neurodegenerative patients, emphasizing the need for effective prevention strategies. Prior research has explored various interventions, including tailored physiotherapy programs and combined therapy approaches, showing promise in mitigating fall risks. However, gaps exist in understanding fall prevention specifically in hospice settings, particularly in rural and underserved areas like Central California. By analyzing caregiver practices aimed at reducing fall risks, we aim to decrease fall incidence among Compassionate Care Hospice Center's neurodegenerative disease patients.

**Methods:** Using a Qualitative Improvement (QI) design, retrospective data analysis and caregiver interviews were conducted to identify prevalent fall prevention strategies. Data collected include patient demographics, caregiving practices, and fall occurrences. HospiceMD and Google tools will facilitate data management and analysis.

**Results:** Descriptive statistical analysis revealed that caregivers most commonly utilized surveillance and ambulatory aids to reduce fall risks and the majority of patients in care facilities had a history of falls. The chi-square test revealed that patients in care facilities were indeed significantly more likely to fall than patients in home. The finding suggests that additional support may be needed to minimize the increased risk of falls seen in this population.

**Conclusion:** Through comprehensive data collection and analysis, this study aims to enhance fall prevention strategies for neurodegenerative disease patients in hospice care. The findings will inform targeted interventions to improve patient safety and well-being in hospice settings, particularly in rural and underserved communities. Future research will focus on validating the effectiveness of identified interventions and expanding their implementation in similar care settings.

# Poster #26: Comparison of Pneumonia and Major Complications following Total Joint Arthroplasty with Spinal versus General Anesthesia: A Propensity-Matched Cohort Analysis

Andrew B Harris, MD1,6; Joshua Valenzuela, BA2; Nicholas Andrade, MD3; Amil Agarwal, BS4; Alex Gu, MD4,6; Gregory Golladay, MD5,6; Savyasachi Thakkar, MD1,6  
1Department of Orthopaedic Surgery, The Johns Hopkins Hospital, Baltimore, MD;  
2California Health Sciences University, Clovis, CA; 3Department of Anesthesiology, Johns Hopkins Hospital, Baltimore, MD; 4Department of Orthopaedic Surgery, The George Washington University, Washington, DC; 5Department of Orthopaedic Surgery, Virginia Commonwealth University, Richmond, VA; and the 6Orthopaedics Research Collaborative (ORC)

## Abstract

**Introduction:** Spinal anesthesia (SA) allows total joint arthroplasty (TJA) to be performed while minimizing opioids and systemic anesthetic agents compared to general anesthesia (GA). SA has been associated with shortened postoperative recovery; however, the relationship between spinal anesthesia, major postoperative complications, and pneumonia (PNA) remains unclear.

**Methods:** Patients were identified in a large, national database who underwent total hip arthroplasty (THA) or total knee arthroplasty (TKA) from 2010-2020. 1:1 propensity score matching was used to create matched groups of patients who underwent SA and GA. The groups were matched by age, sex, COPD, smoking status, Charlson comorbidity index (CCI), and American Society of Anesthesiology (ASA) classification. 1:1 matching was also performed among the ASA classifications as a sub-analysis.

**Results:** Overall, equally matched groups of 217,267 patients were identified who underwent SA vs. GA. 850 (0.39%) patients developed postoperative PNA following GA vs. 544 (0.25%) patients following SA ( $p<0.001$ ). The risk of major complications was 6,922 (3.2%) in the GA group and 5,401 (2.5%) in the SA group ( $p<0.001$ ). Similarly, the risk of unplanned postoperative reintubation was higher (0.18% vs. 0.10%,  $p<0.001$ ) and mortality was higher (0.14% vs. 0.09%,  $p<0.001$ ) in the GA group than in the SA group. In ASA 1-3 patients, the risk of PNA was 0.08%-0.21% higher with GA than with SA. In ASA 4 patients, the risk of PNA was 0.42% higher in SA than in GA (1.92% vs. 1.5%,  $p<0.001$ ), and the mortality rate was nearly doubled in GA than in SA (1.46% vs. 0.77%,  $p=0.017$ ).

**Conclusions:** Overall, GA was associated with a small but significantly higher rate of major complications, mortality, and PNA than SA in patients undergoing TJA when matching for differences in comorbidities. ASA 4 patients experienced the greatest increase in absolute risk of mortality with GA vs. SA.

# Poster #27: Amateur Athletic Union (AAU) Accessibility: An Area Deprivation Index (ADI) Analysis of National Basketball Association (NBA) Players' Profiles

Brandon R. Ho, BS1, Joshua A. Valenzuela, BA2 Alexander Markes, MD3, Nirav Pandya, MD3  
1University of California San Francisco School of Medicine, San Francisco, CA; 2California Health Sciences University, Clovis, CA; 3Department of Orthopaedic Surgery, University of San Francisco, San Francisco, CA

## Abstract

**Background:** Youth sports are increasingly shifting towards a “pay to play” model in which financial barriers exist for participation. There is limited research that examines the accessibility of Amateur Athletic Union (AAU) basketball for elite athletes.

**Hypothesis:** Prior AAU teams and high schools of NBA players will be primarily located in areas of higher socioeconomic status.

**Study Design:** Descriptive epidemiology study

**Level of Evidence:** Level 3

**Methods:** The official NBA website was queried to identify all active domestic NBA players for the 2022-2023 season. Players' AAU team locations were collected through the Season Ticket database and via a team's published social media page. To determine data on socioeconomic status (SES), the physical address of the team and the high school attended by the NBA players was used to determine their Area Deprivation Index (ADI). Pearson correlations were used to evaluate associations between AAU and High school state and national ADIs. Histogram plots of AAU and high school state and national ADIs were generated and evaluated for skewness towards a certain socioeconomic status using Skewness and Kurtosis test. Straight line distance between AAU and high school addresses were also calculated.

**Results:** We identified 114 AAU teams with physical addresses for 250 (50%) currently active domestic NBA players. The State ADI of the high schools as well as national and state ADIs of prior AAU teams of active NBA players were significantly skewed toward lower ADI rankings (higher socioeconomic status) ( $p < 0.05$ ). Significantly positive correlations were observed between the national ADI of the high school and the national ADI of the AAU team of a player ( $R^2 = .27$ ,  $p < .05$ ). The mean distance between high school location and AAU location was 170 miles.

**Conclusions:** Prior AAU teams of currently active NBA players are more frequently located in areas of higher socioeconomic status with nearly 50% being within the top 3rd lower state decile as measured by the area deprivation index. Similarly, we found the high schools these players attended, as a proxy for areas they grew up in, were also more frequently located in areas of higher socioeconomic status.

**Clinical Relevance:** There is a higher prevalence of prior AAU teams and high schools of current NBA players in higher socioeconomic status areas. The transition from recreational sports to exclusive and costly privatized sports, exemplified by AAU teams, can present significant barriers for youth living in underserved communities.

## Poster #28: Poor Price Transparency in Sports Surgery

Jacob L Kotlier BA1, Amir Fathi BS1, Joshua M Yazditabar BS1, Meng-Yung Ong, BS1, Joshua Valenzuela MD1, Albert Yang BS1, Aamir Ahmad MD1, Ryan D Freshman MD1, Joseph N. Liu MD1, Frank A. Petrigliano MD1

### **Abstract:**

**Purpose:** This study aims to present hospital compliance with federal price transparency regulations for sports medicine procedures.

**Methods:** Online price estimator and machine-readable files were recovered for U.S. News and World Report's (USNWR) top 100 orthopedic hospitals. From June to November 2023, compliance and monetary values were recorded for each of Centers for Medicare and Medicaid Services (CMS) price transparency regulations. Price estimator data was assessed based hospital placement in the bottom and top 50 of the 100 institutions under review, as well as by region (Northeast, South, Midwest, West). Statistical analyses included two-sample t-tests and Kruskal Wallis tests.

**Results:** 95% of hospitals had a price estimator tool for both subacromial decompression (Current Procedural Terminology (CPT): 29826) and meniscectomy (CPT: 29881). Only 38% were compliant with all regulations for subacromial decompression and 39% for meniscectomy; the remaining did not list minimum or maximum procedure prices. Higher-ranked hospitals were significantly more likely to charge a higher cash price for subacromial decompression and meniscectomy ( $p = 0.040$  and  $p = 0.009$ , respectively). Compliance with machine-readable file reporting was poor, with less than 20% meeting requirements for each CPT code. Reported prices varied greatly by hospital.

**Conclusions:** This study demonstrates that USNWR's top 100 orthopedic hospitals exhibit poor overall compliance with federal price transparency regulations for sports medicine procedures. They often lack full compliance by not reporting minimum or maximum prices as part of their price estimator tool or do not report procedure prices in their machine-readable files. Hospitals also exhibit wide variation in prices reported for specific procedures.

**Clinical Relevance:** Consumer price transparency continues to be an important goal in healthcare as it allows patients to make informed decisions when selecting appropriate treatment options and providers. To realize the full benefits of price transparency hospitals should address areas of improvement.

# Poster #29: Public Perceptions of American Symbolism: Through the Lens of the Social Identity Theory

A. Alvarez, M.A., J. Magaña, B.A., & J. Flores, B.A.

California School of Professional Psychology at Alliant International University

## **Abstract**

### **Introduction and Background:**

This study explores the impact of social identity theory on individuals' views of American symbolism. According to Social Identity Theory, individuals exist on a continuum between social identity, where belonging and conformity to group norms predominate, and personal identity, characterized by individual beliefs and opinions that may diverge from group views (Breakwell, 2014). This continuum influences how individuals perceive symbols associated with their in-groups or personal beliefs, affecting their emotional and cognitive responses to such symbols. There may be utility in exploring the role social identity theory and an individual's emotional response to symbolism. To assess this relationship, a sample size of 65-75 participants was determined by the A-priori size calculator for multiple regression. The main predictor variable included extent of (in- social identity group identification), while dependent variables comprised emotional responses based on Ekman's six basic emotions (Ekman, 1992).

### **Material and Methods:**

Participants completed demographic questionnaires, the Social and Personal Identities Scale (SIPI) (Nario-Redmond et al., 2004), responded to Likert scale questions regarding emotional responses to American symbolism, and answered questions about their views on the American flag. Three hypotheses were tested: (1) Individuals strongly endorsing social identity would exhibit stronger emotional responses to in-group-affiliated symbolism, (2) Those individuals strongly identifying with personal identity would have neutral reactions, and (3) Symbols targeting narrow group identities would evoke stronger emotional responses.

### **Results and Conclusions:**

Findings partially supported the hypothesis that symbols targeting specific group identities elicit stronger emotional responses. It is suggested that analyzing perceptions of American symbolism can provide insights into societal dynamics surrounding adherence to American ideals.

## **Poster #30: Implementing a screening for dementia in primary care setting using Mini-Cog screening tool**

Linha Mazin Mohammed, MD, Youstina Morkos, MD, Khaing Khaing Win, MD,  
Joshua Strunk, DO  
Adventist Health Central Valley Network

### **Abstract:**

Alzheimer's dementia affects approximately 50 million people in the world and was the sixth leading cause of death in the United States in 2014 (Heron, 2016). The death rate due to Alzheimer's increased by 55% from 1999 to 2014 (Centers for Disease Control and Prevention, 2017). Several studies have shown that in primary care, the majority of older adults with dementia are undiagnosed. Mild dementia is particularly under-diagnosed. In 2014, the U.S. Preventive Services Task Force concluded current evidence was not sufficient to assess the benefits of screening for cognitive impairment. Routine dementia screening in primary care using cognitive screening tools appeared to improve dementia case detection rates (Eichler et al., 2015). Primary care providers were often not sure which cognitive screening tool to use, and some had expressed reluctance to do the screening and use the screening tools due to lack of knowledge. The purpose of this QI project is to use one dementia screening tool that was easy to administer in primary care clinic to initiate intervention early and connect patients and their caregivers to community resources.



## Poster #31: Topic: Revolutionizing care with the power of lifestyle medicine and continuous glucose monitoring in a type 2 diabetes patients with complications

Chelsey Preciado<sup>1</sup>; Chhaya Makhija, M.D., DipABLM<sup>1,2</sup>

1: California Health Sciences University College of Osteopathic Medicine;

2: Unified Endocrine and Diabetes Care<sup>2</sup>

### Abstract:

**Background:** The global surge in the prevalence of Type 2 Diabetes Mellitus (T2DM) has reached epidemic proportions, presenting formidable challenges to public health. Despite the universal acknowledgment of lifestyle modifications as first-line T2DM treatment, challenges persist due to limited time and access to diabetes care, hindering optimal glycemic control. This case study aims to propagate awareness regarding the effective utilization of evidence-based, personalized lifestyle interventions, diabetes education, continuous glucose monitoring, and oral medications to wean off insulin safely and improve glycemic control in patients with longstanding, complicated T2DM.

**Methods:** A case with longstanding, poorly controlled T2DM with complications was managed with personalized lifestyle medicine, continuous glucose monitoring, extensive diabetes education, and oral medications to safely discontinue insulin, significantly improve average blood glucose, lower hemoglobin A1C, and mitigate the risk of complications.

**Results:** A 52-year-old male, with a 14-year history of poorly controlled T2DM, and multiple foot ulcers, demonstrated a reduction of Hemoglobin A1C from 11.8% to 6.2% in 3 months resulting in ulcer healing and foot preservation. Gradual and safe improvement in glycemic control prevented the worsening of microvascular complications, leading to the successful discontinuation of multiple daily insulin injections.

**Conclusions:** In longstanding T2DM with complications, often managed with insulin, a holistic approach involving personalized lifestyle medicine, diabetes technology, and oral medications led to a discontinuation of insulin injections. This comprehensive strategy significantly improved health outcomes, advocating for a shift towards evidence-based, holistic diabetes management to alleviate the burden of T2DM, its complications, and associated healthcare costs.

## **Poster #32: Interventional LGBTQIA+ Education Increases the Cultural Competency of Healthcare Workers**

C. Gaffy, D. Kim, K. Joshi, I. Raguine, N. Yousef, B. Tran, A. Nayak, Jonathan Terry, DO, Geni Perryment, Ph.D

California Health Sciences University College of Osteopathic Medicine, Clovis, CA

### **Abstract:**

California Health Sciences University College of Osteopathic Medicine Cultural competency is a multifaceted topic that affects the quality of healthcare for many patients, especially in regard to the LGBTQIA+ community. Providing LGBTQIA+ education in graduate health care programs, like medical schools, can improve the quality of care for this population. For graduate students lacking knowledge about the LGBTQIA+ community, interventional trainings have been shown to improve cultural competency pertaining to this population. Although these results are promising, more comprehensive and long-term studies are needed to assess the impact of LGBTQIA+ education on healthcare professionals. In order to evaluate this, our study focuses on the impact an interventional education session will have on the cultural knowledge of employees at Golden Valley Health Centers. Prior to the session, individuals will take an assessment that will evaluate aspects of cultural competency surrounding the LGBTQIA+ community, specifically history, terminology, and implementation of acceptance in the clinic. Participants will then attend a presentation on the topic tested in the survey. After the session, participants will retake the survey, and the results will be analyzed using a paired T-test to compare the outcomes between the pre-survey and post-survey. Scores are anticipated to increase significantly after the interventional education session. By having a better understanding of the community, we hope to see better healthcare provided to LGBTQIA+ patients, resulting in more favorable patient outcomes.

## **Poster #33: Emergency Department Ultrasound-Guided Pericapsular Nerve Group (PENG) Blocks Using Ropivacaine 0.2% are Effective and Safe: A Retrospective Case Study Series**

J Hipkind, MD; FACEP<sup>1</sup> E Sandhu<sup>1</sup>; T Mitchell, DO<sup>1</sup>; N Page, DO<sup>1</sup>  
1: Kaweah Health Medical Center

### **Abstract:**

Ultrasound-guided pericapsular nerve group (PENG) blocks are a type of regional nerve block that has gained increasing popularity for providing effective analgesia in patients with hip fractures. This retrospective case series evaluated the safety and effectiveness of Ultrasound-Guided PENG blocks using Ropivacaine 0.2% performed by emergency physicians in a single institute. Patients were enrolled between May 2019 and June 2021. The procedure was performed by emergency medicine attendings, ultrasound fellows, and residents. The patients were part of a convenience sample, with the procedure performed when an attending physician or ultrasound fellow was present in the emergency department and was available to perform the procedure. We demonstrated that PENG blocks done by emergency medicine physicians result in a clinically significant decrease in pain levels and are extremely safe to perform.

## Poster #34: Psychological Students' Attitudes Toward Prescription Privileges for Psychologists (RxP)

K. Mendivil, B.A., E. Her, B.S., D.A. Bekerian, Ph.D.

California School of Professional Psychology, Alliant International University, Fresno

### **Abstract:**

**Introduction and Background:** This study will examine psychological students' attitudes toward prescription privileges for psychologists (RxP). RxP is given to a licensed psychologist with a Master of Science in Clinical Psychopharmacology and in prescribing states. Psychologists have extensive training in evaluating, diagnosing, and treating mental health issues; however, healthcare providers prescribe most psychotropic medications with little to no mental health training. Clinical psychologists can have a stronger role in meeting mental health care needs and serving the greater whole through prescriptive authority for psychologists (RxP). We hypothesize that psychological students' attitudes will be more favorable towards RxP.

**Materials and Methods:** The survey will ask participants for their demographics and include 36 items assessing their attitudes toward RxP. A sample population will be drawn through snowball recruitment utilizing the Internet, social media, email, and distribution in psychology college classes. The study is awaiting approval from the university's Institutional Review Board (IRB). Data collection will begin once approval is obtained.

**Results and Conclusions:** We anticipate that psychological students will have positive attitudes toward RxP. Additionally, results will help us understand psychological students' attitudes towards RxP.

## Poster #35: NADPH Oxidase Inhibitors as Potential Sunscreen

E Bebla, M. Dragovic, L Gutierrez-Rivera, J Garcia, E. Merino,  
California Health Sciences University College of Osteopathic Medicine

### **Abstract:**

NADPH oxidases (NOXs) are newly identified enzymes that generate intracellular reactive oxygen species (ROS) in skin cells. Recent studies demonstrated that NOX1 holoenzyme is expressed in human keratinocytes and melanocytes, which are implicated in skin photo-carcinogenesis due to the high amounts of ROS produced. Holoenzyme activation requires a ternary complex comprised of NOX1, cytochrome B alpha chain (CYBA), and cytoplasmic NADPH Oxidase Organizer 1 (NOXO1) to properly form. By inhibiting this assembly process, an opportunity for reducing the production of catalytic ROS is possible, especially during high ROS conditions that occur under prolonged UV exposure. We designed a series of small molecules and evaluated their inhibitory effects on NOXO2 using in-silico docking methods in the 1WLP crystal structure. We show that the NOX\_inh\_5 inhibitor was successful in a variety of experiments using primary skin models from various skin tones ( $p < 0.05$ ). NOX\_inh\_5 proved to be non-cytotoxic while also improving the viability of primary human skin primary cells under UV exposure. Biophysical studies with NOX\_inh\_5 using an Isothermal calorimetric (ITC) binding and heteronuclear single quantum coherence (HSQC-NMR) exhibited inhibition of complex formation between NOXO2 and CYBA. Authentic human skin explants, treated with and without NOX\_inh\_5 and UV exposure, decreased p53 stabilization and decreased UV-induced DNA damage as quantified through cyclobutane dimer formation.

## Poster #36: Managing Autoimmune Hepatitis in an Elderly Female: A challenging hospital course - A Case Report

Authors: Mario Argueta Turcios, MD, Sharanya Thiagarajan, MD, Vanessa Awad, MD, Karrie Lau, DO  
Sierra View Medical Center, Porterville, CA

### **Abstract:**

**Introduction:** Autoimmune hepatitis is a rare autoimmune liver disease characterized by elevated liver enzymes, hypergammaglobulinemia, and autoantibodies. It predominantly affects young to middle-aged women, but can also occur in the elderly population. Here, we present a case of an 85-year-old female with suspected autoimmune hepatitis.

**Case Presentation:** An 85-year-old female presented with fatigue, jaundice, abdominal pain and elevated liver enzymes. Serologic testing revealed elevated antinuclear antibodies as well as actin IgG antibodies, supporting the diagnosis of autoimmune hepatitis. Due to rapid deterioration and other medical complications, liver biopsy could not be performed. The patient was initiated on steroid therapy.

**Management and Outcome:** Despite the inability to confirm the diagnosis with a liver biopsy, the patient showed a remarkable response to steroid therapy, with normalization of liver enzymes within days of treatment initiation. Her hospital course was complicated by respiratory failure from pneumonia as well as bilateral pulmonary effusion and a suspected underlying NSTEMI. Ultimately the patient met her demise despite prompt treatment of her flare of autoimmune hepatitis.

**Discussion:** This case underscores the challenges in diagnosing autoimmune hepatitis in elderly patients, especially when invasive procedures like liver biopsy are not feasible. Nevertheless, prompt recognition and initiation of steroid therapy can lead to favorable outcomes, as demonstrated in this case.

**Conclusion:** In elderly patients with suspected autoimmune hepatitis, clinical judgment and response to therapy may guide management in the absence of confirmatory diagnostic tests such as liver biopsy.

**Keywords:** Autoimmune hepatitis, Elderly, Actin IgG antibodies, Steroid therapy, Diagnostic challenges.

## Poster #37: From Blisters to Unraveling the Purple Plight: IgA's Unpredictable course in an Elderly Male

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1Sierra View Medical Center, Porterville, CA

### Abstract:

**Introduction and Background:** Immunoglobulin A Vasculitis (IgAV), previously known as Henoch-Schonlein purpura, is a systemic vasculitis where IgA immune complexes are deposited primarily into small blood vessel walls such as the skin, joints, GI tract, and kidneys, leading to vascular inflammation and tissue destruction. IgAV mostly affects children and is rarely seen manifesting in the elderly. The disease's etiology is hypothesized to be multifactorial, but preceding infections one to three weeks prior can play a huge role in triggering the disease. This case highlights the unique challenges in formulating a diagnosis and optimizing appropriate management.

**Material and Methods:** A comprehensive evaluation of the patient's medical history, physical assessments, laboratory investigations, echocardiogram, antibody levels, and skin and renal biopsies.

**Results:** We present a case of an 88-year-old male who came to the emergency department with new-onset dyspnea and wheezing for one day and was found to have acute renal failure. In addition he also had purpura scattered across his lower extremities and abdomen, as well as 2+ lower extremity pitting edema, which was first noticed two weeks prior. Initial labs were significant for severe anemia requiring transfusion, significant gross hematuria, 3+ proteinuria, and a BNP of 444. Chest X-ray showed bilateral superimposed pneumonia, and the echocardiogram revealed LV systolic dysfunction, with an EF of 35%. The patient was previously treated for a GI bleed and MSSA cellulitis of his left arm a month prior. After admission, his renal function worsened. Further workup revealed elevated IgA levels. A kidney biopsy was performed, which showed IgA-dominant immune complex glomerulonephritis with 10% active crescents. Treatment involved a combination of immunotherapies, including a low-dose corticosteroid and an immunosuppressive agent, mycophenolate. Eventually, the plan was to initiate Tarpeyo and Filispari on an outpatient basis.

**Conclusion:** In the elderly population, IgAV often presents with atypical manifestations, including GI bleeding, renal impairment, and cardiovascular complications, further delaying diagnosis and increasing morbidity. This case report showcases the importance of early recognition and initiation of treatment via clinical symptoms while awaiting histological confirmation. Furthermore, the patient's comorbidities, along with possible adverse effects and long-term consequences of immunotherapies, pose additional complexities in treatment selection and require frequent monitoring to minimize complications.



# Poster #38: Portrait of the Methamphetamine Crisis in one Rural Hospital in California's Central Valley and Urgent Need for Diagnostic and Therapeutic Inpatient Protocol

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## ABSTRACT

### Introduction/Background

Methamphetamine use disorder (MUD) is a growing public health concern. MUD is associated with extensive comorbidities including homelessness, incarceration, concurrent substance use, life-threatening infections, and early mortality. In the inpatient setting, methamphetamine-associated cardiomyopathy (MACM) represents an especially high burden of disease. Optimal management of patients with MUD is made challenging by frequent sign-outs against medical advice (AMA) in the setting of acute intoxication/withdrawals, and likely provider hesitancy in administering validated interventions such as benzodiazepines due to concern for patient drug-seeking. These issues are compounded by the lack of established inpatient protocol specifically geared towards MUD. Here we quantify the disproportionate impact of MUD on SVMC's patient population in order to highlight the potential benefit of a proposed standardized protocol.

### Methods

Retrospective aggregate data spanning six years from February 1, 2018–January 31, 2024 was collected from SVMC's Meditech EMR system using the Business and Clinical Analytics (BCA) tool and in-house Structured Query Language (SQL) code. IRB approval was not required. Patients with a positive urine drug screen, and/or relevant ICD10 codes and/or Meditech "problem list" diagnoses were included in our MUD cohort, with no distinction made between current or past methamphetamine use, or duration thereof. Remaining patients were placed in the non-MUD cohort. All patients had at least one Emergency Department (ED) visit and/or inpatient stay. Minors <18 years and obstetric admissions were excluded.

### Results

3,190 patients met our MUD criteria within the given six-year period, corresponding to 5.3% of the total patient population, 11.7% of all visits and 10.4% of admissions, 17.1% of total patient costs, and 7.2% of in-hospital deaths (3.7% of the MUD cohort expired during the given period, of whom 67.1% were <60 years, compared to 2.6% of non-MUD, of whom 15.2% were <60,  $p<0.001$ ). A heart failure/cardiomyopathy diagnosis was 2.1x more prevalent amongst the MUD cohort than non-MUD (13.1% vs. 6.2%,  $p<0.001$ ), representing 10.5% of all heart failure patients, with a statistically insignificant difference in mortality rates (11.5% vs. 13.8%,  $p=0.188$ ), however with MUD patients with HF dying nearly two decades younger than non-MUD HF patients ( $56.15\pm11.85$  years, vs.  $74.12\pm12.74$  years,  $p<0.001$ ). Patients in our MUD cohort were also 8.4x more likely to sign out AMA compared to non-MUD (44.5% vs. 5.3%,  $p<0.001$ ); however, in any given visit, MUD patients who received benzodiazepines at least once (either in the ED or upon admission) were 7.4x less likely to sign out AMA than MUD patients who did not (2.3% vs. 16.7%,  $p<0.001$ ).

### Discussion/Conclusion

These results underscore the enormous impact of MUD on our community, and the urgent need for a comprehensive and standardized approach towards treating these patients.

# Poster #39: Ethambutol-induced Psychosis in Active TB: A Case Report

Tiffani Barham, MD; Preeth Nair, MD; Samantha Limvalencia, MD; Akashdeep Khahera, MD  
Sierra View Medical Center

## Abstract

**Introduction:** The treatment for pulmonary tuberculosis (TB) is 4 months of rifampin, isoniazid, pyrazinamide, and ethambutol (RIPE) followed by 2 months of rifampin and isoniazid only (RI). Anti-TB drugs and TB can both cause encephalopathy, thus a potential diagnostic challenge. We present a case of acute encephalopathy in a patient with active TB while on RIPE therapy.

**Case Presentation:** A 66-year-old female with recent diagnosis of pulmonary tuberculosis on RIPE therapy brought in by family due to confusion, generalized weakness, and apraxia. She was reported by family to have poured coffee on the table top instead of a mug. On admission she was seen inaccurately grasping for objects. No prior history of similar episodes or mental health disorders. Patient was admitted for acute encephalopathy and further workup.

Initially, patient was increasingly restless and unable to stand unassisted. Due to attempts to get out of bed, and need for MRI, she was given multiple sedatives without efficacy. Later that night, patient had 2 episodes of tonic-clonic seizures, was intubated for airway protection, and upgraded to ICU. Patient's chemistry panel and ammonia was not suggestive of metabolic imbalances contributing to encephalopathy. Imaging of the brain was negative. Urine drug screen was negative. Active TB was confirmed with AFB. Lumbar puncture was done and ruled out TB encephalitis, and other infectious etiologies. After primary source of psychosis was ruled out, all anti-TB drugs were discontinued. Symptoms subsided after discontinuation and therapy was re-introduced subsequently starting with isoniazid, then rifampin, which did not cause relapse of psychotic symptoms. It was thereby theorized that ethambutol could have been a factor in worsening psychosis.

**Discussion:** This patient had drug-related psychosis related to anti-TB meds, namely ethambutol. Anti-TB drug related psychosis has been reported: isoniazid has shown a temporal association in acute psychosis, and cycloserine have also been implicated in psychosis and seizure activity. Ethambutol is associated with optic neuritis. Ethambutol-induced psychosis is rare, known to interfere with metabolic processes essential for the normal functioning of the neuron. Only 2 other case reports demonstrate ethambutol-induced psychosis, both patients improving after discontinuing ethambutol. A stepwise approach to re-introducing RIPE therapy reported improvement and eventual resolution of patients psychotic symptoms in previous studies and similar management was implemented in our patient.

**Conclusion:** Ethambutol can induce psychosis as a side effect for TB therapy.

# Poster #40: The Silent Intruder Unveiled: The Elusive Diagnosis of Tuberculosis Meningitis

Sharanya Thiagarajan MD1, Michelangelo P. Reyes MD1, Ramu Thiagarajan MD1  
1Sierra View Medical Center, Porterville, CA

## Abstract:

**Introduction:** This case report aims to present a challenging diagnostic journey encountered in a 79-year-old Tagalog-speaking female with tuberculosis meningitis. This study aims to shed light on the difficulties faced during the diagnostic process. Due to the nature of her initial symptoms, a high index of suspicion for meningitis was maintained throughout the diagnostic process.

**Case Description:** The patient arrived exhibiting signs of an altered mental state and fever, which suggested a potential case of meningitis. On arrival, the patient had a blood pressure of 99/58 and was tachycardic with a heart rate of 115, a respiratory rate of 24, and a fever of 102.8 F. The patient was saturating 97% on room air. Labs were significant for potassium of 3.1, bicarbonate of 18, lactic acid 4.5, and a Pro-Cal of 1.38. Chest x-ray showed moderate vascular congestion. CT of the abdomen/pelvis showed significant thickening of the rectal wall. A sepsis alert was initiated, and the patient was given 30 cc/kg of fluids and started on IV Zosyn in the emergency department. The patient was admitted to telemetry for severe sepsis, and at that time, it was secondary to an unknown etiology. Blood cultures and urine cultures were taken, and urinalysis was negative.

**Discussion:** Considering the patient's age and wide range of possible diagnoses, a comprehensive exam, labs, lumbar puncture with CSF analysis, and imaging were conducted. The Cerebrospinal Fluid (CSF) analysis unveiled a high protein level, lymphocytic pleocytosis, and reduced glucose levels. These factors align with Tuberculosis (TB) meningitis symptoms, a conclusion further supported by the patient's positive TB Quantiferon result. All other CSF studies, including HSV, cocci, and West Nile, were negative. The patient had no respiratory symptoms to suggest pulmonary TB, and her chest X-ray was negative for TB. The patient was started on RIPE therapy, steroids, and B6. After beginning treatment, the patient's symptoms began to improve.

**Conclusion:** Diagnosing tuberculosis meningitis can be particularly challenging, especially in elderly patients with nonspecific clinical manifestations and a wide range of differentials to consider. This case report highlights the importance of maintaining a high index of suspicion in the face of diagnostic uncertainty. It emphasizes the significance of thorough evaluation, including examination, CSF analysis, and molecular testing, in confirming the diagnosis. Timely identification of tuberculosis meningitis is crucial for initiating appropriate treatment promptly, thus improving patient outcomes.

## Poster #41: Combined Cholestyramine and Steroid Therapy for Treatment of Immune Checkpoint Inhibitor-Induced Colitis in Melanoma

E Metchikoff, MS, RD1,4; G Hanna, MD3, M Butteri, MD1; J Fruehauf, MD1,2

1Department of Internal Medicine, University of California, Irvine Medical Center, Orange, CA, United States; 2Department of Hematology-Oncology, University of California, Irvine Medical Center, Orange, CA, United States; 3Department of Neurosurgery, Cedars-Sinai Medical Center, Los Angeles, CA, United States; 4 California Health Sciences University College of Osteopathic Medicine

### Abstract:

**Introduction and Background:** In 2011, there were over 65,000 cases and over 9,000 deaths from melanoma in the United States, alone. Targeted therapy and immunotherapy were landmark steps in melanoma treatment but combined immunotherapy has been a recent breakthrough in treatment that has prolonged progression free and overall survival. A recent trial has demonstrated combined therapy with an anti-PD-1 drug and anti-CTLA4 agent, i.e. nivolumab and ipilimumab, respectively, has demonstrated greater sensitivity to therapy than monotherapy alone and up to a 60% response in patients with metastatic melanoma. Despite the promising results, severe adverse events have also significantly increased with combined therapy than monotherapy alone. One of the most significant adverse side effects that leads to intolerance and discontinuation is immune-mediated colitis (IMC) and diarrhea.

**Materials and Methods:** The goal of our case series was to describe the combined usage of cholestyramine and tincture of opiate in effectively managing immune checkpoint inhibitor-induced colitis that is encountered in treatment of melanoma. A 24-year-old female with metastatic melanoma, with cerebral metastases, treated with Keytruda® (pembrolizumab) presented with significant distress due to incessant diarrhea. The patient and her mother kept a daily count of loose stools as they were concerned with the excessive frequency. The patient initially received solumedrol for the immunotherapy-induced diarrhea yet was still having an average of 14 to 16 loose stools daily. Additionally, the patient had confusion secondary to cerebral edema so we replaced her solumedrol with dexamethasone which had better blood-brain barrier penetration to improve her lucidity while continuing to treat the immune-mediated colitis. The frequency of her stools remained unchanged and we initiated a combination of cholestyramine and tincture of opiate which significantly improved the frequency of her stools to only 3-4 episodes per day down from 14-16 per day.

Another unique example is the case of a 62-year-old female who had metastatic melanoma treated with Keytruda® followed by resolution of the metastatic lesion. Despite cessation of immunotherapy, the patient had unrelenting and distressing diarrhea a month later and solumedrol was ineffective. After a prolonged trial of corticosteroids, she opted to try our recommendation of treatment with tincture of opiate and cholestyramine. Again, we were successful in reducing her diarrhea from approximately 12 episodes per day down to 5 episodes per day and to the patient, most importantly, we improved her quality of life.

**Results and Conclusion:** Based on our illustrated report, we recommend using a multi-modal approach to more effectively control colitis and diarrhea using a tincture of opiate, cholestyramine then corticosteroid therapy.

## Poster #42: Apoptotic and Non-apoptotic roles of Caspases in Mitochondrial Purifying Selection in *C. elegans*

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Department of Molecular, Cell and Developmental Biology, University Of California Santa Barbara

### Abstract:

The mitochondria are dynamic, vital, maternally-inherited organelles with their own genome (mtDNA) that function as the powerhouse of the cell and as a signaling hub regulating various physiological processes including programmed cell death (PCD). Errors during replication of mtDNA accumulate over time leading to a multitude of diseases affecting up to 1 in 4300 people. Mitochondrial dysfunction is also associated with age-related dementia, myopathies, and heart diseases. Mitochondrial purifying selection (MPS) is the removal of damaged mitochondria in the germline that can occur at organismal, cellular, organellar, and molecular levels. We wanted to test the hypothesis that damaged mtDNA and mitochondria are eliminated by programmed cell death in maternal germlines. We assayed germ cell death using transgenic fluorescent markers and vital dyes in different PCD mutant backgrounds in adult *C. elegans*. Caspase activity was monitored using a genetically engineered biosensor with differentially localizing membrane RFP and nuclear GFP signals upon caspase activation. Copy number of wildtype and mutant mtDNA was quantified by digital droplet PCR. Presence of mutant mtDNA, uaDf5, led to a modest increase in germ cell death. This extra germ cell death required the activity of caspase activator APAF-1/CED-4 and the caspases CED-3 and CSP-1. Unexpectedly, the cell death inhibitor CED-9/BCL2, which does not play a role in normal germ cell death, blocked the extra cell death in uaDf5 mutants suggesting that uaDf5 dependent cell death occurs via a non-canonical CED-9 dependent pathway. Abrogation of caspases resulted in an increase in mutant mtDNA levels. Contrary to our expectations, in APAF1/CED-4 loss of function mutants there was no significant increase in uaDf5 copy number even in the absence of all cell death suggesting a CED-4 independent, non-apoptotic role for caspases in MPS. Collectively, our findings suggest the role of caspases in eliminating damaged mitochondria through both apoptotic as well as non-apoptotic processes and suggests future avenues of investigation. Understanding the mechanism for MPS will allow for development of therapies for currently incurable mitochondrial and aging associated diseases leading to the possibility of extending human lifespan and healthspan.

## Poster #43: Knowledge, Attitude, and Behavior of Farmworkers in Fresno County towards Coccidioidomycosis

Ryan Bae, Johan Hsu, Naila Iqbal, Ashwin Jayakumar, Tiffany Jow, Sonia Khatri, Colena Mau, Robert Palacios, Lily Reddivalam, Manan Thaker, Zeyu Yu, Reena Lamichhane Khadka, MS, PhD, Eddie Merino, PhD

### **Abstract:**

**Introduction:** Coccidioidomycosis, or Valley Fever, is a fungal infection found in the Southwestern United States (1). It is caused by inhaling fungal spores and can lead to respiratory illness and potentially fatal complications (2).

**Purpose:** The study surveyed farmworkers in Fresno County, an area with a high incidence of the disease, to understand their knowledge of prevention and treatment methods. It aims to address the gap in research on at-risk individuals and improve practices to prevent Coccidioidomycosis infection.

**Methods:** A cross-sectional survey study was conducted from mid-January to February 2024. Farm workers (N=31) over the age of 18 who have worked in outdoor agriculture for over a year were surveyed in Fresno County (3). Participants were surveyed on the following topics related to Valley Fever, including knowledge, awareness, attitudes/beliefs about Valley Fever, and time spent in various work settings. Survey data was summarized through descriptive statistics. Chi-squared tests, Fisher's exact test, and t-tests were used to determine significant differences across ethnicity and gender with a 95% confidence interval and a p-value of <0.05.

**Results:** Our results show that 9.7% of farmers always work and 22.6% work most of the time when lots of dust is generated, while 38.7% of farmers work half time, indicating that nearly 70% of workers worked at least 50% of the time or greater when facing adverse weather conditions that can hasten the spread of Valley Fever. Additionally, 51.6% of farmers report always wearing a mask or respirator in dusty conditions, while 25.8% of farmers report rarely wearing a mask or respirator in dusty conditions, indicating that PPE usage isn't typically prioritized in adverse weather conditions. 51.6% of respondents stated that they believed that Valley Fever could be spread by being in contact with an infected individual, while 64.5% of respondents stated that they believed that Valley Fever could be contracted through the use of or working alongside pesticides. Our data also revealed that the majority feared contracting the virus due to financial concerns associated with missing work. Additionally, results yielded data regarding the educational methods preferred by our sample population, with the top 3 preferred modalities being: Physician/Healthcare Provider (77.4%), Family/Friend/Co-worker (61.3%), and Place of Employment (58.1%).

**Discussion/Conclusion:** The data collected gave us insight into the challenges that farmworkers face while working in an endemic area and beliefs held by them regarding Valley Fever. Additionally, our results highlighted gaps in knowledge that farmworkers possess and their overall concerns with the disease. We hope to use this data to create tools and resources to help provide a more robust education on Valley Fever to farmworkers who are at risk of contracting the disease.

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## Poster #44: A Review of Recent Advances in the Management of Alzheimer's disease

Skylynn Thangwaritorn<sup>1</sup>, Christopher Lee<sup>1</sup>, Elena Metchikoff<sup>1</sup>, Vidushi Razdan<sup>1</sup>, Suliman Ghafary<sup>1</sup>, Dominic Rivera<sup>1</sup>, Alvaro Pinto<sup>1</sup>, Sudhakar Pemminati<sup>1</sup>

1. Department of Biomedical Education, California Health Sciences University College of Osteopathic Medicine, Clovis, USA

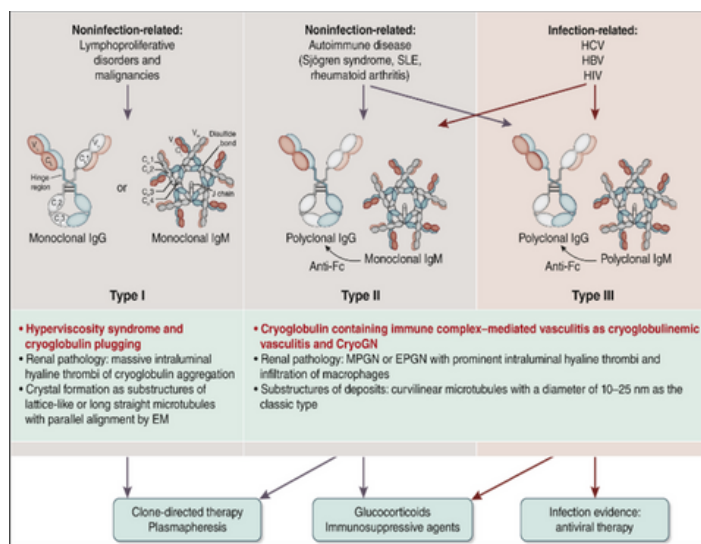
### Abstract:

Alzheimer's disease (AD) is the most common neurodegenerative condition and form of dementia encountered in medical practice. Despite many proposed and attempted treatments, this disease remains a major puzzle in the public health systems worldwide. This review article critically assesses the most significant studies about AD pharmacological therapy and describes recent advances and innovations in AD management. Main properties, categorization, Food and Drug Administration (FDA) status, mechanisms of action, benefits, and common side effects of the classical and the most recently proposed pharmacological treatments for AD are described. Conventional pharmacological agents revised comprise of cholinesterase inhibitors, monoclonal antibodies, other therapies, such as memantine. Furthermore, innovative reviewed pharmacological agents comprise of donanemab and semorinemab. Nutritional supplements such as alpha-tocopherol (Vitamin E) and caprylidene were also revised. Other tau and amyloid targeting treatments include methylthioninium moiety (MT), leuco-methylthioninium bis (LMTM), an oxidized form of MT, tramiprosate, which inhibits the A $\beta$  monomer aggregation into toxic oligomers, and sodium oligomannate (GV-971). Finally, anti-diabetic and anti-neuroinflammation drugs recently proposed for AD treatment are discussed. The anti-diabetic drugs include NE3107, an anti-inflammatory and insulin sensitizer, and the diabetes mainstream drug metformin. The anti-neuroinflammatory AD therapies include infusions with intravenous immunoglobulin aiming to decrease plasma levels of the constituents of A $\beta$  plaques, and masitinib, a tyrosine kinase inhibitor that impacts mast and microglia cells. Lastly, additional drugs that are being currently tested in clinical trials, such as atomoxetine (selective norepinephrine reuptake inhibitor), losartan (angiotensin receptor antagonist), genistein (anti-inflammatory isoflavone neuroprotective agent), and trans-resveratrol (polyphenol antioxidant plant estrogen) and benfotiamine (synthetic thiamine precursor). Other previously investigated or drug trials in progress included beta site amyloid precursor protein cleaving enzyme (BACE-1), vadifemstat (histone lysine specific demethylase KDM1A), combined metabolic activators, Efavirenz (anti-HIV) and bromocriptine (dopamine D2 agonist). This review also describes drugs targeting Alzheimer's-associated symptoms such as brexipiprazole (serotonin dopamine activity modulator) and suvorexant (orexin receptor antagonist), respectively used for agitation and insomnia in AD patients.

## Poster #45: Cryoglobulinemic associated glomerulonephritis: rare case

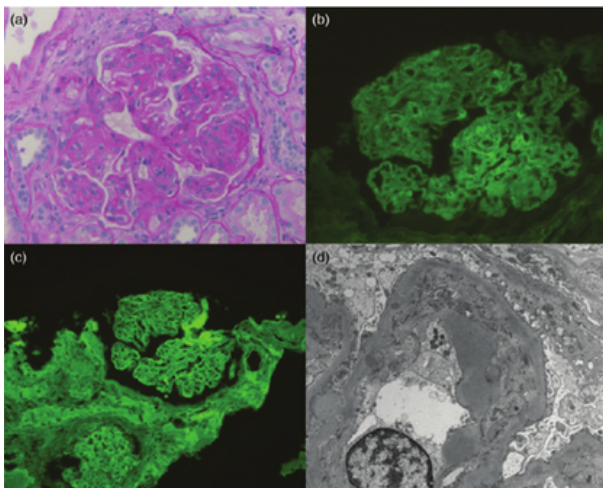
Youstina Morkos MD, Khaing Khaing Win MD, Joshua Strunk, DO  
Adventist Health Hanford Family Medicine Residency Program

**Introduction:** Cryoglobulinemia-associated glomerulonephritis is a rare renal manifestation characterized by the deposition of cryoglobulins within glomerular structures, leading to immune-mediated glomerular injury. It often occurs in the setting of underlying systemic diseases, particularly hepatitis C virus (HCV) infection, but can also arise in the context of other autoimmune or lymphoproliferative disorders. While hepatitis C virus (HCV) infection is a well-established cause of cryoglobulinemia, cases unrelated to HCV are less common and pose diagnostic and management challenges. Membranoproliferative glomerulonephritis is more common in mixed cryoglobulinemia, and variations in underlying etiology likely account for the wide variation in the reported incidence of renal disease among various case series (5 to 60 percent).



**Case presentation:** 50-year-old female with a known history of Sjogren's syndrome and hypertension, who presented to the emergency room (ER) with generalized facial and body swelling, weakness and worsening shortness of breath over the past three weeks, exacerbated in the last 3 to 4 days. She had discontinued Plaquenil, prescribed for Sjogren's syndrome, six months prior. Despite being on Lasix and recently added Chlorthalidone for uncontrolled hypertension, her symptoms persisted. On arrival, she reported abdominal pain with distension, decreased urine output and severe headache associated with nausea, vomiting and blurry vision for three days prior to coming to ER. Denied chest pain, palpitations, LOC, skin rash or joint pain. On admission, vital signs were unremarkable except for BP 185/93. Patient maintaining O2 saturation at 98% on RA. Patient appeared anxious but in no acute distress, presented with generalized body swelling, icteric sclera, bilateral swollen eyelids with chemosis, and a malar light pink rash. Physical examination reveals no acute distress, with normal findings across respiratory, cardiovascular, gastrointestinal, genitourinary, lymphatic, musculoskeletal, and neurologic systems. Bilateral lower extremity pitting edema is noted. The patient appeared alert and oriented with intact sensory and motor function and grossly intact cranial nerves.

The laboratory findings indicated significant abnormalities including anemia, thrombocytopenia, electrolyte imbalances (hyponatremia, hypokalemia), renal dysfunction (elevated BUN, Cr, low GFR), liver dysfunction (elevated AST, total bilirubin), elevated BNP and troponin levels, and nephrotic ranged proteinuria. Further lab work confirmed the presence of cryoglobulinemia with positive quantification and detection of IgM and IgG cryoglobulins. Serum protein electrophoresis revealed increased levels of IgM, kappa and lambda light chains. The labs result was characterized by elevated ANA titers and positive SSA (Ro) antibodies, low C3 and C4 level and negative dsDNA antibodies. Imaging studies revealed findings consistent with Grade II diastolic CHF and medical renal disease on Ultrasound. These findings suggested a complex clinical picture likely involving cardiac and renal dysfunction, warranting further evaluation and management. The renal biopsy findings reveal a pattern of membranoproliferative glomerulonephritis (MPGN) associated with focal acute endothelial injury, glomerulosclerosis, interstitial fibrosis, and tubular atrophy. Immunofluorescence studies demonstrate predominant IgM, kappa light chain, and C3 complement component deposition, indicating immune complex deposition within the glomeruli. These findings are consistent with immune complex MPGN, with additional features suggestive of cryoglobulinemia glomerulonephritis.



**Management:** Nephrologist and Rheumatologist were consulted. Initiation of corticosteroids and restarting hydroxychloroquine to potentially modify the autoimmune process and alleviate systemic symptoms associated with Sjögren's syndrome. Initiation of dialysis due to the worsening renal function. After 3-5 days, Patient improved with steroid therapy and the resolution of uremic symptoms, continuation of steroids and diminishing the immediate need for further dialysis was recommended. Rituximab, a monoclonal antibody targeting B cells, was discussed as a potential therapeutic option if the patient's condition deteriorated. Patient was discharged on day 12 with continue corticosteroid and Plaquenil and advised to follow up at AH Hanford Residency clinic and continue follow up with Nephrologist and Rheumatologist as scheduled.

**Conclusion:** Nephrologist and Rheumatologist were consulted. Initiation of corticosteroids and restarting hydroxychloroquine to potentially modify the autoimmune process and alleviate systemic symptoms associated with Sjögren's syndrome. Initiation of dialysis due to the worsening renal function. After 3-5 days, Patient improved with steroid therapy and the resolution of uremic symptoms, continuation of steroids and diminishing the immediate need for further dialysis was recommended. Rituximab, a monoclonal antibody targeting B cells, was discussed as a potential therapeutic option if the patient's condition deteriorated. Patient was discharged on day 12 with continue corticosteroid and Plaquenil and advised to follow up at AH Hanford Residency clinic and continue follow up with Nephrologist and Rheumatologist as scheduled.

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# Poster #46: A Course Assessment of the California Health Sciences University (CHSU) Nutrition and Culinary Medicine (CM) Curriculum after OMS-IV Finished Their 3rd-year Rotations.

Martin Garcia, MS; Lucia Liu; Maria Torres, MS, RDN; Jessica McCune; Sara Goldgraben, MD, MPH, MBA

## **Abstract:**

**Background:** The imperative role of dietary interventions in managing chronic diseases is well-established, yet medical school graduates often feel ill-equipped to provide nutritional guidance to patients. In response, California Health Sciences University (CHSU) has integrated a Culinary Medicine (CM) course into the curriculum, with students applying their training during clinical rotations. This study seeks to assess the effectiveness of CHSU's CM course for fourth-year medical students (OMS-IV) and its potential to bridge the gap in nutritional education.

**Methods and Materials:** Current OMS-IV students were surveyed to gauge the impact of CHSU's CM course. The survey sought to assess the frequency and context in which students applied CM knowledge during their clinical rotations. Questions focused on patient populations, medical conditions, and specific diets recommended, while Likert-scale queries evaluated students' attitudes toward CM's influence on their counseling abilities.

**Results:** The study garnered a 27.5% response rate from OMS-IV students, with 19 participants providing valuable insights. When asked about how often participants provided information learned from CM to patients, 5.3% of participants answered "always", 26.3% answered "often", 52.6% answered "sometimes", 10.5% answered "rarely", and 5.3% answered "never". Commonly counseled patients presented with diabetes, hyperlipidemia, hypertension, and obesity. Recommendations often aligned with CM course content, with 89.4% of participants recommending a DASH diet and 63.1% recommending a Mediterranean diet. When asked if the CM course adequately prepared the students to provide nutritional counseling to patients on rotation, 26.3% of participants answered "strongly agree", 47.4% answered "agree", 21.1% answered "neither agree nor disagree", and 5.3% answered "disagree". When asked if the CM course "allowed you to make a greater impact towards the health outcomes of your patients", 26.3% of participants answered "strongly agree", 52.6% answered "agree", and 21.1% answered "neither agree nor disagree", while no one answered "disagree".

**Discussion:** Despite limitations stemming from the response rate and generalized survey questions, this study underscores the positive influence of CHSU's CM course on students' attitudes and knowledge application in clinical practice. The counseling recommended by students incorporated specific diets that were primarily covered in the CM course, indicating a trend of directly applying the course material in practice. Positive sentiments towards CM were prevalent among participants highlighting the perceived value and effectiveness of the course in equipping students with the necessary skills and knowledge in this domain.

**Conclusion:** CM courses like the one at CHSU hold great promise in preparing medical students for holistic patient care by bridging the nutrition education gap. To advance the field of culinary medicine, stakeholders should focus on raising awareness, fostering collaboration, and addressing barriers to effective implementation. Ongoing research and curriculum refinement are essential to ensure CM's continued growth and impact in healthcare education.

## **Poster #47: : Benefits and Risks of Medications Used in the Management of Hypotension: A Review**

Skylynn Thangwaritorn, Abel Thomas, Christopher Lee, Suliman Ghafary, Dominic Rivera, Joel Varughese, Zeyu Yu, Sudhakar Pemminati PhD  
California Health Sciences University, College of Osteopathic Medicine, Clovis, California, USA

### **Abstract:**

This comprehensive literature review addresses the scarcity and limited study of hypotension treatments compared to abundant antihypertensive drugs. Hypotension, categorized as absolute, relative, or orthostatic, has diverse causes. This review explores various treatments, including drugs affecting the sympathetic nervous system, such as midodrine, dihydroergotamine, and ergotamine, which have shown efficacy in managing hypotension. Dopamine agonists/antagonists and other drugs such as ephedrine, norepinephrine, and fludrocortisone are also discussed, each with distinct mechanisms and applications. Additionally, adjunctive agents such as non-steroidal anti-inflammatory agents, caffeine, and monoamine oxidase inhibitors are reviewed for their effects on blood pressure. This review underscores the importance of understanding the efficacy and safety profiles of hypotension treatments to guide healthcare professionals in optimal drug selection and management, emphasizing the need for further research and comparative studies for evidence-based guidelines.

## Poster #48: Navigating the Complexity: A Unique Case of Autoimmune Encephalitis

Michelangelo. P. Reyes<sup>1</sup>, Sharanya Thiagarajan<sup>1</sup>, Ramu Thiagarajan<sup>1</sup> Institutions: 1. Internal Medicine, Sierra View Medical Center, Porterville, CA, United States.

### Abstract:

**Purpose of Study:** The patient, a previously healthy 32-year-old female, initially presented with psychiatric symptoms, including psychosis, agitation, and delusions. Subsequent neurological examination revealed the presence of seizures, abnormal movements, and autonomic dysfunction. Seronegative autoimmune encephalitis was diagnosed after a thorough diagnostic workup, including cerebrospinal fluid analysis and antibody testing. The patient received prompt immunotherapy, including corticosteroids and intravenous immunoglobulin. However, antibodies were negative in the serum and CSF. Additionally, tumor screening was negative. Over the course of several weeks, the patient showed significant improvement in both neurological and psychiatric symptoms. This case report highlights the importance of early recognition and treatment of seronegative autoimmune encephalitis. By sharing this case, we aim to contribute to the knowledge of autoimmune encephalitis and enhance awareness for timely diagnosis and appropriate management of this challenging and complex condition.

**Methods:** A comprehensive evaluation of the patient's medical history, physical assessments, laboratory investigations, and neuroimaging studies was conducted. Diagnostic procedures included cerebrospinal fluid analysis, evaluation of serum antibody levels, electroencephalogram recordings, and brain magnetic resonance imaging.

**Results:** Following a thorough investigation and exclusion of other potential causes, a diagnosis of autoimmune encephalitis was established. There was no detection of specific antibodies in the serum or cerebrospinal fluid. Brain MRI was negative, and EEG was abnormal - consistent with encephalitis. Despite the absence of detectable antibodies in the CSF, the patient's clinical presentation and EEG findings suggested an autoimmune etiology. Empirical immunotherapy was initiated, consisting of corticosteroids and intravenous immunoglobulin (IVIG). Supportive care and close monitoring of symptoms, vital signs, and neurological status were also provided. Remarkably, the patient demonstrated significant improvement in cognitive function and neurological deficits within weeks of treatment initiation, further supporting our evidence of autoimmune encephalitis.

**Conclusion:** Following the initiation of treatment, the patient exhibited improvement in psychiatric symptoms, resolution of seizures, and a return to baseline neurological functioning. This case highlights the importance of considering seronegative autoimmune encephalitis in patients with suggestive clinical features, even without detectable antibodies in the CSF. Negative CSF antibodies should not exclude the possibility of an autoimmune etiology, as the diagnostic sensitivity of current antibody panels is not absolute. This case further emphasizes the significance of early recognition and prompt treatment in effectively managing seronegative autoimmune encephalitis.



# Poster #49: Navigating the Complexity: A Unique Case of Autoimmune Encephalitis

Sharanya Thiagarajan MD1; Michelangelo Reyes MD1, Ramu Thiagarajan MD1  
1Sierra View Medical Center, Porterville, CA

## Abstract

**Introduction:** The purpose of this case report is to present a detailed analysis of a patient diagnosed with autoimmune encephalitis (AE). The study aims to provide insights into the clinical presentation, diagnostic methods employed, treatment strategies, and the subsequent outcomes observed in managing this rare and unique neurological disorder.

**Case Description:** The patient, a 32-year-old female, with no past medical history was initially brought to the ED after experiencing 2 witnessed seizures, psychiatric symptoms, including mood disturbances, delusions, and disorganized speech. Patient's mother mentioned that patient is normally pleasant and happy but has been "acting strange" with a blunt affect for the last two weeks since splitting from her boyfriend. Throughout hospital course, patient noted to have significant autonomic instability and generalized rigidity. Initial EEG was normal, but repeat EEG showed diffuse slowing with no epileptiform discharges. CSF showed 5 WBCs and slightly elevated protein and glucose compared to that of the previous LP. Following a thorough investigation and exclusion of other potential causes, a diagnosis of seronegative autoimmune encephalitis was established based on the patient's clinical presentation.

**Methods:** A comprehensive evaluation of the patient's medical history, physical assessments, laboratory investigations, and neuroimaging studies was conducted. Diagnostic procedures included cerebrospinal fluid analysis, assessment of serum antibody levels, electroencephalogram recordings, and brain magnetic resonance imaging.

**Discussion:** Based on patient's clinical manifestations of atypical focal/generalized seizures presenting as status epilepticus initially, significant cognitive and language impairment and psychosis throughout hospital stay, a diagnosis of AE is highly warranted. CT, repeat MRI, Figure 1, and repeat EEG findings also were suspicious of AE. At first, LP wasn't considered as patient presented with cerebral edema and bedside fundus exam revealed papilledema and was given prophylactic IV acyclovir and IV antibiotics. Malignancy workup including digital mammography, pelvic ultrasound, CT chest, abdomen & pelvis were also ordered to rule out paraneoplastic etiology of AE. Workup was negative. LP was performed three days later, and CSF was negative for any bacterial etiology, Coccidiomycosis, West Nile Virus, and AE antibody panel.

**Conclusion:** Following the initiation of treatment, the patient exhibited gradual improvement in psychiatric symptoms, resolution of seizures, and a return to baseline neurological functioning. V. This case report highlights the significance of early recognition, prompt diagnosis, and aggressive immunotherapy in effectively managing ANPRA.

# Poster #50: Rehabilitation of Rapidly Progressive Transverse Myelitis in the Setting of Benign Paroxysmal Positional Vertigo: A Case Report

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California Health Sciences University, College of Osteopathic Medicine, Clovis, California

## Abstract

**Case Diagnosis:** A 51-year-old woman with a past medical history significant only for BPPV presents with an unusual presentation of acute transverse myelitis that is subsequently treated with medical management and four weeks of intensive inpatient PT/OT rehabilitation.

**Case Description:** The patient initially visited the emergency department with bilateral upper and lower extremity weakness symptoms. She was discharged with a lidocaine patch after CT showed prominent posterior osteophytes at C6-C7 with mild left-sided foraminal narrowing. She returned the same day with complete loss of sensation on the left side, numbness, tingling, BPPV-related symptoms, and loss of feeling of bladder fullness. MRI without contrast revealed a T2-hyperintense signal over the cervical spine consistent with edema of C5-C6. The patient was diagnosed with transverse myelitis and was given IV pulse therapy with high-dose methylprednisolone 1g daily for the first five days, followed by plasma exchange therapy for the subsequent five days. The patient was then admitted for inpatient rehabilitation, consisting of at least 3 hours daily of combined PT/OT for the next four weeks.

**Discussion:** The exact mechanisms underlying the initiation and progression of transverse myelitis have yet to be fully understood and may vary among individuals. Additionally, the specific triggers and immune responses involved in transverse myelitis can differ, leading to heterogeneous clinical presentation and outcomes. Typically, these triggers are associated with specific autoimmune and viral sources. We present a unique case of a patient who only has a background of recurrent tension headaches and Benign paroxysmal positional vertigo.

**Setting:** This case occurs in a community hospital system, followed by admission to an inpatient rehabilitation hospital.

**Assessment/Results:** Before admission, the patient was completely independent. Comparisons of initial and final occupational and physical therapy evaluations of functional ability showed noteworthy improvements, with tasks like toilet hygiene increasing from 01 to 03, rolling left and right from 01 to 06, sitting to lying down from 01 to 04, and chair/bed to chair transfer from 01 to 05. However, activities like walking 10ft on an uneven surface, 50ft with two turns, and 150 ft remained unchanged at 01.

**Conclusions:** The patient was discharged with significant improvements in self-care parameters thereby reducing care-giver burden. However, the longevity of these self-care improvements is unclear and will require further exploration.

## Poster #51: Mucosal Melanoma: A Case Report

D. Waggoner, P. Tran, A. Pinto MD PhD, D. Tasso, MD

California Health Sciences University College of Osteopathic Medicine, Central California VA Healthcare System, Department of Pathology and Laboratory Medicine

### **Abstract:**

**Introduction/Background:** Malignant Mucosal melanoma (MMM) arising from melanocytes in the mucosal linings of the body, is the least common and most aggressive form of melanoma. The pathogenesis of mucosal melanoma is not well known compared to cutaneous melanomas. The poor prognosis of MMM is due to a variety of factors, including delayed diagnosis, lack of defined risk factors, and greater tumor mutational burden. This case report aims to describe the clinical, histopathological, and immunohistochemical features of a case of mucosal melanoma while contrasting it with other types of melanomas.

**Case:** An 85-year-old Hispanic man presented with a two-week history of right-sided facial paresthesia, ophthalmoplegia with tearing, and odontalgia. Examination revealed a bulging mass within the right maxillary sinus. A head CT scan showed complete blockage of the right maxillary sinus with erosion of the surrounding bone, including the orbital floor. Biopsy confirmed the mass to be malignant, and a PET scan revealed metastasis to the lungs, liver, and bones. The patient was diagnosed with malignant mucosal melanoma of the right maxillary sinus. He received four cycles of immunotherapy with ipilimumab and nivolumab, and radiation therapy to the primary tumor in the right maxillary sinus. A follow-up PET scan showed marked improvement with a significant decrease in tumor size.

**Results and Conclusion:** This case report provides insight into a rare presentation of MMM. Further investigation into the pathophysiology of MMM should be conducted to improve diagnostic approaches, early detection, tailored therapy and consequently, its outcome.

## **Poster #52: Point of Care Ultrasound: Rapid Diagnosis of Intrauterine Rupture in the First Trimester**

Tara Andrade OMS-II, Valerie Peña OMS-II, Sidney James DO  
California Health Sciences University College of Osteopathic Medicine

### **Abstract:**

This case report highlights the role of point-of-care ultrasound in promptly identifying an intrauterine rupture in the first trimester in the setting of an emergency department. This condition has challenging diagnostic nuances, potentially life-threatening outcomes and requires time-sensitive treatment. A 24-year-old pregnant female presented with abdominal pain and vaginal bleeding. Despite initial stabilization efforts, her condition deteriorated rapidly after experiencing an intrauterine rupture. POCUS successfully captured images of the abdominal cavity both before and after the intrauterine rupture. Before the intrauterine rupture, POCUS identified normal abdominal findings. After patient deterioration, POCUS identified the presence of free fluid and products of conception in the abdomen, indicating an intrauterine rupture had occurred. This discovery guided subsequent management decisions. This case highlights the ability of POCUS to expedite the diagnostic process, particularly in resource-limited settings. While acknowledging its limitations, including false-negative results, this case emphasizes the growing significance of POCUS in emergent situations showing significant promise in the delivery of timely intervention and improved patient outcomes.

## Poster #53: Development of a Novel Screening Tool to Identify Victims of Human Trafficking in Clinical Settings

Fatima Yusuf<sup>1</sup>, Likitha Aradhyula<sup>1</sup>, Akshay Sharma<sup>1</sup>, Dan Mortenson<sup>1</sup>, Gagandeep Mehrook<sup>1</sup>, JingBing Xu<sup>1</sup>, Genni Perryment, PhD<sup>1</sup>, Christopher Schaefer, D.O.<sup>2</sup>

1:California Health Sciences University College of Osteopathic Medicine, 2:Keweenaw Health

### Abstract:

Human trafficking (HT) is a growing concern throughout the United States, with a large and increasing population of victims lacking primary health care and reporting to emergency departments for treatment. Regionally, Central California is a major hub for human trafficking but has limited social service resources. The current problem being addressed is how to better identify likely human trafficking victims for the limited social service consults. Our hypothesis is that certain electronic medical record indicators can selectively identify victims with reduced false negatives compared to the status quo. The methods for this research project are to obtain data from a small cohort of known human trafficking victims (less than 20 patients) and control patients (between 100-500) that were admitted. We will quantify the false positive, false negative, and other statistical information for each variable both alone and in combination. The data will be provided as de-identified. There is no harm to the patient greater than normal daily activity. Moving forward, we want to conduct a retrospective chart review at Keweenaw Health to test if the curated identifiable factors accurately predict if a patient is an HT victim in a clinical setting. We plan to go through randomized patient files, note which patients are positive for the identifiable factors listed below, and note whether the patient was an identified HT victim.

## Poster #54: Wound Care Education for Non-Medical CHSU-COM Staff

Monica Le, Jennifer Tasarz, Rachel Kaneakua, Rosemarie Majdalani, Jonathan Lemus, Delfino Varela, Amalia Almeida

California Health Sciences University College of Osteopathic Medicine

### Abstract:

**Introduction/Background:** In healthcare, education and preventative measures play a pivotal role in patient well-being. In the setting of patients with chronic wounds from various etiologies such as diabetes or intravenous drug-use, ensuring that patients possess a fundamental understanding of wound care practices is essential for delivering comprehensive patient care. In response, we are introducing an educational pamphlet focused on wound care to equip patients with the knowledge and confidence necessary to identify various types of wounds, recognize early signs of infection, and understand when to seek medical attention. The educational pamphlet will first be given to non-medical CHSU-COM staff to ensure efficacy. We hypothesize that providing staff members with the infographic will lead to a significant improvement in their understanding and comfort with wound care practices. To gauge the intervention's effectiveness, we will conduct a pre-questionnaire assessment followed by a post-questionnaire immediately after the pamphlet's presentation. Additionally, a follow-up survey will be conducted in two weeks' time to evaluate the retention of information among staff members.

**Methods:** To create an educational pamphlet on various aspects of wound care, targeting non-medical CHSU-COM staff with the intention of eventual distribution to patients at local OMNI sites. Procedure involves researching and gathering information from reputable, primary sources, followed by designing the pamphlet using Canva for visual engagement and clarity. Pre-questionnaire development aims to assess staff members' baseline knowledge on wound care, while post-questionnaire development seeks to evaluate the knowledge gained after reviewing the pamphlet. Acquisition of participants involves sending pre-questionnaires and distributing the educational pamphlet via timed Google form, with subsequent administration of post-questionnaires immediately and two weeks post-pamphlet review to assess retention of information. Data analysis of questionnaire response include using statistical methods to quantify knowledge improvement and assess the pamphlet's impact on wound care education among non-medical CHSU-COM staff. Additionally, an incentive scheme involving a gift card raffle will be implemented to encourage participation and timely completion of the surveys.

**Intended Results:** Although data has not yet been collected, we intend to utilize a survey consisting of one Likert Scale and nine multiple-choice questions written at a fifth-grade level. Our first question will be utilizing the Likert Scale to assess confidence of the participant's knowledge in wound care. The remaining nine multiple-choice questions will assess the knowledge of wound care using the pamphlet we created. Once data is collected, we would measure if confidence shifted pre- and post-survey with a paired sample t-test, as well as measure if wound care knowledge was retained across our participants.

**Conclusion:** The goal of evaluating non-medical CHSU staff's knowledge regarding wound care before and after receiving an educational pamphlet is to observe a tangible enhancement in staff members' confidence and proficiency in wound care, which can directly translate to improved patient outcomes in clinical settings. By fostering a culture of continuous learning and empowerment among future patients, we aim to enable patients to exert greater autonomy over their own health. Through this study, we aspire to establish a precedent for utilizing educational materials effectively within healthcare deliveries, with the hope that similar strategies can be implemented to address various healthcare challenges in the future.

# Poster #55: A Critical Review of Established Neurological Advantages of Caffeine Consumption

Steven Chuh, Manan Thaker, Richard Panganiban, Alvaro Pinto MD/PhD, Edward Merino PhD, Gisou Mohaddes PhD (CHSU-COM)

## **Abstract:**

Caffeine is a widely consumed stimulant present in coffee, tea, chocolate, and energy drinks. Not only does caffeine improve mood and relief from headaches, but also it is linked to reduction of risk strokes, Parkinson's, and Alzheimer's. Conversely, its prolonged use can lead to physical dependence and chemical alterations in the brain. Caffeine intoxication and withdrawal are known but notably, caffeine addiction is not recognized in the DSM-5. Caffeine overdose have been documented and includes symptoms ranging from restlessness and tremors to death.

This poster review ventures into the intricate interplay between caffeine consumption and neurological function including its role in sleep, stress, meditation, and neurodegenerative diseases. Beginning with exploring the brain's adenosine functions and the mechanism of action, this study critically examines how caffeine impacts the nervous system. The discussion unfolds by elucidating the relationship between sleep and memory consolidation, detailing the stages of sleep and their significance for cognitive processes. Following this, the analysis explores the effects of caffeine consumption on sleep architecture, highlighting its potential to disrupt sleep patterns and obstruct memory consolidation. Further, the study examines the long-term consequences of excessive caffeine consumption on sleep quality and its implications for neurological health. Subsequently, the analysis examines the impact of caffeine on the hypothalamus-pituitary-adrenal (HPA) axis, stress response, and the intricate relationship between caffeine consumption and stress-induced sleep disruptions. Next, the review considers the interplay of caffeine and meditation on the nervous system. While meditation promotes relaxation and physiological calmness, caffeine exerts its effects through central nervous system stimulation, raising questions about the compatibility of caffeine consumption with meditation practices. Likewise, the review critically investigates the neuroprotective effects of caffeine, particularly its prospective role in mitigating neurodegenerative diseases such as Alzheimer's and Parkinson's disease. Acknowledging the promising findings, the authors raise critical questions about the tangible achievement of such studies.

In conclusion, this review underscores the need for a nuanced understanding of the effects of caffeine on neurological function, considering its potential benefits alongside its adverse impacts on sleep, stress response, and cognitive function. It calls for a supplementary examination of caffeine's exact role in sleep duration and quality based on its immediate daily effect and lifelong chronic use.



## Poster #56: Watch your Step: Acral Lentiginous Melanoma masquerading as Fungating Mass

Ghufran Quresh MD; Pauldeep Mann DO; Jasvir Singh MD; Mustafa AlSharafi, MD; Umer Hayyat MD

Sierra View Medical Center GME

### Abstract:

**Introduction:** Acral lentiginous melanoma (ALM) is an uncommon subtype of melanoma found in nails, palms, and soles that often results in poor prognosis due to due delays in diagnosis (Zell). ALM typically presents as a pigmented papule with irregular borders with variegated pigment, which may become large, exophytic and nodular with black-blue pigmented areas (Soon). Thus, ALM may be mistaken for other dermatologic conditions including warts, fungal infection, traumatic wounds, pyogenic granulomas, and hematomas (Soon). Given the challenges of early detection and the relatively worse prognosis, this case report highlights the importance of early screening and treating of ALM. We present a case of a 61 yr old male who presented with a fungating mass on his right heel, pathology confirmed malignant acral melanoma.

**Case presentation:** 61-year-old male with a past medical history of bronchitis presented to the ED with a fungating mass on his right heel. The patient reported that 1.5 years prior to this hospitalisation, he hurt his foot and developed a small fluid-filled blister on his right heel, following a hiking incident. The patient did not seek medical attention and tried home remedies. Overtime it had progressed to mimic a mushroom like mass with a sausage patty texture. It was tender in the middle and would frequently bleed to the point that it would be hard to take off his shoes as the sole would stick to his foot due to coagulated blood. 7 months prior, he got Myiasis in his foot and tried hydrogen peroxide wash. At the time of presentation, the mass gave out a rotten odor and swelling of right lower limb, which urged him to seek medical attention. The only medical encounter of note is an ED visit for Sciatica, a year ago, CT of hip joint showed dislocated hip joint.

**Hospital course:** On admission the patient's WBC count was 15.8, ESR 88 CRP 10.3. He was started on empiric antibiotic therapy, vancomycin IV twice daily and cefepime 2 g IV twice daily, Tissue C/S grew *Proteus mirabilis* and *Staphylococcus simulans* and pt. was started on ciprofloxacin 500 mg twice daily based on sensitivity.

- CT imaging revealed a 7.2 x 4.9 x 2.6 cm soft tissue mass, likely solid tissue tumor. Numerous bilateral subcentimeter pulmonary nodules, suspicious of early pulmonary metastatic disease. 25 x 26 mm osteolytic lesion left femoral neck, suspicious of osseous metastatic disease.
- MRI of the cervical and thoracolumbar spine showed findings consistent with osseous metastatic disease involving C6, T9 to T11, L1-L3 as well as epidural tumor posterior to the L4-L5 disc space. MRI abdomen showed subcentimeter lesions in the liver which appear to be benign hepatic cysts. MRI brain was negative for metastatic disease.
- Pathology report showed malignant acral melanoma, pT4b. Maximum tumor size at least 45 mm. Melanoma cells are S100+, HMB45+, Melan-A+, CK5/6+.
- The patient received targeted radiotherapy to sacrum area as palliative measure. PD-L1 and foundation 1 markers have been ordered on the pathology, and pt. was discharged to Nursing home and followed up with Oncology.

**Discussion:** Acral lentiginous melanoma (ALM) is the least common subtype of melanoma, comprising only 2-3% of all melanomas (Hall & Rapini). ALM has a higher rate of occurrence in non-white populations who are less prone to UV-induced melanomas (Hall & Rapini). ALM typically presents on the palms, soles, fingers, toes, and nail units. In terms of site distribution, case series in skin of color populations report predominance of plantar over palmar melanoma (approximate ratio, 17:1) and of palmoplantar lesions over subungual lesions (approximate ratio, 4:1). ALM's are distinguished from cutaneous malignant melanomas (CMM) based on their strong association with nevi on the soles, prior penetrating injury, exposure to agriculture chemicals, and inverse association with smoking (Green et. al.).

Because acral melanoma is not caused by UV radiation, and due to the disproportionate distribution of the incidence of acral melanoma among people of color.

Because of the challenging nature of ALM, "CUBED" acronym for foot melanoma suggested by Dr. Ivan R Bristow et al

C Coloured lesions where any part is not skin colour.

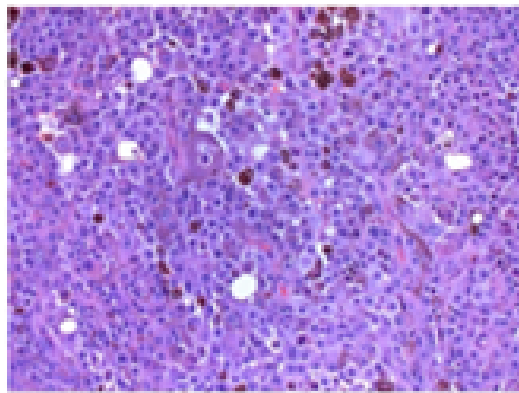
U Uncertain diagnosis.

B Bleeding lesions on the foot or under the nail, whether the bleeding is direct bleeding or oozing of fluid. This includes chronic "granulation tissue".

E Enlargement of a lesion or ulcer despite therapy

D Delay in healing of any lesion beyond 2 months.

For that reason, physician's diagnostic skepticism Rodarte should be on high alert to use the CUBED criteria for early referral of ALM cases to avoid any delay that can result in progression of the condition and metastasis.



# Poster #57: Reversal of Severe Dialysis Disequilibrium Syndrome in the ICU using IV Mannitol

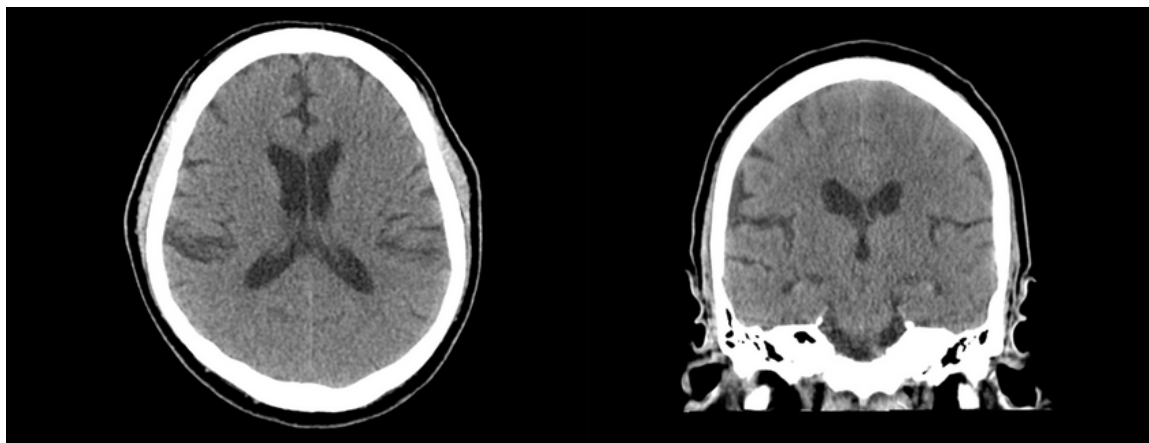
Kevin Lieu, MD and Akintunde M. Akinjero, MD  
Kaweah Health Medical Center

## Abstract:

**Introduction:** Dialysis disequilibrium syndrome is a rare neurologic constellation of symptoms that shortly follow starting dialysis, especially if the patient is dialysis-naïve. It occurs due to the rapid correction of electrolytes and removal of urea, which alters the osmotic gradient, leading to cerebral edema and neurologic manifestations. Our case report describes a patient who required first-time dialysis due to acute renal failure. He subsequently developed fixed, dilated pupils and absent gag reflex within 2 hours of initiating dialysis. He was treated supportively in the ICU with IV Mannitol and was able to make a full neurologic recovery.

**Background:** There are over 700,000 patients with endstage renal disease (ESRD) in the United States, with most receiving hemodialysis. With initiation of hemodialysis, there is a small risk of Dialysis Disequilibrium Syndrome (DDS). Mild symptoms of DDS may not be recognized since patients may mistaken these with expected symptoms of receiving hemodialysis. These include headaches, nausea, vomiting, dizziness, disorientation, and confusion. More severe symptoms include seizures, coma, and even death.

**Case report:** A 52-year-old male with a history of type 2 diabetes, hypertension, chronic kidney disease presents to the emergency department by ambulance for shortness of breath. He arrived with intact mentation, but with abnormal breathing patterns and bradycardia. Labs showed uremia, hyperkalemia, and metabolic acidosis, consistent with acute renal failure. The patient became progressively more confused and was intubated for airway protection. An emergent dialysis catheter was placed by the emergency physician and the patient was admitted to the ICU for severe metabolic encephalopathy secondary to acute renal failure. Later that evening: In the ICU, the patient was started on slow low efficiency dialysis (SLED). Within the next two hours, the bedside ICU nurse reported an acute change in the patient's neurologic exam. The patient's pupils became fixed and dilated bilaterally, with the right pupil completely blown. A gag reflex was not able to be elicited. A STAT CT Brain was ordered, which revealed mild decreased gray-white differentiation, concerning for cerebral edema (see images). SLED was immediately stopped. The patient was started on a bicarbonate drip to treat the severe acidosis and then given 25mg of IV Mannitol due to concerns of Dialysis Disequilibrium Syndrome since this was the first time the patient had been put on dialysis. The next several days: Day 1: The patient's acidosis resolved, so the bicarbonate drip was discontinued. The patient continued to require vasopressor medications due to hypotension. Day 2: The patient's blood pressure had normalized, so vasopressor medications were discontinued. The patient's pupils became reactive to light again and he was intermittently waking up through sedation. The patient received another dose of Mannitol 25mg IV and was restarted on SLED. Day 4: The patient was transitioned from SLED to normal hemodialysis. While sedation was turned off, the patient was able to follow commands. Day 6: The patient was able to be safely extubated. Day 7: The patient was downgraded to the medical-surgical unit. Several months later, the patient is functioning completely normally, with no reported neurologic deficits.



**Patient's Initial CT Brain showing mild decreased gray-white differentiation**  
**Coronal view of above scan**

**Discussion and limitation:** Due to how rarely Dialysis Disequilibrium (DDS) Syndrome is reported, it is not well-discussed in the literature and fewer reports of successful treatment of severe DDS exist. In our patient with acute renal failure, he required emergent dialysis in the hospital. However, he developed DDS, so dialysis had to be stopped. We treated his suspected DDS with IV Mannitol, since there have been a few reported cases of this successfully reversing DDS. Despite an initially worrisome neurologic exam, with an absent gag reflex and fixed, dilated pupils, our patient was able to make a full neurologic recovery. It is theorized that Mannitol acts as an osmolyte in the plasma, which can stop water from going through the aquaporins into the astrocytes as a result of the rapid removal of urea. This is a temporizing measure, which allows the body time to shift urea out of the astrocytes. Nevertheless, it is difficult to say with certainty whether the IV Mannitol was responsible for his full neurologic recovery or whether the cessation of SLED was sufficient. Since DDS is a spectrum of neurologic symptoms, further investigation of the role of IV Mannitol in both mild and severe cases of DDS will need to be done to determine its utility and role.

## **Poster #58: Vaccine literacy and hesitancy among parents and legal guardians of elementary school-aged children in two northern Indiana cities.**

Margaret Cicchiello<sup>1</sup>, Charles Robert Lichtenstern<sup>2</sup>, Reena Lamichhane-Khadka<sup>2</sup>

<sup>1</sup> Saint Mary's College, Notre Dame, IN

<sup>2</sup> California Health Sciences University College of Osteopathic Medicine, Clovis, CA

### **Abstract**

Parental refusal of childhood vaccines is a growing public health concern. Numerous reasons exist for this refusal, including religious, personal, and philosophical beliefs, and safety concerns. However, parental refusal of childhood vaccines is not simply an individualized problem for the family; this impacts herd immunity and affects the entire community. To improve vaccination rates among the pediatric population, understanding the thought process and decision-making behind parental opposition and refusal of vaccinations is essential. Using a survey developed to assess attitudes towards recommended childhood vaccines and the COVID-19 vaccine, this study examined the correlation between vaccine literacy and hesitancy among parents and legal guardians of elementary school-aged children in the Midwest. Responses were analyzed using Chi-squared tests on "R-4.1.1" software. Significant negative correlations were found between COVID-19 hesitancy and vaccine literacy, and resistance towards all vaccines and vaccine literacy. No significant negative correlations were found between hesitancy towards all vaccines and vaccine literacy, or hesitancy and literacy among different income and education brackets. Our results suggest that vaccine education may lessen vaccine hesitancy among parents and may be an essential factor in improving vaccination rates among the pediatric population.

## Poster #59: Cirrhosis and HCC associated with HCV and Treatment

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### Abstract:

Introduction: Cirrhosis and its progression to HCC is a major complication associated with HCV virus infection, with significant mortality and morbidity rate. TIPS is indicated to treat portal HTN leading to uncontrolled hemorrhage from esophageal or intestinal varices, or portal HTN gastropathy. Surgery to remove the tumor or a liver transplant are the best option for cure, if not an option 'atezolizumab plus bevacizumab' is recommended and if unable to receive bevacizumab, 'tremelimumab plus durvalumab' is an alternative. Surgery to remove the tumor or a liver transplant are the best option for cure, if not an option 'atezolizumab plus bevacizumab' is recommended and if unable to receive bevacizumab, 'tremelimumab plus durvalumab' is an alternative.

**Case Presentation:** Patient is a 63-year-old F with PMH of HCV 2/2 blood transfusion in 1980's, portal HTN 2/2 cirrhosis diagnosed with HCC, well differentiated.

Labs: Hemoglobin 6.0, hematocrit 19.6, MCV 91, platelet 62, total bilirubin 1.4, AST 64, ALT 49, ALP 99, LA 5.5, Total protein 4.3, Albumin 2.2, Globulin 2.1

EGD: Esophageal varices with bleeding, active bleeding from one of the varix in the distal esophagus, 3 band ligator's applied. (Fig a & b)

CT Chest/Abd/Pelvis: Enhancing lesion right lobe of the liver, 35x34mm, cirrhosis, portal HTN, extensive para-aortic paracaval lymphadenopathy

Pathology biopsy report: HepPar1(+), MOC-31(-) and CK7(-)

Pathology biopsy report: HepPar1(+), MOC-31(-) and CK7(-)

**Hospital course:** Patient presented with hemorrhagic shock 2/2 variceal bleed, required pressor support with norepinephrine drip, was sedated, intubated and admitted to ICU. She was also transfused 4 units PRBC and 1 unit FFP. She was started on octreotide drip and IV Protonix for bleeding, IV ceftriaxone for SBP prophylaxis, IV Lasix and spironolactone for anasarca. Band ligations were done for visible fragile varices during EGD. Once off the pressors, she was downgraded to telemetry unit. However, her hospital stay was complicated with bleeding even after band ligation, and was planned to transfer to higher center for TIPS placement, but later she was stabilized on medical management and discharged home to be F/U by oncologist and hepatic transplant center.

**Discussion:** Atezolizumab is a humanized monoclonal antibody immune checkpoint inhibitor that selectively binds to PD-L1 and blocks inhibitory signals related to T-cell activation. (Fig. A) Bevacizumab acts by selectively binding circulating VEGF to its cell surface receptors, leading to a reduction in microvascular growth of tumor blood vessels and thus limits the blood supply to tumor tissues. (Fig. B) Patient was initially on atezolizumab plus bevacizumab infusion, later switched to and currently on tremelimumab plus durvalumab. Patient is being evaluated for placement of TIPS at Fresno due to uncontrolled hemorrhage 2/2 variceal bleed and portal hypertensive gastropathy leading to multiple units of PRBC and platelets transfusion, octreotide infusions and endoscopic band ligations in the recent past.

**References:** 1. Ginès, Pere et al. "Liver cirrhosis." *Lancet* (London, England) vol. 398,10308 (2021): 1359-1376. doi:10.1016/S0140-6736(21)01374. 2. Schwartz, M et al. "Treatment of HCC in patients awaiting liver transplantation." *American journal of transplantation : official journal of the American Society of Transplantation and the American Society of Transplant Surgeons* vol. 7,8 (2007): 1875-81. doi:10.1111/j.1600-6143.2007.01863

# Poster #60: Pathological Consequences and Potential Therapeutic Applications of NADPH Oxidase Inhibitors

Chesna Pokharel and Eddie J Merino

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## **Abstract:**

NADPH oxidases (NOXs) are an enzyme family that produce reactive oxygen species (ROS) functionally to aid in signaling and other biological processes. The NOX family is comprised of seven isoforms: NOX1, NOX2, NOX3, NOX4, NOX 5, DUOX1, and DUOX2. The NOX enzymes are each distributed throughout different sets of tissues. Dysregulation contributes to an increase in ROS and oxidative damage--correlating with a variety of pathologic conditions such as cardiovascular disease, respiratory disease, and cancers. This paper explores the role of increased NOX expression and dysregulation in disease progression as well as the potential for NOX inhibitors to serve as therapeutic interventions.

This poster focuses on the NOX family of enzymes. Of note, NOX2 is the most well-studied member of the family owing to its core immunological function. This review will detail other members of this family of enzymes. In this poster we will initially review the biological function of several NOX members including tissue distribution, cellular biology, and associated proteins. We then review specific conditions correlated with NOX dysfunction. Finally, we discuss therapeutic applications and recent trails of NOX family inhibitors.



## Poster #61: Rare Presentation of Primary Poorly Differentiated Brain Neoplasm

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### **Abstract:**

Primary brain tumors are considered relatively rare. Most cases of brain tumors consist of metastatic disease from the lung, breast, colon, and kidney. The most common primary brain tumors include meningiomas, glioblastomas, and astrocytomas. Brain tumor presentations depend on location, but the most common symptoms include headaches, seizures, nausea, and vomiting. Papilledema, headaches, and vomiting are usual signs of elevated intracranial pressure. We present a rare case of a possible primary brain tumor of unknown cell origin with some neuroendocrine markers. This case offers the diagnosis, presentation, and management of a patient with a brain tumor that has not been reported in past literature. In this case, we include this patient's initial workup, imaging, management, and follow-up of a poorly differentiated frontal brain neoplasm. A 64-year-old female with end-stage renal disease presented to the ED for a 5150, refusing dialysis treatment and acting as a threat to herself. Workup included CT head indicated right frontal mass with edema and left frontal lesion with calcifications. The patient was taken for a right-sided stereotactic biopsy. Biopsy results showed CD 45 - and CD 56 + cells staining significantly for possible neuroendocrine tumors. Final pathology indicated a poorly differentiated malignant neoplasm. Post-op, the patient was taken for a whole body PET scan, which was negative for any primary sites of tumor. The patient is currently being managed by radiation oncology. This report presents a unique presentation of a brain tumor. Work was done to find a cause and the initial management specific to the case.

## Poster #62: Improving Quality of Care for Pediatric Dysphagia: Bowel Cleanout Reduces Endoscopy Frequency

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### **Abstract:**

**Introduction and Background:** Limited data exist on the epidemiology and prevalence of various etiologies of pediatric esophageal dysphagia (PED). Esophagogastroduodenoscopy (EGD) is commonly used as the standard diagnostic procedure in pediatric patients with dysphagia to rule out potential etiologies like eosinophilic esophagitis (EOE). However, in cases where parental refusal of sedation leads to avoidance of EGD, there is a need to explore alternative diagnostic and management strategies. In this Quality Improvement (QI) initiative, we aim to investigate the impact of bowel cleanout and laxative therapy on dysphagia resolution and the reduction of EGD procedures in pediatric patients with esophageal dysphagia.

**Material and Methods:** Investigation began with a single case involving an 8-year-old female presenting with chronic dysphagia, weight loss, and caregiver refusal of EGD. Despite the absence of reported constipation, an abdominal X-ray revealed a large stool burden. Surprisingly, dysphagia resolved following bowel cleanout. Building on this observation, the current QI project was devised, comparing two groups: Group A (8 children undergoing EGD) and Group B (11 children undergoing bowel cleanout and laxative therapy). The primary outcomes assessed were the frequency of EGD procedures and resolution of dysphagia.

**Results and Conclusion:** In Group A, 8 children underwent EGD, resulting in the diagnosis of Eosinophilic Esophagitis (EOE) in one case. In contrast, Group B experienced resolution of dysphagia in 7 out of 11 cases; only 4 children underwent EGD, resulting in the diagnosis of EOE in one case. These findings suggest that in this small cohort, 80% of sedated EGD procedures could be reduced if bowel cleanout and laxative trials were implemented as the initial step in management. When utilized as a first-line approach in pediatric dysphagia cases, this project demonstrates that bowel cleanout and laxative therapy can lead to a remarkable reduction in the frequency of EGD procedures. This approach can enhance the quality of care for children with dysphagia, addressing caregiver concerns and minimizing the need for invasive procedures.

## Poster #63: The OCTN-related transporter SLC22A15 regulates carnitine, antioxidants and inflammatory cytokines in vivo

Patrick Zhang<sup>1,2</sup>, Kian Falah<sup>1</sup>, Bilgimol Chumappumkal Joseph<sup>3</sup>, Jeffry C. Granados<sup>4</sup>, Courtney MacMullen<sup>5</sup>, Ronald L. Davis<sup>5</sup>, Sanjay K. Nigam<sup>6, 7</sup>

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### Abstract:

**Introduction:** The Solute Carrier 22 (SLC22) family is perhaps best known as a family of “drug” transporters. OCT1, OAT1, and OAT3 are among the most important multi-specific drug transporters in the body. The SLC22 family of transporters can be separated into OATs (organic anion transporters), OCTs (organic cation transporters), OCTNs (organic zwitterion/carnitine transporters), and other less characterized subgroups, with OATs and OCTs receiving the majority of research interest.

**Methods:** Slc22a15-KO mice were generated at UF Scripps Biomedical Research. Serum samples were collected from mice (WT and Slc22a15-KO) and stored at -80 °C. Samples were then shipped to Metabolon (Durham, NC) on dry ice for untargeted metabolomic profiling. In this metabolomics analysis, 1022 biochemicals were detected utilizing Metabolon software. Intensity values were normalized and log transformed. Missing values were replaced with the lowest value of that metabolite in the corresponding group. Fold-change was calculated by Metabolon and their software.

**Results:** We analyzed the serum of Slc22a15-KO mice and compared them to WT counterparts through global untargeted metabolomics. Overall, 1022 individual metabolites were detected with this approach, with 244 being significantly altered ( $p \leq 0.05$ ) in the KO mice – with 200 being decreased and the remaining 44 being increased. Furthermore, 102 other metabolites trended towards statistical significance ( $0.05 \leq p \leq 0.10$ ). Previous phylogenetic, in vitro, and Drosophila investigations have suggested SLC22A15 to be a transporter with a potential affinity for carnitine and antioxidants. In Slc22a15-KO mouse serum, carnitine and 14 acyl and acetyl carnitine derivatives, varying in chain length, were significantly decreased ( $p \leq 0.05$ , fold-change  $< 1$ ) with fold-changes dropping as low as 0.40 (Figure 1). This change in carnitine metabolism was seen alongside a significant decrease ( $p \leq 0.05$ , fold-change:  $< 1$ ) of four TCA cycle intermediates (citrate, aconitate, succinate, and malate). Three others (isocitric acid, fumarate, and itaconate) trended towards significance ( $0.05 \leq p \leq 0.10$ ). Moreover, we report significant decreases ( $p \leq 0.05$ , fold-change  $< 1$ ) in the serum levels of 14 endogenous antioxidants -- including glutathione and ergothioneine.

**Conclusion:** Thus, our results suggest an in vivo relationship, in the Slc22a15-KO mouse, between low antioxidant capacity, impaired redox balance, and dysregulated inflammatory cytokines. It is unlikely that the hundreds of significantly altered metabolites are all transported by SLC22A15; although some are directly transported, many others may be altered as a result of downstream effects in biochemical pathways.

## Poster #64: Defeating the Invisible Foe - Exploring Novel Vaccine Strategies in Orthopedic Surgery

Lakshyaa Balakrishnan<sup>1</sup>, Reena Lamichhane-Khadka<sup>1</sup>

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### Abstract:

The prevalence of *Staphylococcus aureus* infections in the postoperative setting, particularly in joint arthroplasties, presents a persistent challenge worldwide. Despite the use of various antibiotic regimens as the primary treatment approach, the escalating antibiotic resistance displayed by *S. aureus* prolongs hospital stays and contributes to further medical complications. Thus, given the lack of efficacy of the current antibiotic prophylactic approach, there is growing promise in pursuing pre-operative vaccinations as a robust alternative to antibiotics. This review examines the efficacy of immunological interventions aimed at preventing postoperative *S. aureus* infections, with a focus on application of vaccines in reducing complications, hospital stays, and overall cost-effectiveness. Relevant articles were identified through keyword searches regarding the effectiveness of vaccination strategies for *S. aureus* infections in postoperative settings. Recent studies highlight the potential of a 4-antigen *S. aureus* vaccine SA4Ag, currently being evaluated in patients undergoing spinal fusion surgery. Early-phase studies have demonstrated the safety of this vaccine and its ability to induce significant bactericidal antibodies in patients prior to surgery. Additionally, *S. aureus* vaccine rFSAV (Olymvax), composed of 5 recombinant *S. aureus* antigens, has shown efficacy in targeting the bacteria's immune evasion mechanisms in mice experiments. Implementation of vaccine-based pretreatment modalities for surgical patients, even with vaccines demonstrating modest efficacy rates of 70%, could potentially prevent 127,364 cases of *S. aureus* infections and avert the deaths of 2,234 patients annually. While significant challenges remain in the development and implementation of human vaccines for *S. aureus* infections, vaccines offer a compelling alternative to improve operative outcomes and mitigate the risks, complications, and potential fatalities associated with *S. aureus* infections.

## Poster #65: Three Years of Population Health Projects from Physician's Role in the Health System (PRHS) at CHSU-COM

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### Abstract:

**Introduction:** The Central Valley is one of the most medically underserved regions of California. It is largely populated by vulnerable groups afflicted by high poverty and uninsured rates. Hurdles to healthcare include lack of access to care, shortage of physician and healthcare workers, and cultural barriers. These difficulties lead to high rates of chronic conditions, such as obesity, diabetes, and hypertension. Other notable health needs of the Valley include mental health disorders and Valley Fever (coccidioidomycosis), a fungal infection prevalent in the Central Valley.

At California Health Sciences University, College of Osteopathic Medical School (CHSU-COM), first- and second-year osteopathic medical students address population health concepts by engaging in a two-year course, Physician's Role in the Health System (PRHS). In this course, students learn about health systems and quality improvement, and implement the learned concepts into projects coordinated with local clinics and healthcare facilities. Through these projects, the students identify barriers to improve patient health outcomes while addressing health disparities and social determinants of health specific to the Central Valley. This review aims to classify, quantify, and assess the diversity of 3 years of population health projects from the PRHS program.

**Materials/Methods:** Abstracts from the Class of 2026 PRHS projects, past Research Day Brochures, and the CHSU Institutional Repository were analyzed and categorized based on the most common diseases in the Central Valley: diabetes, hypertension, cancer, obesity, COVID-19, and mental health.

**Results/Conclusion:** The distribution of population health topics in the PRHS projects was 36% for diabetes, 20% for hypertension, 14% for cancer, 14% for mental health, 7% for obesity, 7% for COVID-19, and 2% for Valley Fever. In the past 3 years, 65% of PRHS projects have addressed the Central Valley's topics with the highest demand for improvement by approaching the management of chronic diseases such as diabetes, hypertension, and obesity, and the public health issues affecting patients with these conditions. The remaining 35% of projects focused on cancer, mental health, and COVID-19. In the future, PRHS projects should further explore themes such as Valley Fever and substance abuse disorders to address their significant foothold in the Valley.

# Poster #66: Exploring Bacterial Decolonization as a Therapeutic Approach for Radiation Dermatitis

T. Pham, A. Nguyen,

California Health Sciences University College of Osteopathic Medicine

## Abstract:

**Introduction and Background:** Radiation dermatitis (RD) is one of the most common side effects of radiotherapy for cancer, affecting over 90 percent of patients receiving radiotherapy. RD presents a formidable challenge not only to cancer patients undergoing radiotherapy but also to healthcare workers and other professionals exposed to radiation in various settings. This condition can result in discomfort, compromised quality of life, and treatment interruptions. Emerging research suggests a promising avenue in bacterial decolonization (BD) as a novel strategy to address radiation-induced skin damage. This review examines the rationale for BD in treating RD and the potential to optimize outcomes in cancer radiotherapy (RT) and beyond.

**Material and Methods:** A comprehensive search of articles published between 2012 and 2023 was conducted sourced from the electronic databases PubMed, the National Library of Medicine (NLM), and Google Scholar. Search terms included “radiation dermatitis,” “radiodermatitis,” “bacterial decolonization,” and “prevention”. No search terms were directly excluded. A total of 10 articles were utilized.

**Results and Conclusion:** Y. Kost et al. studied cancer patients (n=76) and found patients with a higher baseline nasal level of *S. aureus* were more likely than patients with a lower level of colonization to develop RD grade 2 or higher (10/29 vs 6/47,  $p=0.02$ ).<sup>5</sup> Y. Kost et al. also treated cancer patients (n=77) with intranasal mupirocin and chlorhexidine body wash before and after RT. Less patients treated with mupirocin and chlorhexidine developed RD grade 2 or greater than patients treated with the standard of care (SC) (0/39 vs 9/38,  $p=0.001$ ). The mean graded RD score of treated patients (1.2, 0.7) was less than that of SC patients (1.6, 0.8,  $p=0.02$ ).<sup>1,4</sup> J. Layer et al. gathered responses from oncology specialists (n=244) regarding prevention and treatment of RD and there was no clear consensus for prophylaxis.<sup>6</sup> C. Dejonckheere et al. explored treating cancer patients (n=30) with non-invasive physical plasma (NIPP) and found NIPP is well tolerated by patients with no adverse reactions attributable to NIPP.<sup>3</sup> Follow on study of NIPP (n=64), found no significant difference ( $p=0.644$ ) between treatment group graded severity scores ( $0.79\pm0.64$ ) and placebo group graded severity scores ( $0.83\pm0.52$ ).<sup>2</sup> BD strategies show promise in preventing and managing RD by restoring skin microbial balance and enhancing resilience against radiation-induced injury. While further research is needed to optimize protocols and clarify mechanisms, current evidence suggests potential benefits in reducing the severity and incidence of radiodermatitis.

## **Poster #67: The effect of the pharmaceutical inhibition of DNA Topoisomerase I on seizure sensitivity in *Drosophila melanogaster***

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### **Abstract:**

Epilepsy is the most common chronic brain disease, and there are 50 million people worldwide who have epilepsy. There is no cure, and the current anticonvulsants are not universally effective. Additional studies are needed to produce better and more effective treatments. *Drosophila melanogaster* provides an excellent model and tool to study epilepsy due to the low cost of maintenance, simplicity, and flexibility of their genetic makeup, and rapid reproduction time. They are also able to exhibit complex behaviors similar to humans, such as learning and memory. This study aims to induce acute seizures to test the persistence of a DNA Topoisomerase I inhibitor drug and monitor locomotion, learning, and memory. The use of a negative geotaxis assay, which focuses on the climbing behavior of *D. melanogaster*, allows the characterization of changes in locomotion after a recovery period from the seizure and drug feeding. With this, we found that the use of a DNA Topoisomerase I inhibitor reduces seizure sensitivity in *Drosophila* as they had quicker recovery periods from seizures based on their climbing behaviors. The significant findings from this research will contribute to improving therapeutics for epilepsy by demonstrating that the inhibitor drug could play a role in helping improve post-seizure behavior.

## **Poster #68: Mental Health Education for Patient Population at UHC-Bullard**

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### **Abstract:**

The patient population at United Health Centers (UHC) Bullard in Fresno experiences barriers to seeking mental health resources such as lack of awareness regarding available resources, cultural stigma, financial constraints, lack of transportation, shortage of mental health providers, language barriers, and lack of education. In the present study, a brochure and resource list was administered along with a pre-reading and post-reading survey. Our goal was to determine patients' prior knowledge of mental health resources, as well as to assess the effectiveness of the brochure in helping patients become more comfortable utilizing mental health resources. This three-phase study utilized a quasi-experimental research design in order to determine if there was a causal relationship between an educational brochure and patient resource utilization. Data analysis of the survey responses showed that the brochure and resource list did not significantly change patients' comfort level in using mental health resources. The lack of human interaction, and personalization that an online/paper brochure and survey create presents a possible limitation to the impact our research can have on the UHC-Bullard patient population. Mental health providers could utilize the brochure and resource list as an adjunct to their mental health therapy rather than as an independent resource.



## Poster #69: Correlation of patient hemoglobin A1c and C-peptide as a function of time and treatment

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### Abstract:

Type 2 diabetes mellitus (T2D) is increasingly prevalent and burdensome, affecting 1 in 10 people in the United States and approximately 49% of all adults in Fresno County as of 2016. T2D pathophysiology is characterized by insulin resistance, resulting in excessive stimulation of pancreatic beta cells to secrete both insulin and C-peptide as part of the body's compensatory response. This strenuous effort leads to beta cell failure, thus causing a gradual decline in insulin and C-peptide production as T2D symptoms and associated complications arise. Currently, glycated hemoglobin A1c (HbA1c) serves as the current biomarker of pancreatic beta cell function due to its ability to reliably measure chronic hyperglycemia. However, in long-standing T2D, monitoring C-peptide levels may provide a more precise and predictable measure of T2D progression. Bautista Medical Group clinics have been collecting semi-annual C-peptide levels in compliant patients for decades, and by using retrospective lab results, we aim to identify a statistically significant correlation between HbA1c and C-peptide as a function of time and treatment in T2D patients with the goal of determining whether C-peptide can serve as a valuable biomarker to continuously monitor throughout diabetic management of long-term glycemic control.

Data will be obtained and analyzed categorically based on established criteria: 18- to 60-year-old T2D patients with at least 5 years of medical history at Bautista Medical Group clinics and at least 2 lab results with both HbA1c and C-peptide levels. Data analysis will aim to determine if a correlation between HbA1c and C-peptide levels in T2D patients exists. By the conclusion of our study, we will determine if continuous C-peptide monitoring offers beneficial information, and then establish its correlation to HbA1c in T2D patients and determine whether it will be low and independent of time since diagnosis. Improving T2D staging will provide a more individualized approach to management, thus enabling healthcare providers to deliver better outcomes for T2D patients.

## Poster #70: Implementing LGBTQ+ Patient Care Education to Osteopathic Medical Students

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2: Department of Public Health, California State University, Fresno, CA

### Abstract:

**Purpose:** Quality healthcare for the LGBTQ+ population requires specific knowledge regarding this community to address their medical needs sufficiently. Current medical education in the United States lacks a formal curriculum for educating students to care for LGBTQ+ individuals. Therefore, additional training regarding LGBTQ+-specific terminology, health concerns, and health disparities is needed so that future physicians can be competent when caring for this population. This study sought to determine whether a one-hour LGBTQ+ healthcare educational session with medical students would significantly improve their self-assessed basic knowledge and clinical preparedness for their future LGBTQ+ patients.

**Methods:** Second- and third-year medical students attended a 50-minute-long LGBTQ+ healthcare information slide presentation. Students completed an anonymous 10-question survey that was administered both before and after the education session to assess for a change in clinical preparedness and basic knowledge of LGBTQ+ healthcare among participants. The survey collected information from participants about their graduation year and LGBTQ+ identity and assessed their basic knowledge and clinical preparedness to care for LGBTQ+ patients using a 5-point Likert scale. The internal consistency reliability of the survey was analyzed using a Cronbach-alpha test, and a Mann-Whitney U test was used to compare pre- and post-survey responses.

**Results:** Survey respondents included individuals who identify as LGBTQ+ and those who do not. There was a statistically significant increase in basic knowledge and clinical preparedness to care for the LGBTQ+ community when comparing pre- and post-survey results. The most significant educational improvement related to clinical readiness in caring for transgender patients.

**Conclusions:** Students who participated in the educational session showed a statistically significant increase in their knowledge of LGBTQ+ healthcare and their confidence and preparedness to care for this population in a healthcare setting. This study also demonstrated that educational interventions such as these can be an effective way to bridge the current knowledge gap on the topic of LGBTQ+ healthcare.

## Poster #71: Developing a Survey to Identify Barriers in Obese Pediatric Patients in a FQHC

K. Bishop, R. Duong, Y. Huang, S. Choi, M. Melgarejo, A. R. Basa, M. Torres, MS, RDN, A. Nijjer-Sidhu, PhD, MS, RDN

California Health Sciences University, College of Osteopathic Medicine, Clovis, CA

### **Abstract:**

Nationally, studies have found high attrition rates for pediatric patients that were diagnosed with childhood obesity based on their BMI. Our study is aimed at investigating any procedures currently in place at Omni Health, an FQHC, that are contributing to higher attrition rates of well child visits. Our study will focus on determining whether there are certain demographics that predispose a patient to being non-compliant with their treatment plans and wellness visits after the diagnosis and how certain clinic procedures could improve or worsen these statistics. Our study population will include members from Fresno County, CA (75.7% white, 54.7% Hispanic or Latino, 11.6% Asian, 5.9% Black or African American). Patients and families were recruited via a stratified random selection process that balances the population based on gender, age and race. Our study will measure quantitative variables such as height, weight, and age, as well as qualitative data including cultural idiosyncrasies and parental opinions concerning ease of complying to program treatment protocols and schedules. The survey will collect the aforementioned data from pediatric patients and their families. The survey will be administered verbally, over telephone, to patients who have missed their wellness clinic appointment for the year. Informal consent will be collected by informing them what exactly will be recorded as well as asking the patient for consent. The answers will be recorded verbatim and translated/documented to a smartsheet. There will be a total of 10 questions on the survey and the questions will be categorized as follows: 5 questions addressing patients and their family's own knowledge of BMI and clinical relevance, 2 questions about reasons for missing recent appointments, and 3 questions about socioeconomic background.

In this study, the data will be aggregated and applied against our hypothesis. The survey is currently being piloted at the OMNI Health Corporate Office in Fresno. We have found the response rate to be approximately 20% and the questions have been well understood by the patient population so far during the pilot period. The data collection will continue until January 2025. At which point, the data will be interpreted and presented with results and possible solutions for the clinic to adopt to lower the attrition rate of their obese pediatric population.

# Poster #72: Post-TBL Faculty Reflection: Bridging Pre-Work Content to In-Class Outcomes

Peña OMS-II, Tara Andrade OMSII, Minoo Rafati OMS-II, Naiomi Desai OMS-II, Rouby Mavyan MS, PhD, Alavado Pinto MD, PhD  
California Health Sciences University - College of Osteopathic Medicine

## Abstract:

**Introduction:** Team-Based Learning (TBL) has revolutionized large-class education with its interactive, structured approach. At California Health Sciences University, College of Osteopathic Medicine (CHSU-COM), TBL has been a cornerstone teaching methodology. However, effective TBL implementation requires ongoing reflection and adaptation by both faculty and students. A key aspect is aligning in-class outcomes with pre-work content, ensuring continuous improvement. This study examines the impact of TBL application exercises on student learning and subsequent adjustments to pre-work materials. **Methods:** A collaborative effort involving four CHSU-COM second-year medical students, the Office of Academic Affairs and Assessment director, and a faculty member aimed to explore innovations around a TBL activity. Students were tasked with creating an application exercise for the Endocrine Reproductive Medicine (ERM) course. Their challenge included designing PowerPoint slides integrating relevant topics and crafting clinical vignettes with histological and embryological questions. **Results:** Evaluation of student performance revealed strengths in understanding neoplasm morphology and basic ovarian histology. However, a significant portion struggled with correlating embryological origins with differentiated structures, indicating a gap in comprehension. **Proposed modifications** to pre-work materials aim to address this, ensuring better integration of embryology concepts with clinical scenarios. **Discussion:** This study underscores the importance of faculty engagement and continuous improvement in TBL pedagogy. Challenges in teaching effectiveness, whether due to limited or excessive familiarity with the discipline taught, highlight the need for tailored feedback and ongoing professional development for educators. By leveraging student feedback and assessment results, educators can refine content delivery, ensuring comprehensive coverage of learning objectives and enhancing teaching competency.

Students performed well in the Application Questions #1 and #2.



Application Question #2 was the most challenging for the students.



Almost half of the class chose the incorrect answer E.



**Version 2024: Mullerian duct epithelium and ovarian neoplasm epithelium**

Upon revisiting the pre-work, I realized I added arrows to the uterine diagram and included histological images without effectively linking the locations with the epithelia. I also did not explain using text that the cuboidal epithelium of the ovary differentiates into the same types of epithelia that line internally the Muller Duct and the uterine to form ovarian tumors.




**Version 2025 (modified slide to be presented next year): Mullerian duct epithelium and ovarian neoplasm epithelium**

- During embryogenesis, the surface cuboidal epithelium of the ovary (ovarian surface epithelium) arises with the epithelium that lines the Mullerian duct.
- The Mullerian duct gives rise to the female genital tract and the epithelium covering the mucosa of the fallopian tube, endometrium, and endometrium.
- Epithelial ovarian tumors derive from the surface cuboidal epithelium of the ovary, which can differentiate into Serosa or Endometrium.
- Tumors containing simple columnar epithelium representing the fallopian tube epithelium are classified as Serosa Tumors.
- Tumors containing simple columnar epithelium representing the endometrium epithelium are classified as Endometrial Tumors.
- Tumors containing mucin-producing simple columnar epithelium like the endometrial epithelium are classified as Mucinous Tumors.




## **Poster #73**

Akashdeep S. Khahera, MD  
Sierra View Medical Center GME

### **Abstract:**

Abstract Not Submitted

## **Poster #74**

John Asenjo, DO

Adventist Health Residency Program

Abstract:

Abstract Not Submitted

## **Poster #75**

Dr. Khaing Khaing Win

Adventist Health Residency Program

Abstract:

Abstract Not Submitted

## Poster #76: Identifying Barriers in Recording Home Blood Pressure in Patients with Diabetes Mellitus

Narindebir Singh, Cameron DeLaere, Tiffany Nguyen, Brandon Nguyen, Brynn Appelman, Alexa Truong Daniel Sepulveda, Sudhakar Pemminati PhD, Rosa Manzo PhD  
California Health Sciences University - College of Osteopathic Medicine

### **Abstract:**

A 2020 study conducted in the United Kingdom of 76 general practices, including 622 patients, examined the efficacy of combining self-monitoring blood pressure with guided self-management. Digital intervention provided feedback of blood pressure [BP] results to patients and professionals, with optional lifestyle advice and motivational support. Data showed a greater decrease in systolic blood pressure changes when patients received a combination of self-monitoring with digital intervention opposed to patients that did not receive digital intervention. Based on the information and research we have gathered, we hypothesize that there are barriers hindering the patient population with diabetes from reporting their home BP measurements. Despite having access to BP monitors, patients are reluctant to report their daily BP readings due to potential occupational barriers, lack of understanding/education, or shame around their health. By working with a sample size of 100 patients with diabetes, we aim to identify these barriers through a survey with of nine questions. We will present the methods for this research project.



# Poster #77: An Analysis of Barriers to Cervical Cancer Screenings in the Central Valley

Jaya Harrell, Ariana Vivian, Gabriella Heitmann, Vidushi Razdan, Justin Flores MHS, PA-C, Aneet Grewal, Manvir Sandhu, Roy Demeter, Alvaro Pinto MD, PhD, Avtar Nijjer-Sidhu PhD, RD  
California Health Sciences University College of Osteopathic Medicine

## Abstract:

A literature review was performed which found that many patients with cervixes face financial, cultural, and language barriers when accessing cervical cancer screenings<sup>1</sup>. The most significant concerns reported by patients regarding access to cervical cancer screenings are often cost related<sup>2</sup>. Women born outside the United States were twice as likely to have never received a pap smear<sup>3</sup>. It has been suggested there is a negative correlation between limited English proficiency and obtaining cervical cancer screenings<sup>4</sup>. EMR data was gathered on patient demographics to establish which of the barriers discovered through literature review may be affecting their care. SMART AIM: By April 2024, identify the barriers faced by patients with cervixes in a FQHC in the Central Valley when receiving pap smears via analysis of electronic medical records (EMR).

## Literature Cited

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2. Strelow B, O'Laughlin D. Barriers to cervical cancer screening among immigrants. *JAAPA*. 2022;35(3):23-27. doi:10.1097/01.JAA.0000819564.35151.0a
3. Vahabi M, Lofters A. Muslim immigrant women's views on cervical cancer screening and HPV self-sampling in Ontario, Canada. *BMC Public Health*. 2016 Aug 24;16(1):868. doi: 10.1186/s12889-016-3564-1. PMID: 27557928.
4. Biddell CB, Spees LP, Smith JS, Brewer NT, Des Marais AC, Sanusi BO, Hudgens MG, Barclay L, Jackson S, Kent EE, Wheeler SB. Perceived Financial Barriers to Cervical Cancer Screening and Associated Cost Burden Among Low-Income, Under-Screened Women. *J Womens Health (Larchmt)*. 2021 Sep;30(9):1243-1252. doi: 10.1089/jwh.2020.8807.

# Poster #78: Comparing Graft Site Morbidity in ACL Reconstruction with QT VS. BPTB Autografts: A Systematic Review with Meta Analysis

Joshua Karron OMS III, Peter Ciari OMS I, Jillian Day OMS I, Edward Merino PhD  
California Health Sciences University – College of Osteopathic Medicine

## Abstract:

**Background:** Anterior Cruciate Ligament (ACL) reconstruction is one of the most common surgical procedures in the field of orthopedic surgery; this is especially true in younger athletes. Injury to the ACL commonly occurs during load-bearing activities that involve a sudden change in direction, side impacts, or twisting. Loss of ACL function leads to instability, which allows the femur to slide freely posteriorly on the tibial plateau. ACL reconstruction is done using either an autograft or allograft to create a new source of stability between the femur and tibia. In this study, we chose to evaluate two autografts, the Quadriceps Tendon (QT) and the Bone Patellar Tendon Bone (BPTB) graft, in a comparison of graft site morbidity between the two. Graft site morbidity is defined as the damage to the anatomic region from which the graft was harvested. To evaluate this, we conducted a systematic review with the intention of performing a meta-analysis comparing anterior knee pain, return of extensor function, hypoesthesia, and kneeling test results.

**Methods:** For our systematic review and meta-analysis, we have adopted the Population, Intervention, Comparison, Outcome (PICO) model and are using the Cochrane Handbook as our guidelines. Our systematic review yielded 31 existing papers and studies that met our inclusion criteria or offered background information for the topic. Our inclusion criteria state that each study must have a population age range of 18-65, have an identified distribution of male and/or female patients, must specifically provide data related to graft site morbidity that can be quantified and compared, and a minimum of 12-month follow up conducted with the patients. We plan to use R to analyze the collected data for statistical differences in the aforementioned categories. Our goal is to keep our findings transparent so that our work can be replicated.

**Expected Results:** We expect our results to show a difference between the QT and BPTB grafts with respect to graft site morbidity. Our early findings show that each method of grafting is similar in efficacy, outcomes, and return to play based on extensive pools of existing research; however, we believe there are differences with respect to graft site morbidity that may indicate either graft could be superior depending on the selection of factors we hope to explore.

**Discussion:** Our primary question is “how do QT and BPTB Grafts compare to one another when considering graft site morbidity?”. Our goal is to determine if there is a significant difference in any of the categories we evaluate. Based on those findings, we will discuss the need for a standardized scale for evaluating graft site morbidity and how to utilize this information in determining graft choice for patients.

## **Poster #79: Now You See Me: A Novel Approach to Multiprobe Core-Shell Microgel Synthesis with One-Step Clickable Cores and Ultralow Crosslinked Shells**

Chelsey Nguy,<sup>1,2</sup> Maria Huang,<sup>1</sup> Jacky Huang,<sup>1</sup> Molla Islam,<sup>2</sup> Sanika Pandit,<sup>2</sup> Louis Andrew Lyon<sup>2</sup>

<sup>1</sup> California Health Sciences University College of Osteopathic Medicine, Clovis, CA

<sup>2</sup> Chapman University, Orange CA

### **Abstract:**

The research at Chapman University aimed to develop core-shell microgels with a swift labeling ability for the core with various fluorophores, while maintaining the requisite softness of the shell for specific biomedical uses. The study synthesized azide-containing crosslinked core particles from crosslinked poly(N-isopropylacrylamide) via a one-pot, multistep polymerization process. Subsequently, a core-shell microgel was created by growing a crosslinker-free poly(N-isopropylacrylamide)-co-acrylic acid (ULC10AAc) shell through a two-step seed and feed polymerization method. The study also demonstrated a straightforward "click" reaction between the azide on the core and dibenzocyclooctyne (DBCO)-containing fluorophores to produce dyed core-shell microgels. This method eliminates the challenge of cross-reactivity between chemoligation sites localized in the shell and functionalities localized in the core. Furthermore, by using strained-ring systems for the click reaction, the need for cytotoxic catalysts commonly used in traditional click chemistry is obviated. This innovative approach not only facilitates the labeling of microgel cores with various fluorophores but also enables the synthesis of multiprobe core-shell microgels by simultaneously labeling a microgel core with multiple different fluorophores.

# Poster #80: Thyrotoxicosis associated with Leukopenia in Graves' Disease: A case report and review of medical management

Chhaya Makhija, MD, DipABLM; Megha Bhalla, Skylynn Thangwaritorn  
California Health Sciences University College of Osteopathic Medicine, Clovis, CA

## Abstract:

Leukopenia is characterized by a low white blood cell count (WBC) and, is an uncommon manifestation of hyperthyroidism associated with Graves' disease, affecting approximately 10% of patients. The dilemma arises in choosing antithyroid drugs for treatment, considering their rare adverse effect of agranulocytosis. We present the case of a 35-year-old female hospitalized for sinus tachycardia, leukopenia, and anemia, and diagnosed with new-onset hyperthyroidism. Blood work at the hospital revealed elevated thyroid stimulating immunoglobulin of 2.72 IU/L (TSI range 0.54 IU/L or less), TSH of <0.001 (normal 0.4 - 4mIU/L), elevated free T3 at 7.9 pg/mL (normal 1.3 - 4.5pg/mL), and elevated free T4 at 3.36 ng/dL (normal 0.8 - 1.8 ng/dL), accompanied by low white blood cell of 2.9 K/mm<sup>3</sup> (normal 4500-11,000/mm<sup>3</sup>), absolute neutrophil count 1,768/μL (normal 1,500 - 7,800/μL) and low hemoglobin of 7.6 gm/dL (normal female 12.1 -15.1 gm/dL). She was discharged with β-blockers and due to antithyroid drug contraindication, she was advised to pursue thyroidectomy. The patient desired medical management and was treated with low-dose methimazole at the endocrine outpatient visit with us. Hematology evaluation ruled out alternative causes of leukopenia. Gradual improvement ensued with methimazole therapy, improving thyroid hormone levels, and normalization of white blood cell count, and hemoglobin. This case challenges the perception of mild-moderate leukopenia as an absolute antithyroid drug contraindication, highlighting the potential for treating hyperthyroidism due to Graves' disease with antithyroid agent to normalize white blood cell counts. Awareness of this rare complication and consideration of antithyroid drugs in selected cases can offer a viable therapeutic option, providing valuable insights for clinicians managing hyperthyroidism complicated by leukopenia.

# **Poster #81: Deciphering the Hereditary Form of Colon Cancer: Analyzing the Reliability of *Drosophila melanogaster* as a Model Organism for Lynch Syndrome**

Nareh Azizian, Ximena Benitez, Eknoor Gill, Athena Logan, Stephanie Coffman  
Biology Department, Clovis Community College, Fresno, CA

## **Abstract:**

Colon cancer ranks as the third most common form of cancer globally, drawing significant attention from cancer research and healthcare sectors. Lynch syndrome, a genetic predisposition that can lead to colon cancer, is caused by mutations in the PMS2 and MLH1 genes. It can be particularly difficult to identify tumor-promoting genes and develop specific treatment plans for multigenic cancer models, like Lynch syndrome. However, researchers have explored an alternative avenue: employing the model organism *Drosophila melanogaster* to gain more insight into Lynch syndrome's pathogenic pathways.

*D. melanogaster*, commonly known as the fruit fly, serves as a valuable model organism for studying the human digestive system due to its structural and anatomical similarities to humans. In this study, we investigated the reliability of using *D. melanogaster* to further explore the pathogenic mechanisms underlying Lynch syndrome. Specifically, we focused on studying the expression of PMS2 and MLH1 orthologs in the *D. melanogaster* midgut.

# **Selected Podium Presentations for 2024 Research Day**

10 min Talks, 2 min for Questions

- 1) **Rehabilitation of Rapidly Progressive Transverse Myelitis in the Setting of Benign Paroxysmal Positional Vertigo: A Case.** Alan Faulks, Elora Mallick, Duc Chung MD.
- 2) **From Blisters to Unraveling the Purple Plight: IgA's Unpredictable course in an Elderly Male.** Sharanya Thiagarajan, MD; Armine Martirosyan, MD; Rohin Dhir, MD; Aram Gabrielyan, MD; Nirupama Vemuri, MD
- 3) **Benefits and Risks of Medications Used in the Management of Hypotension: A Review.** Skylynn Thangwaritorn, Abel Thomas, Christopher Lee, Suliman Ghafary, Dominic Rivera, Joel Varughese, Zeyu Yu, Sudhakar Pemminati
- 4) **Polatuzumab-vedotin and Advanced Stage 3 Diffuse Large B Cell Lymphoma.** Samantha Limvalencia, MD; Dennis Turnbull, DO; Nashwan Obad, MD
- 5) **Integration of Point-of-Care Ultrasound in Vaccination Education and Training of Osteopathic Medical Students: a Pre-Post Intervention Study** by Charles Lichtenstern, Abel Thomas, Lilian Reddivalam, Brandon Book, Emily Yan, Patrick Bagumyan, Mohammad Rahman, Jonathan Terry DO, Sundeep Grewal DO.

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